

TOWN OF ALFORD SOLAR ENERGY SYSTEMS ZONING BY-LAW

8.2 SOLAR ENERGY SYSTEMS

8.2.1 Definitions. The following terms shall have the following definitions in this Section 8.2.

Photovoltaic System: (also referred to as Photovoltaic Installation): An active solar energy system that converts solar energy directly into electricity.

Rated Nameplate Capacity: The maximum rated output of electric power production of the photovoltaic system in watts of Direct Current (DC).

Solar Access: The access of a solar energy system to direct sunlight.

Solar Collector: A device, structure or a part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy.

Solar Energy: Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

Solar Energy System: A device or structural design feature, a substantial purpose of which is to provide daylight for interior lighting or provide for the collection, storage and distribution of solar energy for space heating or cooling, electricity generation, or water heating.

Solar Energy System, Active: A solar energy system whose primary purpose is to harvest energy by transforming solar energy into another form of energy or transferring heat from a collector to another medium using mechanical, electrical, or chemical means.

Solar Energy System, Grid-Intertie: A photovoltaic system that is connected to an electric circuit served by an electric utility.

Solar Energy System, Ground-Mounted: An Active Solar Energy System that is structurally mounted to the ground and is not roof-mounted. All such Systems shall comply with the dimensional requirements set forth in Section 6.1 of this Bylaw, except that no such Systems shall be greater than 15 feet in height. A Ground-Mounted Solar Energy System may be of any size (Small-, Medium- or Large-Scale).

Solar Energy System, Large-Scale: An Active Solar Energy System that occupies more than 5,445 square feet of surface area.

Solar Energy System, Medium-Scale: An Active Solar Energy System that occupies more than 1,750 but less than 5,445 square feet of surface area.

Solar Energy System, Off-Grid: A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility.

Solar Energy System, Passive: A solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.

Solar Energy System, Roof-Mounted: An Active Solar Energy System that is structurally mounted to the roof of a building or structure, the principal use of which building or structure is other than solar, may be of any size (Small-, Medium- or Large-Scale).

Solar Energy System, Small-Scale: An Active Solar Energy System that occupies 1,750 square feet of surface area or less (equivalent to a rated nameplate capacity of about 10 kW DC or less).

Solar Thermal System: An Active Solar Energy System that uses collectors to convert the sun's rays into useful forms of energy for water heating, space heating, or space cooling.

8.2.2 Use Regulation

1. Roof-Mounted Solar Energy Systems shall be permitted as an accessory use, provided that said Systems:
 - A. Shall only be constructed or materially modified after the issuance of a building permit by the Building Inspector, if such permit is otherwise required.
 - B. Shall protrude no higher than the height of the ridge point.
2. Small-Scale and Medium-Scale Ground-Mounted Solar Energy Systems shall be permitted subject to Site Plan Review by the Planning Board. Small-Scale and Medium-Scale Ground-Mounted Solar Energy Systems shall be visually screened year-round from all adjoining properties and public and private ways, to the fullest extent practicable
3. Large-Scale Ground-Mounted Solar Energy Systems shall be permitted by Special Permit from the Planning Board.

4. All solar energy systems must comply with all other applicable laws, regulations, and bylaws.

8.2.3 Site Plan Review Requirements and Performance Standards (Medium-Scale Ground-Mounted Solar Energy Systems)

1. Required Information. Pursuant to the Site Plan Review process, the project proponent shall provide the following information, as deemed applicable by the Planning Board
 - A. Site Plan showing:
 - i. Name, address, phone number and signature of the project proponent, as well as all co-proponents and property owners, if any;
 - ii. The name, contact information and signature of any agents representing the project proponent;
 - iii. Zoning district designation for the parcel(s) of land comprising the project site;
 - iv. Property lines and physical features, including roads, for the project site;
 - v. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures;
 - B. Blueprints or drawings of the solar energy system showing the proposed layout of the system, any potential shading from nearby structures, the distance between the proposed solar collector and all property lines and existing on-site buildings and structures, and the tallest finished height of the solar collector;
 - C. Documentation of the major system components to be used, including the panels, mounting system, and inverter;
 - D. Name, address, and contact information for proposed system installer;
2. Site Plan Review Design Standards. Medium-scale ground-mounted solar energy systems shall meet the following design standards:
 - A. Utility Notification. No grid-intertie photovoltaic system shall be installed until evidence has been given to the Planning Board that the owner has submitted notification to the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.

- B. 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.
- C. Safety. The medium-scale ground-mounted solar energy system owner or operator shall provide a copy of the Site Plan Review application to the fire chief. All means of shutting down the solar installation shall be clearly marked.
- D. Visual Impact. Shall be visually screened year-round from all adjoining properties and public and private ways, to the fullest extent practicable.
- E. 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 ground-mounted solar energy systems or as otherwise prescribed by applicable laws, regulations, and bylaws/ordinances.

8.2.4 Special Permit Review Requirements and Performance Standards (Large-Scale Solar Energy Systems)

1. Special Permit Document Requirements. Pursuant to the Special Permit process, the project proponent shall provide the following documents, as deemed applicable by the Planning Board:
 - A. A site plan showing:
 - i. Property lines and physical features, including roads, for the project site;
 - ii. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures;
 - iii. Blueprints or drawings of the solar energy system signed by a Professional Engineer or Surveyor licensed to practice in the Commonwealth of Massachusetts, showing the proposed layout of the system, any potential shading from nearby structures, the distance between the proposed solar collector and all property lines and existing on-site buildings and structures, and the tallest finished height of the solar collector;
 - iv. One or three-line electrical diagram detailing the solar photovoltaic installation, associated components, and electrical interconnection methods, with all Massachusetts Electric Code (527 CMR 12.00) compliant disconnects and overcurrent devices;

- v. Documentation of the major system components to be used, including the panels, mounting system, and inverter;
- vi. Name, address, and contact information for proposed system installer;
- vii. Name, address, phone number and signature of the project proponent, as well as all co-proponents or property owners, if any;
- viii. The name, contact information and signature of any agents representing the project proponent;
- ix. Locations of active farmland, wetlands, permanently-protected open space, Priority Habitat Areas and BioMap 2 Critical Natural Landscape Core habitat mapped by the Natural Heritage & Endangered Species Program (NHESP) and “Important Wildlife Habitat” mapped by the DEP;
- x. Locations of floodplains;
- xi. Zoning district designation for the parcel(s) of land comprising the project site.

- B. Documentation of actual or prospective access and control of the project site;
- C. An operation and maintenance plan;
- D. Proof of liability insurance in an amount and form acceptable to the Planning Board shall be maintained until the Large-Scale Solar Energy System has been removed. All subsequent owners/operators shall continue to provide proof of liability insurance, in the form and amount approved by the Planning Board, to the Building Inspector on an annual basis; provided however, that the initial subsequent notice shall be filed within thirty days of sale or transfer of ownership/operation; and.
- E. A public outreach plan, including a project development timeline, which indicates how the project proponent will meet the required Special Permit notification procedures and otherwise inform abutters and the community.

2. Special Permit Design and Operation Standards. Large-Scale Ground-Mounted Solar Energy Systems shall meet the following design and operation standards:

- A. Site Control. The project proponent shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed solar energy system.
- B. Operation & Maintenance Plan. The project proponent shall submit a plan for the operation and maintenance of the large-scale ground-mounted solar energy system, which shall include measures for maintaining safe access to the installation, storm water controls, as well as general procedures for operational maintenance of the installation as specified this Section 8.2.5.

- C. Utility Notification. No grid-intertie photovoltaic system shall be installed until evidence has been given to the Planning Board that the owner has submitted notification to the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.
- D. 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 shielded from abutting properties, except as required for safety and operational purposes. Where feasible, lighting of the solar energy system shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.
- E. Signage. Signs on large-scale ground-mounted solar energy systems shall comply with a municipality's sign bylaw/ordinance. A sign consistent with a municipality's sign bylaw/ordinance shall be required to identify the owner and provide a 24-hour emergency contact phone number. Solar energy systems shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the solar energy system.
- F. 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.
- G. Emergency Services – The large-scale ground-mounted solar energy system owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the local fire chief. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the solar energy system shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.
- H. Visual Impact – Large-scale ground-mounted solar energy systems shall be visually screened year-round from all adjoining properties and public and private ways, to the fullest extent practicable.
- I. 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 solar energy system or otherwise prescribed by applicable laws, regulations, and bylaws/ordinances. A Large-Scale Solar Energy System shall be clustered and located in or adjacent to areas of the site where the land has already been cleared to avoid habitat fragmentation, unless otherwise approved by the Planning Board.

- J. Monitoring and Maintenance. The large-scale ground-mounted solar energy system owner or operator shall maintain the facility in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief, Emergency Management Director, and Emergency Medical Services. The owner or operator shall be responsible for the cost of maintaining the solar energy system and any access road(s), unless accepted as a public way.
- K. Modifications. All material modifications to a large-scale ground-mounted solar energy system made after issuance of the required building permit shall require approval by the Planning Board.
- L. Compliance. The construction, maintenance, operation, modification and removal of a Large-Scale Solar Energy System shall comply with applicable local, state, and federal requirements.
- M. Abandonment or Decommissioning Any Medium- or Large-Scale ground-mounted solar energy system which has reached the end of its useful life or has been abandoned consistent with this bylaw shall be removed. The owner or operator shall physically remove the installation no more than 150 days after the date of discontinued operations. The owner or operator shall notify the Planning Board by certified mail of the proposed date of discontinued operations and plans for removal. Decommissioning shall consist of:
 - (a) Physical removal of all solar energy systems, structures, equipment, security barriers and transmission lines from the site.
 - (b) Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
 - (c) Stabilization or re-vegetation of the site as necessary to minimize erosion. The Planning Board may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

Absent notice of a proposed date of decommissioning or written notice of extenuating circumstances, the large-scale ground-mounted solar energy system shall be considered abandoned when it fails to operate for more than one year without the written consent of the Planning Board. If the owner or operator of the solar energy system fails to remove the installation in accordance with the requirements of this section within 150 days of abandonment or the proposed date of decommissioning, the Town retains the right, after the receipt of an appropriate court order, to enter and remove an abandoned, hazardous, or decommissioned large-scale ground-mounted solar energy system. As a condition of Site Plan approval, the applicant and landowner shall agree to allow entry to remove an abandoned or decommissioned installation.

Surety. Applicants seeking to construct a Large-Scale Solar Energy System shall provide a form of surety to cover the cost of removal and restoration of the site in the event the site is abandoned. The amount and form of surety shall be determined by the Planning Board and shall provide for adjustments at no less than two (2) year intervals to account for inflation, but in no event shall the amount exceed one-hundred twenty-five (125%) percent of the cost of removal. Applicants shall submit a fully inclusive cost estimate of the costs associated with the removal of the Large-Scale Solar Energy System and restoration of the site, prepared by a qualified individual. No less than ninety (90) days prior to the expiration of any financial surety required by this bylaw, the current operator of the Large-Scale Solar Energy System shall provide the Building Inspector with renewed, extended or replacement financial surety in an amount and form determined by the Planning Board in accordance with this bylaw.

Fine for Non-Compliance. In the event that the landowner or the operator shall fail to comply with any of the provisions of this subparagraph M, the landowner and operator shall be in accordance with Section 10.1.7.

3. Technical Review. Upon receipt of an application for a Large-Scale Solar Energy System, the Planning Board may engage professional and technical consultants, at the applicant's expense, in accordance with M.G.L. Chapter 44 § 53G, to assist the Planning Board with its review of application materials. The Planning Board shall direct the applicant to deposit funds with the Planning Board for such review at the time the application is accepted and to add additional funds as needed upon notice. Failure to comply with this section shall be good grounds for denying the special permit application. Upon the approval or denial of the application, any excess amounts in the account attributable to the application process, including any interest accrued shall be refunded to the applicant.