



**City of Biddeford
Planning Board**

December 18, 2024 at 5:00 PM
City Hall Council Chambers
Biddeford City Hall
205 Main Street
Biddeford, ME 04005

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1. New Business

1.a PLANNING BOARD AND CONSERVATION COMMISSION WORKSHOP DISCUSSION ON
THE SOLAR ORDINANCE

Article VI. Performance Standards

Section 79. Solar Energy Systems

A. Purpose

1. The purpose of this ordinance is to allow the development and use of solar energy systems and to protect solar access, to increase local renewable energy production, to decrease our reliance on fossil fuels to produce electricity, and to reduce carbon emissions.
2. The allowance of solar photovoltaic installations is to be accomplished pursuant to the standards set forth herein for the placement, design, construction, operation, monitoring, modification and removal of such installations that address public safety, scenic, natural resources, especially the protection of wildlife habitat and significant wildlife corridors, and historic resources, and provide adequate financial assurance for the eventual decommissioning of such installations.

B. Definitions

1. **Agrivoltaics** – Dual use of land for both solar energy production and agriculture.
2. **Building-Integrated Photovoltaic (BIPV) Systems.** A solar energy system that consists of integrating photovoltaic modules into the building structure, such as the roof or the façade and which does not alter the relief of the roof.
3. **Electricity Generation** (production, output). The amount of electric energy produced by transforming other forms of energy, commonly expressed in kilowatt-hours (kWh) or megawatt-hours (MWh).
4. **Electrical Equipment.** Any device associated with a solar energy system, such as an outdoor electrical unit/control box, that transfers the energy from the solar energy system to the intended location.
5. **Mounting.** The manner in which a solar PV system is affixed to the roof or ground (i.e., roof mount, ground mount, pole mount).
6. **Pole-Mount System.** A solar energy system that is directly installed on specialized solar racking systems, that are attached to pole, which is anchored and firmly affixed to a foundation in the ground, and wired underground to an attachment point at the building's meter. Pole-mounted systems can be designed to track the sun (with single-axis or dual-axis tracking motors) and maximize solar output throughout the year.
7. **Power.** The rate at which work is performed (the rate of producing, transferring, or using energy). Power is measured in Watts (W), kilowatts (kW), Megawatts (MW), etc.
8. **Solar Array.** Multiple solar panels combined together to create one system.

9. **Solar Collector.** A solar PV cell, panel, or array, or solar thermal collector device, that relies upon solar radiation as an energy source for the generation electricity or transfer of stored heat.
10. **Solar Energy System.** A device or structural design feature, a substantial purpose of which is to provide for the collection, storage and distribution of solar energy for space heating or cooling, electricity generation, or water heating.
11. **Solar Energy System, Ground-Mounted.** An Active Solar Energy System that is structurally mounted to the ground and is not roof-mounted; may be of any size (small-, medium- or large-scale).
12. **Solar Energy System, Large-Scale.** An Active Solar Energy System whose physical size based on total airspace projected over the ground is equal to or greater than 20,000 square feet.
13. **Solar Energy System, Medium-Scale.** An Active Solar Energy System whose physical size based on total airspace projected over the ground is equal to or greater than 2,001 square feet but less than 20,000 square feet.
14. **Solar Energy System, Roof-Mounted.** An Active Solar Energy System that is mounted on the roof of a building or structure; may be of any size (small-, medium- or large-scale).
15. **Solar Energy System, Small-Scale.** An Active Solar Energy System whose physical size based on total airspace projected over the ground is 2,000 square feet or less.
16. **Solar Glare.** The potential for solar panels to reflect sunlight, with an intensity sufficient to cause annoyance, discomfort, or loss in visual performance and visibility.
17. **Solar Photovoltaic (Solar PV) System.** Solar systems consisting of photovoltaic cells, made with semiconducting materials, that produce electricity (in the form of direct current (DC)) when they are exposed to sunlight. A typical PV system consist of PV panels (or modules) that combine to form an array; other system components may include mounting racks and hardware, wiring for electrical connections, power conditioning equipment, such as an inverter and/or batteries.
18. **Solar Panel (or module).** A device for the direct conversion of sunlight into useable solar energy (including electricity or heat).
19. **Solar Thermal System (Solar Hot Water or Solar Heating Systems).** A solar energy system that directly heats water or other liquid, or air, using sunlight.
20. **Tilt.** The angle of the solar panels and/or solar collector relative to horizontal. The optimal tilt to maximize solar production is perpendicular, or 90 degrees, to the sun's rays at true solar noon. True solar noon is when the sun is at its highest during its daily east-west path across the sky (this is also known as 0° Azimuth). Solar energy systems can be manually or automatically adjusted throughout the year. Alternatively, fixed-tilt systems remain at a static tilt year-round

C. Applicability

1. Notwithstanding the provisions of 1 M.R.S.A. § 302 or any other law to the contrary, the requirements of this Section shall apply to all roof-mounted, small-, medium-, and large-scale ground-mounted solar energy systems modified or installed 30 days after the approval of this ordinance.
2. All solar energy systems shall be designed, erected and installed in accordance with all applicable codes, regulations and standards.
3. Any upgrade, modification or structural change that materially alters the size, placement or output of an existing solar energy system shall comply with the provisions of this Section.

D. Performance Standards

1. Roof-mounted and building-mounted solar energy systems and equipment are permitted by right unless they are determined by a Code Enforcement Officer, with consultation from the City Engineer and/or the City Fire Chief to present one or more unreasonable safety risk including, but not limited to the following:
 - a. Weight load;
 - b. Wind resistance;
 - c. Ingress or egress in the event of fire or other emergency, or;
 - d. Proximity to ground mounted systems relative to buildings.
2. Roof-Mounted Solar Energy Systems must comply with the Dimensional Requirements applicable to structures within the zoning district in which such systems are to be located and the standards in Part III of this Ordinance.
3. Small-Scale Ground Mounted Solar Energy Systems must comply with the Dimensional Requirements applicable to structures within the zoning district in which such systems are to be located and the standards in Part III Land Development Regulations of this Ordinance.

In addition to the standards in Part III of this Ordinance, Small-Scale Solar Energy Systems shall comply with the following standards:

- a. The Solar Energy System shall be less than 25 feet in height.
 - b. The Solar Energy System shall be operated and located such that no disruptive electromagnetic or radio frequency interference with signal transmission or reception is caused beyond the property lines of the site.
 - c. The Solar Energy System shall be located and designed to avoid, minimize, or mitigate any glare onto abutting properties or roadways.
 - d. The Solar Energy System shall be located and designed to consider the visual character of the neighborhood in which it is constructed.
 - e. The solar energy System shall not be located within the property setbacks.
4. Medium-Scale Ground-Mounted Solar Energy Systems shall comply with all requirements as stated in Part III Land Development Regulations of the Code of Ordinances. Such developments

shall also require a Conditional Use Permit and Site Plan Review approval by the Planning Board. In addition to submission requirements in Article VII, Conditional Uses; Article XI Site Plan Review; and Article XII Floodplain Management, an application for medium-scale solar energy system development must also include:

- a. Written confirmation from the Utility to which the Solar Energy system will be connected confirming the solar operator has conditional or final approval to interconnect the Solar Energy System to the Utility Grid.
- b. A description of the major components of the Solar Energy System proposed to be used, including manufacturer's specifications and cut sheets, and construction drawings showing all dimensions.
- c. Erosion and sedimentation control narrative with plans and details.
- d. Site plan(s) indicating all proposed construction and alteration of the project site, including changes to the landscape of the project area, filling, grading, earthmoving, vegetation clearing and planting, screening, fencing, Solar Energy System components, utilities (above and/or below ground) and all other aspects of the project.
- e. Site plan(s) indicating water bodies, wetlands, flood hazard areas, and vernal pools.
- f. A landscaping plan, prepared by a licensed forester, landscape architect or arborist, demonstrating compliance with all applicable landscaping and vegetated buffering requirements. At minimum, the landscaping plan must specify the locations, elevations and height above finished grade of all vegetation, berms, and plantings, and must identify the plant species and other materials that will comprise the elements used to establish any vegetated buffers and substantially screen the Solar Energy System from view from abutting residential properties, public roads, and public vantage points.
- g. A long-term operations and maintenance plan providing for ongoing monitoring and inspections of all site improvements. The plan must provide a method for maintaining sufficient financial resources for performing ongoing maintenance and repair of the Solar Energy System.
- h. A proposed decommissioning plan for the removal of the Solar Energy System, disposal of system components, and stabilization of the site, which meets the requirements in Section 79 (9) of this Ordinance, and a written statement of the applicant's intent concerning the following:
 - i. Physical removal of any Solar Energy System components, structures, foundations, supports, fencing, or security barriers from the site.
 - ii. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal laws and rules.

- iii. Stabilization or re-vegetation of the site as necessary to minimize erosion and substantially return the site to its pre-construction state.
 - i. A description of any proposed dual-use or co-location of the property, including but not limited to agrivoltaics. If no dual-use is proposed or intended on the property, an explanation as to why such dual-use or co-location is not practicable.
 - j. A visual impact assessment that includes a line-of-sight profile analysis that illustrates what is visible and what is obstructed along a straight line running from the Solar Energy System and each Public Vantage Point. The Planning Board may require additional visual impact assessments, including digital view shed maps, if it determines in its sole discretion that such assessments are necessary for the Planning Board to evaluate the Solar Energy System's compliance with the scenic impact standards in Section 79 (6) (h) of this Ordinance.
5. In addition to the application requirements for Medium-Scale Ground Mounted Solar Energy Systems for Site Plan Review and to obtain a Conditional Use Permit, the application for Large-Scale Ground Mounted Solar Energy Systems shall also include:
- a. Evidence of financial capacity to construct, operate, and decommission the Solar Energy System.
 - b. Impact study prepared by a qualified consultant, hired by the City to determine all impacts on the environment, including, but not limited to wetlands, native vegetation, and wildlife and water quality.
 - c. Site Plan(s) clearly identifying soil type and location of existing "Prime Farmland," and "Farmland of Statewide Importance," as well as locations of local or National Historic Districts or landmarks.
6. In addition to Conditional Use application requirements for Medium-Scale Solar Energy Systems, other standards for Medium-Scale Ground-Mounted Solar Energy Systems are:
- a. Siting of Solar Energy Systems on unproductive land and previously disturbed land to the greatest extent possible shall be encouraged.
 - b. The Solar Energy System shall be operated and located such that no disruptive electromagnetic or radio frequency interference with signal transmission or reception is caused beyond the property lines of the site.
 - c. The Solar Energy System shall be located and designed to avoid, minimize, or mitigate any glare onto abutting properties or roadways.
 - d. Wildlife Habitat: The Solar Energy System shall have no undue adverse effect on any portion of the property designated by the Maine Department of Inland Fisheries and Wildlife as Rare, Threatened, or Endangered Wildlife, Essential Wildlife Habitat, or Significant Wildlife

Habitat. The applicant shall assess the potential impacts of the Solar Energy System on any such designated species or habitat, including any adjacent areas that are important to the maintenance of the affected species or habitat, and shall take measures to avoid, minimize, or mitigate impacts of the Solar Energy System on the habitat and the species that the area supports. The Planning Board may require the applicant to consult with the Maine Department of Inland Fisheries and Wildlife or a wildlife biologist preapproved by the Board in conducting such an assessment.

- e. Natural Areas: The Solar Energy System shall have no undue adverse effect on any portion of the property designated as a unique natural area or a Rare or Exemplary Plant and Natural Community in the City's Comprehensive Plan or by the Maine Natural Areas Program. The applicant shall assess the potential impacts of the Solar Energy System on any such designated natural area or community, including any adjacent areas that are important to the maintenance of the affected area or community, and shall take measures to avoid, minimize, or mitigate impacts of the Solar Energy System on the natural area or community. The Planning Board may require the applicant to consult with the Maine Natural Areas Program in conducting such an assessment.
- f. Historic or Archaeological Resources: The Solar Energy System shall have no undue adverse effect on any portion of the property that has been identified as containing a significant historic or archaeological resource in the City's Comprehensive Plan or on the National Register of Historic Places, or is considered by the Maine Historic Preservation Commission or other pertinent authority as likely to contain a significant historic or archaeological resource. The applicant shall assess the potential impacts of the Solar Energy System on any such resource, including any adjacent areas that are important to the preservation of the resource, and shall take measures to protect these resources, including but not limited to, modification of the proposed location and design of the Solar Energy System, timing of construction, limiting the extent of excavation, physical or legal protection, or by archaeological excavation or mitigation. The applicant shall comply with all requirements of Article XV Historic Preservation Ordinance as applicable. The Planning Board may require the applicant to consult with the Maine Historic Preservation Commission in conducting such an assessment.
- g. Revegetation: Any disturbed ground cover on the site shall be revegetated with pollinator friendly, native, and non-invasive vegetation.
- h. The Solar Energy System must be located and designed for minimal visual impact on the surrounding area, particularly when viewed from abutting residential properties or any Public Vantage Point.
 - i. A vegetated buffer comprising native vegetation that is at least half the width of the minimum setback requirement in Section 79 (8) (b) of this Ordinance, and no less than six (6) feet in height from finished grade, shall be maintained along any property boundary line of a Solar Energy System that abuts a residential dwelling or a public

road, except where necessary to accommodate a driveway entrance to the site. All vegetation shall be installed in such a manner so as to completely conceal solar energy system from view.

- ii. Existing vegetation must be used to the greatest practical extent. If there is insufficient existing vegetation to create a vegetated buffer, the applicant shall plant and maintain native species of conifers and evergreens to adequately screen the Solar Energy System from view.
 - i. Security Fencing: All components of the Solar Energy System, excepting overhead utility and communication lines and poles, shall be completely enclosed by a minimum 6-foot-high fence. The fence shall be elevated a minimum of 6 inches above the ground to accommodate crossings by small terrestrial animals. Functional alternatives to chain-link style fencing is encouraged.
 - j. Operations and Maintenance: The applicant must provide for the long-term operation of the Solar Energy System and maintenance of the Solar Land Area, including ensuring that vegetation buffers are maintained, inspections are performed as needed, and the site is accessible to emergency responders in the event of an emergency.
7. In addition to the standards for Medium-Scale Solar Energy Systems as described above, Large-Scale Solar Energy Systems shall also comply with the following standards:
- a. No large-Scale Solar Energy System may be sited on land that has been forested within five (5) years of application.
 - b. Agricultural Resources: The Solar Energy System shall have no undue adverse effect on any portion of the property containing prime agricultural soils or soils of statewide importance. The applicant shall assess the potential impacts of the Solar Energy System on any such soils, and shall take measures to avoid or minimize impacts to such soils. The Planning Board may require the applicant to consult with the Department of Agriculture, Conservation, and Forestry, Agricultural Resource Development Division, in conducting such an assessment. No topsoil or prime agricultural soil shall be removed from the site for installation of the Solar Energy System. All stockpiled topsoil shall be retained on site and reused in the landscaping plan for the site.
 - c. Utility Connections: All on-site utility transmission lines and piping associated with the Solar Energy System shall be placed underground to the greatest extent practicable. The Planning Board may waive this requirement if the applicant can demonstrate that satisfying this requirement is not practicable based on requirements of the utility provider or specific site conditions.
8. Dimensional requirements for medium-scale and large-scale Solar Energy Systems:
- a. The Solar Energy System shall be less than 25 feet in Height.

- b. Minimum Setbacks: The following minimum setback requirements must be met, regardless of the zoning district in which the Solar Energy System is located, unless the minimum setback requirement in the applicable zoning district is more restrictive, in which case the more restrictive requirement shall apply:
 - i. Front Lot Line 75 feet
 - ii. Side and Rear Lot Line 75 feet
 - iii. Street Right-of-Way 100 feet
 - c. The land area of a Solar Energy System shall not exceed 50 acres exclusive of required setbacks.
- 9. All solar energy systems shall comply with regulations as outlined in Article XIV Shoreland Zoning Ordinance as required.
- 10. Post-Approval Requirement for Medium-Scale Solar Energy Systems and Large-Scale Solar Energy Systems: Prior to the start of construction of a Medium-Scale Solar Energy System or Large-Scale Solar Energy System, the permit holder must submit to the Code Enforcement Officer a decommissioning plan and financial assurance approved by the Maine Department of Environmental Protection, in accordance with the requirements of 35-A M.R.S.A. Sections 3491-3496, as may be amended, for all costs associated with decommissioning the Solar Energy System.
- 11. Post-Construction Requirements for Medium-Scale Solar Energy Systems and Large Scale Solar Energy Systems: After completion of construction and prior to commercial operation of a permitted Medium-Scale Solar Energy System or Large-Scale Solar Energy System, the permit holder must:
 - a. Submit to the Code Enforcement Department as-built drawings prepared by a Maine licensed professional land surveyor or engineer. The as-built drawings shall include the actual locations of the Solar Energy System and its components, any structures and their components, above and underground utilities, roads, swales, ditches, detention/retention facilities, areas of filling and grading, vegetated buffers, fencing, land and landscaping alterations, and any other infrastructure and facilities, all as actually constructed on the site. The as-built drawings must be accompanied by a letter signed by the surveyor or engineer certifying that the Solar Energy System had been constructed in accordance with all Planning Board approvals, including any conditions of approval and any accompanying plans and specifications.
 - b. Provide a written manual to the Biddeford Fire Department and Code Enforcement Department, which provides clear response information and instructions, including lock box details and disconnection locations necessary for a fire/emergency response at the site.