

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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K. Solar Energy Systems

1. **Purpose:** It is the purpose of these performance standards to enable the Town to:
regulate the permitting of residential, commercial, and industrial solar energy systems; be informed of the placement of residential and commercial solar energy systems; preserve and protect public health and safety; allow for the orderly development of land; and protect property values in the Town of Farmington.
2. **Classification:**
 - a. Private Residential Solar Energy Systems (PRSES): An area of land or other area used for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for on-site residential use, and consisting of one or more free-standing, ground mounted, solar arrays or modules, or solar related equipment, intended to primarily reduce on-site consumption of utility power and/or fuels. Solar arrays or modules that are flush mounted on the roofs or walls of private residences shall not be subject to PRSES performance standards or permit requirements for same. PRSES can be up to two thousand (2,000) square feet in surface area, with a rated nameplate capacity of up to 20kW.
 - b. Commercial Solar Energy Systems (CSES): An area of land or other area used by a business for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for on-site commercial use, and consisting of one or more free-standing, ground or roof mounted, solar arrays or modules, or solar related equipment, intended to primarily reduce on-site consumption of utility power and/or fuels. CSES can be up to twenty thousand (20,000) square feet in surface area, with a rated nameplate capacity of up to 250 kW.
 - c. Industrial Solar Energy Systems (ISES): An area of land or other area used by a property owner and/or corporate entity for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for off-site utility grid use, and consisting of one or more free-standing, ground-mounted, solar arrays or modules, or solar related equipment, intended to primarily reduce off-site consumption of utility power and/or fuels. ISES are a minimum of twenty thousand (20,000) square feet in surface area, and can be up to eight hundred (800) acres in surface area, and there is no limit on the rated nameplate capacity of an ISES.

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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3. Permits Required:

- a. No person shall construct a PRSES, CSES, or ISES without obtaining a permit from the Code Enforcement Officer (CEO) or Planning Board as follows:
 - 1) For PRSES, approval by the CEO is required for the construction and/or expansion of all such solar energy systems.
 - 2) For CSES and ISES, approval by the Planning Board is required for the construction and/or expansion of all such solar energy systems.

4. Application Procedure:

- a. Applications for PRSES, CSES, and ISES permits shall be filed on forms provided by the Code Enforcement Office and must include the following information:
 - 1) Name of owner and operator of the solar energy system, and owner of property.
 - 2) Location of proposed solar energy system, including map/lot number, and street address. Plot plan identifying location of the solar energy system on the property and physical dimensions of the property.
 - 3) Location of any public road or right-of-way that is contiguous with the property.
 - 4) Location of overhead utility lines.
- b. CSES and ISES permit applications will also require the following supplemental information:
 - 1) Solar system specifications, including manufacturer and model.
 - 2) Array/module design and site plans.
 - 3) Certification that layout, design, and installation conform to and comply with all applicable industry standards, such as the National Electrical Code (NEC)(NFPA-70), the American National Standards Institute (ANSI), the Underwriter's Laboratories (UL), the American Society for Testing & Materials (ASTM), the Institute of Electric & Electronic Engineers (IEEE), the Solar Rating & Certification Corporation (SRCC), the Electrical Testing Laboratory (ETL), and other similar certifying organizations, the Federal Aviation Administration (FAA), the Maine Uniform Building & Energy Code

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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(MUBEC), fire and life-safety codes (NFPA 1 & 101), and any other standards applicable to solar energy systems. The manufacturer specifications for the key components of the solar energy system shall be submitted the application.

5. Notice to Abutters: Abutting property owners shall be notified by certified mail, by the Town, at least fifteen (15) days prior to the initial Board or CEO consideration. The cost of notification shall be borne by the applicant. The notice shall indicate the time, date and place of the Board or CEO consideration, if applicable. Public hearings may be called at the discretion of the Board or CEO. If a public hearing is scheduled, a notice of such shall be published in a newspaper of general circulation in the municipality at least fifteen (15) days prior to the hearing and shall include the date, time and place of the hearing. The cost of advertising shall be borne by the applicant.

6. Onsite Visit: All applicants shall facilitate onsite visits by the CEO and/or the Board as requested.

7. Standards for PRSES Permits

- a. A permit for a new PRSES, including all components that comprise the system, shall be granted only in a zoning district in which such a facility is allowed (per §11-8.9.D - Table of Uses).
- b. All PRSES shall be setback from abutting property lines, utility lines, and/or public roads or right-of-way by a distance no less than the standard structural setback distance applicable in the zoning district where the system is to be installed. Best Engineering Practices shall be utilized in determining the optimal placement within the above requirements.
- c. All PRSES, whether ground or building mounted, shall comply with the structural height restrictions applicable in the zoning district where the system is to be installed. Best Engineering Practices shall be utilized in determining the optimal placement.
- d. All ground-mounted electrical and control equipment for PRSES shall be labeled and secured to prevent unauthorized access.
- e. All PRSES shall not exceed 50 dB(A), as measured at the closest property line.
- f. All PRSES shall be installed so as not to cause any wire or wireless communication signal disturbance.

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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- g. The owner of a roof mounted PRSES shall provide evidence certified by a *ing* ~~Third-Party Inspector (TPI)~~ that the roof structure is capable of supporting the additional load of the PRSES.
- h. All PRSES shall be situated to eliminate concentrated glare onto abutting structures and roadways.
- i. The owner of a PRSES shall be required to remove all components if it hasn't produced power for a period of twelve (12) consecutive months, unless otherwise waived by the CEO or the Board.

j. All roof mounted solar array panels shall be installed according to NFPA-1 and 101 (see #4b.3). ~~(2021) 11.12.3.3.2 Perimeter Pathways, 11.12.3.3.2.1, 11.12.3.3.2.2, and 11.12.3.3.3 Other Pathways.~~

8. Standards for CSES and ISES Permits:

- a. A permit for a CSES or ISES, including all components that comprise the system, shall be granted only in a zoning district in which such a facility is allowed (per §11-8.9.D - Table of Uses), and only upon proof of right, title, or interest, such as ownership, easement, lease, or purchase option for the location being considered.
- b. A site location map shall be provided which shows the boundaries of the proposed facility, property boundary lines, contiguous properties under the total or partial control of the applicant, scenic resources or historic sites within one mile of the proposed development, and any significant wildlife habitat (per MeDEP under the Site Location of Development Act and/or the Natural Resource Protection Act) which may be impacted.
- c. There shall be written evidence in the form of letter copies that all applicable State regulatory agencies with jurisdiction over the project have been notified of the pending application and the location of all system components covered by the application.
- d. All CSES and ISES panel arrays and/or modules shall be setback from ~~abutting property boundaries~~ *the abutting property boundaries that abut properties located in Residential, Village Residential, and Residential and Light Commercial zoning districts* by ~~a distance of two hundred (200) feet,~~ and seventy-five (75) feet *in all other zoning districts*. In no case may the setback be less than the required setback distance in the zoning district, *and* shoreland area, ~~or floodplain~~ where the system is to be installed. *The setback distances do not apply when contiguous properties are part of the same development.* Best Engineering Practices shall be utilized in determining the optimal placement within the above requirements.

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

Deletions are ~~strikeouts~~ Additions are **red**

- e. All CSES and ISES, whether ground or building mounted, shall comply with the structural height restrictions in the applicable zoning district.
- f. The application shall include a description of the proposed CSES or ISES facility to include all non-proprietary manufacturer's specifications for the solar panels, components, controls, and other equipment, sound emission levels, normal and emergency operational shutdown procedures, the number and individual ratings of panels in the array and/or modules, and the aggregate generating capacity of the total system. A description of all associated facilities shall also be included.
- g. To the greatest practical extent, CSES and ISES shall possess a manufactured finish appropriate to and compatible with the surroundings, with reflective characteristics that minimize negative visual impacts. The Board may require photos of the existing proposed site from various locations and similar photos from the same locations with the system superimposed to aid in evaluating the visual impact, and will take into consideration the limitations of available manufactured finishes.
- h. All ground-mounted electrical and control equipment for CSES and ISES shall be fenced and labeled or secured to prevent unauthorized access. The solar array and/or modules shall be designed and installed to prevent access by the public, and access to same shall be through a locked gate.
- i. ~~To the greatest practical extent, a~~ **All** electrical wires and utility connections for CSES and ISES shall be installed underground, ~~except for transformers and controls. The Board will take into consideration prohibitive costs and site limitations in making their determination.~~ ***The Planning Board, after thorough review of the application, may waive this requirement if the appropriate soil conditions, shape, and topography of the site do not meet the utility providers' requirements for underground installation. Electrical transformers for utility interconnections may be above ground if required by the utility provider. It is the intent of this requirement that all utility connections be installed underground, and any exception can only be recognized sparingly.***
- j. Exterior lighting for CSES and ISES shall be limited to that required for safety and operational purposes, and shall meet the performance standards for same in §11-8.11.F.
- k. All signs, other than the manufacturer's or installer's identification, appropriate warning signs, or owner identification on a solar panel array and/or modules, building, or other structure associated with a CSES and ISES shall be

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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- prohibited. No CSES or ISES shall have any signage, or writing or pictures that may be construed as advertising placed on it at any time.
- I. The CSES or ISES applicant shall certify that they will comply with the utility notification requirements contained in Maine law and accompanying regulations through the Maine Public Utility Commission, unless the applicant intends, and so states on the application, that the system will not be connected to the electricity grid.
 - m. All CSES and ISES shall not exceed 60 dB(A), as measured at the property line.
 - n. The installation of a CSES or ISES shall be appropriate to the surroundings and shall be located according to Best Engineering Practices. The application shall include site line, photographic and, if applicable, screening information to aid the Board in evaluation of the environmental and visual impact of the construction and operation of the system. The system site shall also be enclosed within an eight (8) foot tall fence with locking gate.
 - o. All CSES and ISES shall be installed so as not to cause any wire or wireless communication signal disturbance.
 - p. Ground-mounted CSES and ISES shall be screened from view by any abutting residential property, using vegetation, topography, or fencing.
 - q. The owner of a roof mounted CSES or ISES shall provide evidence certified by a TPI that the roof structure is capable of supporting the additional load of system.
 - r. All CSES and ISES shall be situated to eliminate concentrated glare onto abutting structures and roadways.
 - s. No CSES and ISES shall be constructed in the 100-year Flood plain as depicted on the FEMA NFIP-FIRM maps for the Town of Farmington.**
 - t. All CSES and ISES roof mounted solar array panels shall be installed according to NFPA-1 and 101 (see #4b.3). ~~(2021) 11.12.3.3.2 Perimeter Pathways, 11.12.3.3.2.1, 11.12.3.3.2.2, and 11.12.3.3.3 Other Pathways.~~**
 - u. Lots on which ground mounted solar panels and arrays are located shall utilize buffers/screening from roads and residences by plantings, berms, and natural topographical features. Ground mounted solar energy systems shall be screened from view to the greatest extent practical of any adjacent property that is residentially zoned or used for residential purposes, as well as any public way. The screen shall consist of a vegetative barrier which provides a visual screen. In lieu of**

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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a vegetative screen, a fence that provides visual screening, and meets requirements of the controlling ordinance, may be allowed only if a vegetative screen is deemed impractical by the Planning Board.

☞ **v.** Decommissioning of the entire facility will begin if twelve (12) consecutive months of no generation occurs at the facility *after it has gone online and fully operational*, unless the Select Board approves an extension of time of up to twelve (12) months due to extraordinary circumstances.

In order to facilitate and ensure appropriate removal of the energy generation equipment of a CSES or ISES when it reaches the end of its useful life, or if the applicant ceases operation of the facility, applicants are required to file a decommissioning plan which details the means by which decommissioning will be accomplished. This plan must include a description of implementing the decommissioning, a description of the work required, a cost estimate for decommissioning, a schedule for contributions to its decommissioning fund, and a demonstration of financial assurance.

In the event of a force majeure or other event which results in the absence of electrical generation for twelve months, by the end of the twelfth (12) month of non-operation the applicant must demonstrate to the Town that the project will be substantially operational and producing electricity within twenty-four (24) months of the force majeure or other event. If such a demonstration is not made to the Town's satisfaction, the decommissioning must be initiated eighteen months after the force majeure or other event. The Town considers a force majeure to mean fire, earthquake, flood, tornado, or other acts of God and natural disasters, and war, civil strife or other similar violence.

The applicant will provide financial assurance for the decommissioning costs in the form of a performance bond or a surety bond, for the total cost of decommissioning. The applicant will have the financial assurance mechanism in place prior to construction and will re-evaluate the decommissioning cost and financial assurance at the end of years five, ten and fifteen. Every five (5) years after the start of construction, updated proof of acceptable financial assurance must be submitted to the Town for review. Proof of acceptable financial assurance will be required prior to the start of commercial operation.

9. Permit Fees: Application for a PRSES shall be accompanied by a fee of fifty (\$50.00) dollars. An application for a CSES or ISES permit shall be accompanied by a fee of five-hundred (\$500.00) dollars.

10. Expiration of Approval: All PRSES, CSES, and ISES approvals shall expire within one (1) year of the date of issuance unless work thereunder is commenced. Normally, if work is not completed within two (2) years from the date of issuance, a new application must be made (See 11.). The CEO shall

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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make determinations regarding commencement and completion. All CSES and ISES approvals shall expire upon decommissioning (See 7.s).

11. Extension of Approval: PRSES, CSES, and ISES approvals may be extended for one (1) year from the date of issuance by the CEO for projects not commencing within one (1) year of initial Board approval. Written extension requests must be submitted to the CEO at least forty-five (45) days before the one (1) year expiration. Proposal approvals which are granted a one (1) year extension from the date of issuance shall also have their completion date extended by one (1) year.

Before extending an approval, the CEO must determine that extenuating circumstances beyond the control of the applicant exist. Extenuating circumstances may include but are not limited to: procurement of financing; legal issues; availability of materials; availability of qualified contractors; and adverse weather conditions.

12. Extension of Completion Date: The CEO may extend the completion date of a commence approved project by one (1) year beyond the allotted two (2) years. In determining this extension, the CEO shall consider factors such as, but not limited to: financial hardship; legal difficulties; site condition problems; contract delay; disruption in supply of labor and/or materials; or personal issues.

13. Exemptions: All solar energy systems constructed prior to the effective date of these performance standards (November 22, 2016) shall not be required to meet the terms and conditions of same. Any physical modification that expands a PRSES, CSES, or ISES, whether or not existing prior to the effective date of these performance standards, shall require approval. Routine maintenance or replacements do not require a permit.

14. Definitions:

Commercial Solar Energy Systems (CSES): An area of land or other area used by a business for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for on-site commercial use, and consisting of one or more free-standing, ground or roof mounted, solar arrays or modules, or solar related equipment, intended to primarily reduce on-site consumption of utility rated nameplate capacity of up to 250 kW.

Industrial Solar Energy Systems (ISES): An area of land or other area used by a property owner and/or corporate entity for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for off-site utility grid use, and consisting of one or more free-standing, ground-mounted, solar arrays or modules, or solar related equipment, intended to primarily reduce off-site consumption of utility

SOLAR ENERGY SYSTEM PERFORMANCE STANDARDS

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power and/or fuels. ISES can be up to eight hundred (800) acres in surface area, with no limit on the surface area or the rated nameplate capacity of an ISES.

Private Residential Solar Energy Systems (PRSES): An area of land or other area used for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for on-site residential use, and consisting of one or more free-standing, ground or roof mounted, solar arrays or modules, or solar related equipment, intended to primarily reduce on-site consumption of utility power and/or fuels. PRSES can be up to two thousand (2,000) square feet in surface area, with a rated nameplate capacity of up to 20kW.