

Findings of the Town of Columbia Solar Energy Facilities Law Working Group

1. The Town of Columbia is a rural Township characterized by many and diverse natural areas, geological features, and habitats that support a large variety of wildlife and vegetation: large and small mammals, herps, pollinators, year-round and migratory birds as well as their myriad nesting and feeding habitats made up of significant and sensitive flora. These creatures naturally move throughout the land, water, and air of the Township. They have well-used corridors to access food and water. They all, whether year-around or migratory, establish territories for food, nesting, and mating.
2. Loss of habitat is the major cause for decline in species population. Development, wetland filling, and other activities reduce the total amount of habitat. These activities also fragment remaining forest, grassland, and wetland habitats into patches too small and too isolated to support some animal species. Loss of buffer strips and landscape connectivity causes habitat isolation and increases energy-use needed to gather food and nesting materials.
3. In addition, the spread of invasive, non-native species has often reduced or replaced native species populations. Habitat loss and fragmentation are some of the biggest challenges to pollinators, as well. There are direct correlations between habitat availability and species diversity. Wild pollinators such as bumblebees, butterflies, moths, and beetles and managed bees are critically important. The loss of habitat due to land use not only impacts localized pollinators and other wildlife but also migratory species.
4. The Town of Columbia is quiet, and it is typical that residents can hear birds singing, turkeys vocalizing, ducks calling, and raptors whistling throughout their seasons. It's typical in most parts of the Town to hear the Spring peepers in the ponds and wetlands, and the Fall gray tree frogs in the woods and hedgerows.
5. The Town has negligible light pollution. On clear nights, residents are consistently able to see the constellations, planets, phases of the moon, seasonal meteor showers, occasional comets, and, regularly, the International Space Station. Urbanization and light pollution have increased rapidly elsewhere, but it is still possible for Town residents and visitors to have a dark-sky experience. And, for wildlife there is no substitute for naturally dark habitat.
6. Air quality in the Town is consistently in the highest/best category according to the EPA Air Quality, per New York State DEC.
7. The Town's geology, topography, slopes, and soils work together to offer important benefits that have created significant agricultural resources with deep, prime soils; plentiful drinking water sources; natural beauty; significant and diverse protected flora and fauna species; many large and small wetlands; and important running and standing water resources; identified floodplains; as well as a unique fossil-bearing strata where are found the most numerous examples of New York State's official fossil, the Eurypterus remipes. The karst formations that are a part of the Town's underlying geology are inherently hydrologically and geologically critical and sensitive.

8. Wetlands – The Town’s many wetlands are of critical environmental importance. Protecting them is consistent with the general welfare and is beneficial in economic, social, and agricultural development. Some of the functions performed and benefits that wetlands have include:

- Flood and Stormwater Control
- Surface and Groundwater Control and Recharging for Groundwater and Well Fields
- Erosion Control
- Pollution Treatment and Nutrient Cycling
- Fish and Wildlife Habitats
- Public Enjoyment
- Support Unique Plant Life
- (NYS Freshwater Wetlands Act, Article 24. DEC “Why Are Wetlands Valuable?”)

9. Watercourses – The Town of Columbia’s diverse water resources include rivers, streams, lakes, and ponds. Protecting these resources preserves fish and wildlife habitat, safeguards drinking water, and allows agricultural and commercial ventures to responsibly flourish. The Town of Columbia is home to the headwaters of the Unadilla River which, along with the other streams in the Township, is classified by NYS DEC as Class C(TS). The (TS) Standard means these rivers and streams are appropriate for Trout Spawning. The Town of Columbia stretch of the Unadilla River empties directly into Chepatchet Pond which is stocked annually by the DEC with approximately 1,300 1-year-old (9”) and 140 2-year-old (14”) brown trout. These sensitive watercourses have beds, banks, and riparian zones that must be protected from erosion and damage.

10. Small streams and waterbodies are often overlooked. However, scientific evidence clearly shows that healthy headwaters — tributary streams, intermittent streams, and spring seeps — are essential to the health of larger stream and river ecosystems. Watercourse protection to reduce flood risk should apply to smaller streams, because reducing risks upstream will also reduce risk for downstream rivers and lakes. Small headwater streams are more vulnerable because they respond most dramatically to changes in nearby land uses and tend to be located on the steepest sloping and erosion-prone lands. Small streams and tributaries also often have the highest quality aquatic and terrestrial habitats and thus can benefit the most from riparian buffer protection.

11. Some communities choose to protect streams that are identified on a map, most often those on a U.S. Geological Survey (USGS) topographic map. Keep in mind that all maps have inherent inaccuracies. USGS maps and data available from the NYSDEC omit many small streams and waterbodies, so relying on those maps may leave headwaters unprotected. On-site investigation is necessary to verify the presence of watercourses that might meet regulatory thresholds, such as intermittent streams that flow on a seasonal basis, as smaller streams may not appear on maps.

12. Groundwater and Wells – Land and Water use are related. There is an interdependence of land use, water quality, and water quantity. Like most rural, upstate communities the Town of Columbia depends heavily upon its valuable water resources. All residences, agricultural, and

commercial operations depend on private water supplies tapped through individually drilled or driven wells. This type of water source is commonly referred to as groundwater, which collects and flows through numerous fissures and cracks in the limestone bedrock, dissolving some of the limestone, and creating larger passages, underground streams, and caverns to form the aquifer structure. Groundwater and open bodies of water must be protected from overuse and consumption, as its purpose is to serve the residents for their personal use and for their agricultural-related animals, such as cattle. Protecting and limiting the use of groundwater and open bodies of water is also vital in the effort of preventing excessive stormwater runoff and pollution, which could threaten the Town's environmental, social, and ultimately economic well-being.

13. The Town of Columbia, a rural Town, has many forest land areas, including some that are designated as a Significant Natural Community-Hemlock-Northern Hardwood Forest on the NYS-DEC Resource Mapper, although there are also other unmapped locations.

14. A Hemlock-Northern Hardwood Forest is defined by the NY Natural Heritage Program as a mixed forest that typically occurs on middle to lower slopes of ravines, on cool, mid elevation slopes, and on moist, well-drained sites at the margins of swamps. Eastern hemlock (*Tsuga canadensis*) is codominant with any one to three of the following tree species: American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), red maple (*A. rubrum*), black cherry (*Prunus serotina*), white pine (*Pinus strobus*), yellow birch (*Betula alleghaniensis*), black birch (*B. lenta*), red oak (*Quercus rubra*), and basswood (*Tilia americana*). The relative cover of eastern hemlock is quite variable, ranging from nearly pure stands in some steep ravines to as little as 20% of the canopy cover. Striped maple (*Acer pensylvanicum*) is often prominent as a mid-story tree. This is a broadly defined and very widespread community with many variants.

15. To protect Hemlock Northern Hardwood Forest, "Management should focus on activities that help maintain regeneration of the species associated with this community. Develop a plan to control or eliminate hemlock woolly adelgid. Deer have been shown to have negative effects on forest understories (Miller et al. 1992, Augustine and French 1998, Knight 2003) and management efforts should strive to ensure that regenerating trees and shrubs are not so heavily browsed that they cannot replace overstory trees. Avoid cutting old-growth examples and encourage selective logging of areas that are under active forestry," per the NY Natural Heritage Program.

16. "Where human development meets or intermingles with undeveloped wildland vegetation the impacts include: loss and fragmentation of native species, the introduction and spread of non native species, the loss of habitat area or critical connectivity, increased mortality of wildlife, reductions in regional complexity of plant and animal communities, increases in non-native insect and disease invasions, and impacts on water quality and quantity from impervious surfaces and increased pollution," per USDA-FIA Forest Inventory 2017.

17. One indicator of "loss of forest" is loss of understory and understory disturbance. Many, if not most, of the Town of Columbia's local and migratory bird populations depend on understory growth for food and nesting territory.

18. It is not unreasonable to expect that a large-scale project made up of hundreds of acres of solar panels with each lot surrounded by fencing for the express purpose of keeping out large animals, such as deer, will result in an impact on the deer population and their grazing/yarding areas and that larger numbers of these animals will be forced into more and more restricted locations, very possibly leading to over browsing.

19. The Town's woodlands, hedgerows, and undergrowth are beneficial in many ways: mitigation of runoff, shade, habitats for sensitive flora and fauna (both live and dead trees), recreation, commercial uses such as tapping sugar maples, and carbon sequestration. The USDA-FIA Forest Inventory 2017 estimates that one-half of the biomass in standing live and dead trees consists of carbon.

20. Solar energy may be converted by agricultural and natural plant growth into chemical energy that may be used as food for humans, domesticated animals or wildlife; or used in biofuels or other plant-based products.

21. Solar energy may be converted into domestic, agricultural or industrially useful thermal energy using solar thermal energy collection and distribution systems.

22. Solar energy may be converted into electrical energy using the photovoltaic effect, generating electrical power for a myriad of uses.

23. The principal industry of the Town of Columbia is agriculture, particularly cropland used to grow and harvest crops for livestock feeding purposes, along with pastures for grazing purposes. Cropland in the Town of Columbia is almost exclusively used to grow hay and row crops, both of which require open, tillable acreage, free from development, or obstacles at or within the first 30 inches of the ground surface, such as trees, large stones, or other immovable objects that prohibit tillage within the first 30 inches of soil beneath the ground surface. The agricultural industry requires undeveloped land and sunlight to thrive and is thus a principal user of energy from the sun.

24. Installing a Solar Energy System on fertile soil replaces the growth of plant life with the generation of thermal or electrical energy. Thus, the decision to install a Solar Energy System on open ground is not a decision between having solar energy or not to utilize solar energy, but rather a matter of selection of which type of solar energy is desired and which will be excluded.

25. The Town of Columbia Comprehensive Plan makes note of the Town having topography and soils particularly suited to agricultural use, and prioritizes land use for agriculture. The Town of Columbia notes that the New York State Department of Agriculture and Markets considers Small Scale Solar Energy Systems to be "on-farm" equipment when they are designed, installed, and operated so the anticipated annual total amounts of electrical energy generated do not exceed the anticipated annual total electrical needs of the farm by more than 110 percent. Further, the Department's guidance that if a local government classifies solar equipment as structures or buildings, they are deemed on-farm buildings. As on-farm equipment or buildings, the installation of Small-Scale Solar Energy Systems are protected under the Agricultural Districts Law.

26. Small Solar Energy Systems are an accessory use or structure, designed and intended to generate primarily for a principal use located on-site, and are typically mounted on rooftops and do not compete with agricultural uses.
27. To protect productive farmland, The Town of Columbia notes with approval the New York State Department of Agriculture and Markets' guidance that non-farm, Solar Energy Systems should be sited on less productive land, such as brownfields or former landfills, and prohibits prime farmland.
28. The Town of Columbia notes there is a distinction between farm related Solar Energy Systems, and Solar Energy Systems built on agricultural land that primarily serve off-site users – such as Large Scale Solar Energy Systems or Major Renewable Energy Facilities.
29. Solar Energy Systems are an intermittent and unreliable energy resource given it relies on the Sun and weather.
30. The Town of Columbia has approximate Coordinates of 42°55'40"N 75°2'51"W, of which its Latitudinal Coordinates place it amongst the worst locations for Solar Energy System production in the United States of America, on par with parts of the state of Alaska.
31. With a capacity factor of approximately 12.6 to 25 percent, Solar Energy System production in New York State is highly in-efficient when compared to other major energy production types. In other words, it would take nearly eight (8) gigawatts of nameplate solar capacity to equal a one-gigawatt nuclear or natural gas plant.
32. Large Scale or Major Renewable Solar Energy Systems may severely reduce water flow and exhaust the amount of available water of drilled or driven wells near the facility.
33. Solar Energy Systems, when mounted too near a neighboring property may limit solar access for the neighboring property and/or cause annoyance and degrade the viewshed. Thus, it is appropriate to establish setbacks between ground-mounted Solar Energy Systems and property lines.
34. An improperly mounted solar panel may reflect sunlight at neighboring buildings or along roads such as to create annoyance and/or driving hazard.
35. Lithium-ion batteries can be explosive and post significant health and safety concerns, and have caused death to multiple people in New York State.
36. Solar Panels, Battery Energy Storage Systems, and associated equipment may create fire, smoke, air, soil and water contamination, electrocution, and other health and safety hazards, which can and have led to Shelter in Place Orders, which have occurred by New York State in the past.
37. If improperly sited, designed, installed and/or maintained, Solar Energy Systems and associated equipment will impair and degrade scenic natural viewsheds.

38. If improperly sited, designed, installed and/or maintained, Solar Energy Systems may lower property values and as a result, financially harm property owners and ultimately lower the Town's tax base.

39. Solar Energy Systems have limited useful operational life, typically ranging from 15 – 25 years for solar panels and significantly less for solar energy equipment such as inverters. It is appropriate to provide requirements for decommissioning at the end of Solar Energy System's useful life.

40. The Town of Columbia has not opted out of the Real Property Tax Law §487, which exempts from taxation certain solar or wind energy systems, however it can opt out at any time. The Town may, therefore, require the owner of a property proposing a solar or wind energy system and Solar Energy System Applicant to enter into a contract for Payments In Lieu of Taxes (PILOT).

41. The electrical output of a photovoltaic system typically varies based on its age and quality of equipment and installation.

42. The Town of Columbia finds that Solar Energy Systems are less aesthetically pleasing than natural, open and undeveloped land.

43. The Town of Columbia finds that after conducting a town-wide survey in 2023 that seventy-eight (78) percent of survey respondents opposed a Large Scale Solar Energy System.

44. Rationale for Prohibition of Tier 3 Solar Energy Systems:

Pursuant to the Town of Columbia Comprehensive Plan, the Town of Columbia has established an overall vision and guidepost establishing its desire to maintain its rural character, preserve its agricultural landscapes, near-pristine environment, groundwater, open space, largely undeveloped land, scenic views, wetlands, fresh watersheds, floodplains, and infrastructure appropriate for a small, rural town. This vision includes concerns about effective and practical forms of land use regulation, overdevelopment, the preservation of a town's natural and historic heritage, an individual's rights to live free of health and environmental hazards, and the appearance of the community in which one lives. The Town of Columbia has determined that Tier 3 Solar Energy Systems would alter the Town in a negative manner and run counter to the Town of Columbia's development vision for the future set forth by the Comprehensive Plan.

Local laws which apply to large scale or major renewable energy facilities are considered to be important by New York State (NYS) Executive Law § 94-c. Section 94-c (5)(e) expressly states that:

“A final siting permit may only be issued if the office makes a finding that the proposed project, together with any applicable uniform and site-specific standards and conditions would comply with applicable laws and regulations” [emphasis added].

The importance of local laws is manifest from this statement. In choosing to make this statement in the law, the State Legislature explicitly expresses the intent that the content of local laws shall be a very important consideration for the New York State Office of Renewable Energy Siting (Siting Office) in deciding whether to grant or deny permits for major renewable energy facilities. In crafting Section 94-c, the State Legislature would have been within its authority to supersede all local laws and regulations without making reference to them or statement about them. So, the existence of this language in the statute represents a conscious choice by the State Legislature to make the Siting Office find that the project, together with applicable uniform and site-specific standards, would comply with local laws and regulations and recognize the vision of a Town's Comprehensive plan.

NYS Executive Law § 94-c (6) does not allow local municipalities to establish a local review and permitting process for major renewable energy facilities generating twenty (20) MW or greater; and Section 94-c(3)(e) provides that the Siting Office may collect a fee from facility applicants as a means of achieving off-site mitigation of site-specific impacts. The Town has determined that these provisions will not allow adverse impacts associated with major renewable energy facilities with a nameplate capacity of twenty (20) MW or greater to allow for effective mitigation or mitigation implemented on a scale that will achieve mitigation to the maximum extent practicable.

The Town of Columbia specifically requests intends for that the NYS Office of Renewable Energy Siting honor and enforce the prohibition on Tier 3 Solar Energy Systems.

This prohibition is not unreasonable and is not overly burdensome in achieving the renewable energy targets established in the Climate Leadership and Community Protection Act ("CLCPA") due to the availability of more suitable alternative sites, whose local laws and regulations and development vision better fit the CLCPA, that are found throughout the entire State of New York. In fact, this Local Law and its prohibition serves to promote New York State's resiliency against climate change.