1.1 PURPOSE

Pursuant to the Maine Legislative findings and goals as defined by MRS Title 35-A, MRSA, Chapter 34-B, *The Maine Solar Energy Act*, and MRS Title 33, Chapter 28-A, *Solar Rights*, the purpose of this Article is to allow for and encourage the construction and operation of private or public solar energy generation systems to produce energy for use on-site or off-site, by establishing appropriate standards to ensure safe, effective and efficient use of solar energy systems compatible with surrounding uses.

1.2 APPLICABILITY

- 1.2.1 All applicants for the installation or replacement of all solar energy systems or devices, expansion of any existing solar energy system, or installation of associated facilities must obtain a building permit from the Code Enforcement Officer or a Conditional Use Permit from the Planning Board as outlined in Section 8.4.
- 1.2.2 The requirements of this Article shall apply to all small, medium and large-scale solar energy systems, whether roof, building, or ground mounted, installed or modified after adoption of this Article.
- 1.2.3 All solar energy systems or devices shall be designed, erected, and installed in accordance with all applicable local, state and federal codes, regulations and standards.
- 1.2.4 The requirements set forth in this Article shall be in addition to all other requirements in the Trenton Land Use Ordinance and other applicable Trenton Ordinances.

1.3 **DEFINITIONS**

For the purposes of this Article, the following words and phrases shall have the following meanings:

Accessory-use Solar Energy System – roof or ground-mounted solar energy system of any size solely for on-site electrical power consumption.

Abandonment: The date at which a solar energy system has been out of service or is producing 10% or less of its permitted electricity capacity for a continuous period of 12 months.

Building integrated solar energy system: A solar energy system that is an integral part of a principal or accessory building, contained within roofing materials, windows, walls, skylights, and awnings.

Dual-Use Systems: Solar energy systems where photovoltaic panels are introduced in conjunction with a primary use (e.g., photovoltaic panels on structures cantilevered over parked cars in a parking lot or ground-mounted panels elevated over grazing land). These tend to include emerging technologies and multiple systems with potential impacts and would require Planning Board review.

Expansion of a Solar Energy System: Any physical modification to an existing solar energy system which alters the total rated capacity, the size, type or location of the system or its associated equipment.

Ground mounted solar energy system (also known as free-standing solar energy system): A solar energy system that is structurally mounted on or to the ground. The panels may be stationary or sun tracking.

Physical size of solar energy system: The overall physical size of the total solar panel surface area (solar panel size in square feet times the total number of panels):

- A. **Small-scale** Solar Energy System Total solar panel surface area is **less than** 1,500 square feet;
- B. Medium-scale Solar Energy System Project Total solar panel surface area is between 1,000 1,500 square feet and 40,000 square feet; three (3) acres.

 Any installed medium-scale solar energy system over one (1) acre shall be considered a Solar Energy System Project (as defined below) with a maximum size of three (3) acres:
- C. Large-scale Solar Energy System Project Total solar panel surface area is greater than 40,000. Total occupied land for the installed solar energy system project (as defined below) is greater than three (3) acres with a maximum of thirty (30) acres.
 - 1. <u>Large-scale solar energy system projects on the same or adjacent properties shall be allowed only if at least a **500-foot uncleared buffer** exists between the solar energy systems.</u>

Roof-mounted solar energy system: A solar energy system in which solar panels are mounted on top of a building or structure either as a flush-mounted system or as modules fixed to frames which can be tilted at an optimal angle toward the sun.

All roof-mounted solar energy systems are classified as Accessory-use Solar Energy Systems.

Solar Panel: A frame mounted assembly of multiple connected photovoltaic cells used to generate direct current electricity.

Solar Array: Multiple photovoltaic panels combined—together to create a solar energy system.

Solar Energy System: A complete assembly consisting of one or more photovoltaic panels and associated mounting hardware or equipment; intended to provide for the collection, storage, and distribution of solar energy for electricity generation.

Solar Energy System Project: A complete solar energy system including all cleared land, solar panels with ground mounting systems, fencing, transformer and electrical equipment pad(s), solar energy storage systems, and other cleared area necessary to support the solar installation. Cleared areas for installation staging will not be included in the solar energy project's maximum size limitation as long as they are returned to a natural state.

Total height of a solar energy system: The total vertical distance as measured from the average elevation of the finished grade adjacent to the fixed base of the support structure, to the highest part of the installed system.

1.4 PERMITTING

1.4.1 Solar <u>energy</u> systems are allowed in <u>most</u> <u>those</u> districts <u>identified</u>, <u>and</u> subject to permits/approvals as set out in Table 8.4.2 below, and subject to compliance with the associated standards in Section 8.5. The level of review relates to the scale of the proposed system, and whether they comply with zoning, and the zoning context.

P = allowed as a **permitted** use by the Code Enforcement Officer (CEO) if the solar energy system complies with district requirements and Section 8.5 of this Article, and are located to rear and side of the site wherever possible, the CEO will issue a building permit.

C= allowed as a **conditional** use upon approval by the Planning Board and subject to meeting performance standards in Section 8.5, the submittal requirements in 8.6, and the technical standards outlined in Section 8.7; a building permit would also be required from the CEO after approval by the Planning Board.

NA= Not allowed

1.4.2 Solar System Required Permitting Table

	Airport Commercial/ Industrial	Business Park	Gateway Commercial	Residential Growth	Residential Rural	Rural Commercial	Rural Development	Village	Airport Hazard Overlay
Roof Mounted and Building Integrated	C	С	C	P	P	P	P	P	P
(size governed by building) Accessory-use									
Small Scale Ground Mounted	C	C	C	\mathbf{C}^1	\mathbf{C}^1	\mathbf{C}^1	C ¹	C	C
< <mark>1000-<u>1,500</u> sq. ft.)</mark>									
Medium Scale Ground Mounted	C	C ¹ ,3,4	C	C ^{1,3,4}	C ^{1,3,4}	NA	C ¹ .3,4	С	С
(1000 <u>1,500</u> to <u>40,000 sq. ft</u> <u>3</u> <u>acres</u> .)									
Large Scale Ground Mounted	C	C ¹ .3,4	<mark>€</mark>	C ¹ .3.4	C ¹ .3.4	NA	C ¹ .3.4	€	C
(>40,000_sq. ft. >3 to 30 acres)	<u>NA</u>		<u>NA</u>					<u>NA</u>	<u>NA</u>
Dual Use Systems	С	С	С	C ¹	C ¹	C	C ¹	С	С

NOTES:

- 1. For all Ground Mounted systems in these districts, if the property within the district is 10 acres or less the maximum permitted size of the solar energy system shall be sufficient for on-site residential electricity use only.
- 2. Large-scale solar energy systems shall be permitted in the Business Park, Residential Growth, Residential Rural and Rural Development Districts only.
- 3. Medium-scale and Large-scale solar energy systems shall be located at least 1000 feet from any public way.
- 4. Medium-scale and Large-scale solar energy systems shall be located at least 500 feet from any existing structure 100 square feet or larger.

1.5 STANDARDS.

All solar energy systems shall meet the following standards as indicated:

- 1.5.1 Standards applicable to all solar energy systems, whether permitted or conditional use:
 - 1.5.1.1 All applications for **permitted** solar energy systems shall meet the submittal requirements as specified in this Trenton Land Use Ordinance.
 - 1.5.1.2 Application requirements for solar energy system projects requiring a Conditional Use Permit review by the Planning Board of solar energy systems shall address the submittal requirements set out in Section 8.6 herein.
 - 1.5.1.3 The **maximum height** for all solar energy systems shall be:
 - A. **Ground mounted**: 12 feet maximum, as measured vertically from the average elevation of the finished grade adjacent to the fixed base of the support structure, to the highest part of the installed system.
 - B. Roof mounted or building integrated for all districts:
 - (i) Shall be flush mounted on the roof whenever possible and shall comply with the maximum building height allowed for that district.
 - (ii) If a support structure is installed to optimize sun capture angle, then the maximum height must comply with the maximum building height.
 - 1.5.1.4 **Lot Coverage**: For ground mounted solar energy systems only the actual part(s) of the structure's base and any buildings or other structures that are part of the installed solar energy system and any associated driveways or walkways shall be included in the calculation of lot coverage. The area below the installed solar panels is deemed to be pervious as long as it remains vegetated and unless compacted, paved, or otherwise rendered impervious.
 - 1.5.1.5 **Setback Requirements**: All ground mounted and building integrated solar energy systems shall comply with all setback requirements in Article IV for the applicable district.
 - 1.5.1.6 **Technical and Safety**: Solar Energy Systems shall be installed in compliance with all applicable Federal, State and Local requirements including but not limited to the National Fire Protection Association NFPA), Fire Prevention Code and the National Electrical Code.

- Visual Impact: Wherever possible, solar energy systems should be located on the side or rear (i.e. least visible) part of the site. Reasonable efforts shall be made to minimize visual impacts by locating away from public ways and abutting properties, preserving natural vegetation, planting new vegetation, fencing, berms, and/or other screening, or other appropriate measures. Ground-mounted Solar Energy Systems shall not be visible from any body of water, any adjacent property that is used for residential purposes, or any public way. If necessary, screening shall be utilized or provided by employing natural topographical features, berms, vegetative barrier, or fencing that provides adequate visual screening.
- 1.5.1.7 **Fencing**: All medium and large-scale solar energy systems shall be completely enclosed by chain link or other suitable fencing that consists of a minimum six (6) foot high fence with a locking gate. A minimum five (5) inch gap should be left at the bottom of the fence line to allow wildlife passage.
- 1.5.1.8 **Glare**: Solar panels are designed to absorb (not reflect) sunlight and are generally less reflective than other varnished or glass exterior materials. However, solar panel placement should minimize or negate any solar glare impacting nearby properties or roadways, without unduly impacting the functionality or efficiency of the solar energy system.

1.6 SUBMITTAL REQUIREMENTS FOR CONDITIONAL USE PERMIT REVIEW BY THE PLANNING BOARD:

- 1.6.1 For **Medium-scale** solar array systems:
 - 1.6.1.1 The following information shall be submitted with a Conditional Use Permit application for a review by the Planning Board of a solar energy system and associated facilities under the Ordinance and this Article:
 - 1.6.1.2 **Site Plan**: A basic site plan of the proposed installation showing:
 - A. All property lines and required setbacks must be depicted;
 - B. Location of all existing and proposed (if any) buildings and structures;
 - C. Proposed changes to the landscape of the site, including tree and vegetation removal and grading;
 - D. Existing and proposed screening vegetation and planting;
 - E. Any other changes to the property required by this installation.

- 1.6.1.3 A *Decommissioning and Site Reclamation Plan* may be requested by the Planning Board based on the size, complexity, and use of the solar array system. The requirements set forth in § 8.7.4.12 and § 8.7.4.12.A. herein shall be met if this plan is deemed necessary.
- 1.6.2 For **Large-scale** solar energy systems:

The following information shall be submitted with a Conditional Use Permit application for a review by the Planning Board of a solar energy system and associated facilities under the Ordinance and this Article:

- 1.6.2.1 A **narrative** describing the proposed solar energy system, including an overview of the project; the project location; the generating capacity of the solar energy system; dimensions of all components and respective manufacturers; and a description of associated facilities and how the system and associated facilities comply with the standards of this ordinance (including a plan or other graphics that demonstrate compliance). Where systems are proposed in the front part of the site, the application shall include technical documentation as to why it is not possible to locate the system to the side or rear of the site.
- 1.6.2.2 **Site Plan**: An accurate scaled site plan of the subject property showing:
 - A. The planned location of the proposed solar energy system and all associated facilities, with all property lines and required setbacks depicted;
 - (i) All property lines and required setbacks must be depicted.
 - B. Adjoining streets and access roads;
 - C. Proposed changes to the landscape of the site, including tree and vegetation removal and grading;
 - D. Existing and proposed screening vegetation and planting;
 - E. Topographic contour lines;
 - F. Existing and proposed buildings and structures;
 - G. Proposed driveways, parking, and curb cuts on the subject property;
 - H. Proposed storm water runoff control;
 - I. Proposed fencing;
 - J. Proposed exterior lighting;
 - K. Proposed signage;

- 1.6.2.3 **Decommissioning and Site Reclamation Plan**: A *Decommissioning and Site Reclamation Plan* that defines the system removal and land reclamation, revegetation, restoration, and soil stabilization plans for the project area. This Plan shall include a detailed cost estimate done by a Professional Engineer approved by the Town for the total decommissioning and removal work.
- 1.6.2.4 Utility connections: Details on any proposed connections to the electrical grid including any proposed off-site modifications to provide grid connections, access the installation, or to maintain the proposed solar energy system and grid connections.
- 1.6.2.5 **FAA Approval**: Given the proximity to the Hancock County Airport, any large-scale solar energy project may require FAA approval.

1.7 SOLAR ENERGY GENERATION TECHNICAL STANDARDS

1.7.1 Applicability

- 1.7.1.1 All solar energy generation systems are subject to the standards set out in Section 8.5 above. Section 8.4 of this article outlines the level of review required for solar energy generation systems.
- 1.7.1.2 The following technical standards and Standards referenced in Section 8.5 above, aim to complement this ordinance and the existing codes and site plan review standards. Together the aim is to ensure safe, effective and efficient installation of solar energy systems compatible with surrounding uses. Within this aim the overall intent is to encourage the installation of solar energy systems.

1.7.2 Technical Standards

- 1.7.2.1 **Site Layout**: Wherever possible solar energy systems should be located on the side or rear (i.e., least visible) part of the site as specified in Section 8.5 of the Ordinance. This also applies to associated features such as lighting and infrastructure. Applicants shall-take make all reasonable efforts to place utility connections underground, unless making use of existing lines, or as otherwise required by the utility. The proposed placement of new poles for electrical connections shall be included in the site plan and construction management plan.
- 1.7.2.2 For flush mounted roof solar energy systems, the frame and/or panels-cannot shall not extend beyond the perimeter of the building.

1.7.3 Safety Standards

- 1.7.3.1 **Building Permit**: All solar energy systems require a building permit prior to installation, whatever level of site plan review. All systems shall be installed by a qualified solar installer.
- 1.7.3.2 **Certification**: Solar energy systems shall be designed, erected, and installed in accordance with all applicable codes, regulations, and standards. The system will include only solar with equipment approved under a certification program certified by the US Department of Energy-or similar. Experimental, homebuilt, and prototype models will not be permitted.
- 1.7.3.3 **Insurance Policy**: The applicant, owner, and/or operator of the solar installation shall defend, indemnify, and hold harmless the Town of Trenton and its officials from and against any and all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses, and liabilities whatsoever, including attorney's fees, without limitation, arising out of acts or omissions of the applicant, owner, and/or operator associated with the construction and/or operation of the Solar Energy System. The owner and/or operator of the solar energy facility shall maintain a current general liability policy covering bodily injury and property damage and name the Town of Trenton as an additional insured with limits of at least two million dollars (\$2,000,000) per occurrence and five million (\$5,000,000) in aggregate with a deductible of no more than five thousand dollars (\$5,000). Any loss of coverage must be reported within three (3) working days of loss. Failure to maintain coverage shall be considered a cessation of operations.
- 1.7.3.4 **Hazardous Materials**: The applicant shall provide details regarding the content of toxic materials (e.g., including heavy metals such as silver, copper, lead, arsenic, cadmium, chromium, and selenium) in the proposed system. Where the panels contain potentially toxic materials, the *Operations and Maintenance Plan* (for medium and large ground mounted or dual use systems -see below) shall address future disposal.
- 1.7.3.5 **Storage Batteries**: If solar storage batteries are included as part of the solar energy system, they must be installed according to all requirements set forth in the National Electric Code, State Building Code and State Fire Code. When no longer in operation, the batteries shall be disposed of in accordance with the laws and regulations of State of Maine, the Town of Trenton and any other applicable laws and regulations relating to hazardous waste disposal. The completed storage battery installation shall be inspected and approved by the Trenton Fire Chief before commencing system operation.

1.7.4 Additional Standards for Large-Scale Solar Energy Systems

- 1.7.4.1 **Operations and Maintenance Plan**: An Operations and Maintenance Plan; shall be provided and shall include measures for maintaining the facility in an operating functional and safe condition as designed and approved, including safe access to the installation as well as other general procedures for remote and on-site operational maintenance of the installation. The system must be properly maintained including mowing, cleaning, painting, structural repairs, and repairing or replacing damaged panels. and It must be kept free from all hazards, including, but not limited to, faulty wiring, and loose fastenings. It must not be being in an unsafe condition or one detrimental to public health, safety, or general welfare.
- 1.7.4.2 Land Clearing, Soil Erosion and Habitat Impacts: Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the solar energy system or otherwise prescribed by applicable laws, regulations, and bylaws/ordinances. No prime agricultural soil or significant volume of topsoil shall be removed from the site for installation of the system. the pollinator-friendly vegetation.
- 1.7.4.3 **Stormwater Management**: A new solar development will be required to comply with the Land use Ordinance, Article IV.1 General Standards and Maine DEP Chapter 500 Stormwater Management.
- 1.7.4.4 **Construction Impacts**: Proposals should include information regarding the methods of construction and a *Construction Management Plan* may be requested. Clearing of existing trees and vegetation shall be restricted to the minimum amount needed for construction access and to avoid shading of the solar development. Construction work should be performed in such a way that erosion and sedimentation is minimized, and measures should be taken to permanently stabilize disturbed areas of the site as soon as possible.
- 1.7.4.5 **Screening**: The ordinance specifies screening from nearby residential/institutional uses and public ways. The proposals should take advantage of existing topography and vegetation where possible to integrate the development (including fencing, infrastructure, and connections to the grid) into the landscape, and introduce vegetated buffer areas.

- 1.7.4.6 Lighting Lighting of large-scale ground-mounted solar energy systems shall be consistent with local, state, and federal law. Lighting of other parts of the installation, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Lighting should be at the lowest intensity to meet the functional needs-and should be activated by motion sensors. Where feasible, lighting of the solar energy system shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.
- 1.7.4.7 **Utility Connections** Reasonable efforts, as determined by the Planning Board, shall be made to place all utility connections from the solar photovoltaic installation underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider. Existing utility poles should be used to the extent possible.
- 1.7.4.8 **Signage**: Signs on large-scale ground-mounted Solar Energy Systems shall comply with all applicable standards in the Trenton Sign Ordinance and shall be required, at minimum, to identify the owner and/or operator and provide a 24-hour emergency contact phone number. Signage shall not include any advertising. Clearly visible warning signs shall be placed at the base of all padmounted transformers and substations and on the fence surrounding the solar energy system warning individuals of potential voltage/current hazards.
- 1.7.4.9 Security: The siting and design of the solar energy installation shall ensure that unauthorized access is prevented and shall be in conformance with all applicable electrical code requirements. Knox boxes at gates (or similar arrangements as approved during the review) shall be provided for emergency access.
- 1.7.4.10 **Emergency Services**: The owner or operator of a large-scale ground-mounted Solar Energy System shall provide a copy of the project summary, electrical schematic, and site plan to the Fire Chief. Upon request the owner or operator shall cooperate with the Trenton Volunteer Fire Department in developing an emergency response plan. All means of shutting down the system shall be clearly marked on the plan. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.
- 1.7.4.11 **Modifications**: All material modifications to a large-scale ground-mounted solar energy system made after approval by the Planning Board shall require review and approval by the Planning Board. However, Planning Board approval is not required for the repair or replacement of equipment or physical modifications to an existing and approved system as long as this does not alter the total physical size or total land area of the system and its equipment.

- 1.7.4.12 **Decommissioning and Site Restoration Plan**: A Decommissioning and Site Restoration Plan consistent with the requirements of MRS Title 35-A M.R.S. c. Chapter 34-D Solar Energy Development Decommissioning § 3494. Decommissioning plan in the State of Maine Solar Decommissioning Law, shall be provided as part of the application. This shall also include the requirements of Charter 34-E Battery Storage System Decommissioning if the installed solar energy system contains any associated battery storage systems. This plan shall include a detailed cost estimate done by a Professional Engineer ehosen approved by the Town and paid for by the Applicant. This detailed cost estimate shall cover the total cost of decommissioning and removal without consideration of the salvage value of the photovoltaic panels and other units. This plan and cost estimate shall be approved by the Planning Board and the Maine Department of Environmental Protection (DEP).
 - A. **Decommissioning Funds**: No permit for a Large-Scale Solar Energy System shall be issued until the decommissioning funds "financial assurance bond" have been posted by the Applicant with a bonding company or a federal or state-chartered lending institution (the Escrow Agent) authorized to conduct business in the State of Maine and approved by the Town of Trenton Planning Board and Board of Selectmen. This financial assurance bond shall be to the Maine DEP and the Town of Trenton. The required fund amount shall be based on a "Real Value of Money" calculation that includes interest and inflation rates.

1.8 ABANDONMENT AND REMOVAL OF MEDIUM AND LARGE-SCALE GROUND MOUNTED SOLAR ENERGY SYSTEMS.

- 1.8.1.1 In the case of large ground mounted solar energy systems, the submitted *Operations and Maintenance Plan* shall include an estimate of the life of the project and outline the anticipated options/action when it has reached the end of its estimated useful life.
- 1.8.1.2 The Owner or Operator shall, at their expense, complete the decommissioning and removal of the solar energy system within 6 months of the end of the useful life of the solar energy system or within 12 months of the date of abandonment.

- 1.8.1.3 **Removal**: Any medium or large-scale ground-mounted Solar Energy System which has reached the end of its useful life or has been abandoned, ceases to produce electricity, or has had its permit revoked consistent with this ordinance shall be removed. Removal includes restoration of the site to its approximate original condition unless a valid approved site plan is intended to be pursued, in which case a performance bond for the restoration would be required until the approved re-development has received a certificate of occupancy. The owner or operator shall physically remove the installation no more than 12 months after the date of discontinued operation. The owner or operator shall notify the Code Enforcement Officer by certified mail of the proposed date of discontinued operations and plans for removal. Removal shall consist of:
 - A. **Physical removal** of the entire Solar Energy System, (including but not limited to structures, foundations, equipment, fencing, lighting, signage, and transmission lines) from the site.
 - B. **Disposal** of all solid and hazardous waste in accordance with local, state, and federal waste disposal laws and regulations.
 - C. **Stabilization or re-vegetation** of the site as necessary to minimize erosion. Areas of disturbed earth shall be graded, seeded, or otherwise re-vegetated following guidelines by from the Code Enforcement Officer who may at his/her discretion allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.
- 1.8.1.4 **Failure to Remove**: If the owner or operator of the medium or large-scale ground mounted Solar Energy System fails to remove the installation in accordance with the requirements of this section within 12 months of abandonment or the proposed date of decommissioning, the Town retains the right to use any and all legal or available means necessary to cause an abandoned, hazardous, or decommissioned medium or large-scale ground-mounted Solar Energy System to be removed.
- 1.8.1.5 The Town shall revoke any approvals and/or pursue removal of the solar energy system at the Owner or Operator's expense in the following circumstances:
 - A. The solar energy system is not complete and operating within 12 months from the date of approval under this ordinance; or
 - B. The solar energy system is determined by the Town to be in an unsafe condition with respect to federal, state, and or local safety standards and timeframes; or

- C. The solar energy system has not been brought back to a safe condition and operation or removed from the site within the required timeframe; or
- D. The solar energy system is defective or abandoned and has not been removed from the site within the required timeframe.