

§ 102-37.3. Solar energy facilities. [Added 5-3-2012 by Ord. No. 255.55.2012]

A. Purposes and goals.

(1) Purpose. The purpose of this section is set forth as follows:

- (a) Whereas, the New Jersey Legislature has amended the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. ("MLUL") to permit solar energy facilities in industrial zones on sites of 20 or more acres (N.J.S.A. 40:55D-66.11), to recognize solar or photovoltaic energy facilities and structures as inherently beneficial uses (N.J.S.A. 40:55D-4), and to require that solar panels, as defined in the MLUL, not be included in calculation of impervious surface or impervious cover in subdivision, site plan, and converted development applications, or in connection with stormwater management plans (N.J.S.A. 40:55D-38.1, 40:55D-46.6, 40:55D-95);
- (b) Whereas, the New Jersey Legislature has also amended the Right to Farm Act, N.J.S.A. 4:1C-1 et seq., and the Farmland Assessment Act, N.J.S.A. 54:4-23.1 et seq., regarding solar energy and preserved farmland, commercial farmland, and agricultural and horticultural uses of land, including for taxation and farmland assessment purposes;
- (c) Whereas, the Farmland Assessment Act has been amended to permit solar energy generation facilities, structures, and equipment to be constructed or installed on no more than 10 acres of property subject to farmland assessment and, if power is being generated, no more than two MW of power generated on the 10 acres or less, provided the ratio does not exceed one acre of land devoted to such facilities, structures, and equipment to five acres of land devoted to agricultural or horticultural operations (N.J.S.A. 54:4-23.3c);
- (d) Whereas, the Right to Farm Act permits solar energy generation facilities, structures, and equipment on preserved farmland if they do not interfere significantly with the use of the land for agricultural or horticultural production, and generate no more than 110% of the previous year's energy demand, with certain exceptions, or occupying no more than 1% of the farm (N.J.S.A. 4:1C-32.4);

- (e) Whereas, grid-scale, multimegawatt-generating solar facilities are extremely consumptive of land and as such are competitors with agriculture for the use of prime agricultural soils;
 - (f) Whereas, the useful life of solar panels is approximately 25 years; however, developers may require longer approval periods to install and make use of upgraded solar technology;
 - (g) Whereas, solar energy facilities create visual impacts on the landscape which may significantly change the character and aesthetic value of the surrounding area, especially in historic, scenic, or mountainous locations;
 - (h) Whereas, a continuous visual screen consisting of evergreen and deciduous trees and shrubs and/or earthen berms and fencing which will provide a visual barrier from solar energy facilities from adjacent properties and roadways is necessary to mitigate the negative visual impact of grid-scale solar-energy generating facilities;
 - (i) Whereas, site plan considerations may be so intertwined with the consideration of negative impacts arising from use variance applications for solar energy facilities that the approving board cannot make accurate findings without simultaneous site plan review;
 - (j) Whereas, solar energy facilities are not exempt from assessment of negative impacts and subsequent consideration of appropriate conditions for mitigation or from satisfying both positive and negative criteria when requesting "C" bulk variances; and
 - (k) Whereas, forest resources are a vital natural resource which provide for groundwater recharge and surface water filtration, wildlife habitat, a source of renewable wood products, and scenic beauty, which is a defining feature of Bethlehem Township.
- (2) Goals. The goals of this section are to:
- (a) Reflect legislation and rules created to facilitate the production of alternative forms of energy.
 - (b) Reduce potential land-use conflicts and impacts associated with solar energy facilities.

- (c) Retain prime agricultural soils for agricultural use.
- (d) Protect forest, scenic and historic resources.
- (e) Differentiate between residential-scale, farm-scale, and utility- or grid-scale solar energy facilities.
- (f) Provide standards for buffering and screening of solar energy facilities.
- (g) Provide for proper decommissioning of a solar energy facility after the useful life of the solar array.

B. Definitions. As used in this section, the following terms shall have the meanings indicated:

DEFORESTATION — The conversion of forested areas to nonforested areas, whether for use as urban land, or any other nonforest land use; disturbance of an area characterized as "forest" the extent or effect of which is to disqualify the area from such designation.

FARM MANAGEMENT UNIT — A parcel or parcels of land, whether contiguous or noncontiguous, together with agricultural or horticultural buildings, structures, and facilities, producing agricultural or horticultural products, and operating as a single enterprise.

FARM-SCALE SOLAR-ENERGY GENERATING FACILITY — A ground-mounted solar energy facility that is rated to generate no more than two megawatts (MW) of electricity, constitutes an accessory use on farmland-assessed property, and does not exceed a ratio of one acre of solar energy facility to five acres of agricultural production, and occupies no more than 10 acres of total land area. Roof-mounted solar energy facilities shall not contribute to the above-mentioned ratio or the two-MW or ten-acre limitations.

FOREST — A forested area as determined under the Highlands Water Protection and Planning Act Rules at N.J.A.C. 7:38-3.9(b).

GRID-SCALE SOLAR-ENERGY GENERATING FACILITY — A solar-energy generating facility which is rated to produce greater than two megawatts (two MW) of electricity and which constitutes a principal use on the property.

INDUSTRIAL — Of, relating to, concerning, or arising from the assembling, fabrication, finishing, manufacturing, packaging, or processing of goods. This does not include recycling operations or quarrying operations or reclamation.

NEIGHBORING RESIDENTIAL PROPERTY — Properties that abut the subject site, properties located directly across the street from the subject site, or, in the case of hillsides or mountainsides overlooking the subject site, properties within 500 feet of the subject site.

PRESERVED FARM SOLAR-ENERGY GENERATING FACILITY — A ground-mounted solar-energy generating facility which constitutes an accessory use on a preserved farm and which shall be permitted at a scale not to exceed 110% of the previous year's energy demand for the farm management unit or 1% of the total acreage of the farm management unit, whichever is greater. In no case shall a facility be rated to generate more than two megawatts (two MW) of electricity. Roof-mounted solar energy facilities on existing structures shall not contribute to the maximum electricity production of 110% or the two-MW maximum or one-percent area limitation.

RESIDENTIAL-SCALE SOLAR-ENERGY GENERATING FACILITY — A solar energy facility that is rated to generate no more than 110% of the historical energy use from the previous year of the meter connected to the solar energy system and which constitutes an accessory use to a principal residential use.

SOLAR ENERGY FACILITY — A solar or photovoltaic energy facility or structure, and all associated equipment, for the purpose of generating electrical energy or heat or hot water produced from solar or photovoltaic technologies, other than solar reflective or concentrating technology, whether such facility or structure is a principal use, a part of the principal use, a conditional use, or an accessory use or structure.

SOLAR PANEL — An elevated panel or plate, or a canopy or array thereof, or solar collector that captures and converts solar radiation to produce electrical energy or hot water, and includes flat plate, or photovoltaic solar cells, excluding solar reflective or concentrating technology.

- C. General requirements. The following general requirements shall apply to solar energy facilities, regardless of whether they are accessory, conditional, or principal uses:
- (1) Solar energy facilities shall be permitted to be ground mounted with certain limitations and mounted to the roof of principal and accessory structures and buildings only where expressly permitted in each zoning district.

- (2) For the purposes of this section, a solar energy facility shall mean the aggregate of all solar energy facilities constructed on a site or on a farm management unit.
- (3) Solar energy facilities utilizing concentrating solar or reflective solar technologies are prohibited.
- (4) Ground-mounted solar energy facilities which are accessory uses shall not exceed an area of 12,000 square feet.
- (5) Ground-mounted solar energy facilities which are principal uses shall not exceed fifty-percent lot coverage.
- (6) A solar energy facility which exceeds any of the following provisions shall be considered a principal use:
 - (a) A ratio of one acre of solar energy facility to five acres of agricultural or horticultural production;
 - (b) Ten acres in total land area devoted to solar energy facility;
 - (c) Two MW total energy production.
- (7) All roof-mounted solar energy facilities shall be accessory uses.
- (8) Solar energy facilities shall not be counted in the calculation of maximum lot coverage or maximum impervious cover, unless the area under the facility (excluding the footings) consists of an impervious material, such as pavement. Nevertheless, the design of the systems shall comply with all Township stormwater, grading, and soil disturbance regulations.
- (9) Ground-mounted solar energy facilities contained within an area of 2,000 square feet (including the aggregate area of multiple systems) to 10 acres shall require minor site plan approval prior to obtaining a zoning permit; smaller systems shall not require site plan approval. Systems greater than 10 acres in size shall require preliminary and final site plan approval prior to obtaining a zoning permit. The Planning Board, or site plan subcommittee of the board appointed by the chairman, may waive the requirement for minor site plan approval, provided the proposed facility is reasonable and within the general purpose and intent of the regulations and standards established by this chapter.

- (10) Ground-mounted solar energy facilities greater than 2,000 square feet shall provide one or more of the following beneath the structures: meadow grasses, agricultural area for crops or grazing farm animals, or other stabilization methods approved by the Planning Board.
- (11) Site disturbance, including but not limited to, grading, soil removal, excavation, and soil compaction, in connection with installation of solar energy facilities, including ground-mounted systems, shall be minimized to the extent practicable.
- (12) Where the site is intended to return to agricultural use after the decommissioning of the solar facility, no cut and fill of soil shall be permitted to construct the solar facility.
- (13) Mounting of ground-mounted solar energy facilities shall be accomplished without the use of footings, concrete, or other impervious surfaces to the extent practicable.
- (14) Roadways constructed within the site to access a solar energy facility shall not be constructed of impervious materials and shall be designed to minimize the extent of roadways constructed and associated soil compaction.
- (15) Forest sites shall not be deforested to construct solar energy facilities.
- (16) Applicants are encouraged to enter into solar easements with neighboring property owners in order to ensure continuing access to sunlight for solar energy facilities.
- (17) All electrical and control equipment shall be labeled and secured to prevent unauthorized access.
- (18) There shall be no signs that are visible from any public road posted on a solar energy facility or any associated building or structure, other than the manufacturer's or installer's identification, appropriate warning signs, or owner/operator identification.
- (19) Noise generated by any portion of the solar energy facility, including inverters, shall not exceed 55 dBA during the day and 40 dBA at night at the property line and shall not be audible within nearby public or private schools, houses of worship, day-care facilities, or residential dwellings.
- (20) A permit issued pursuant to this section shall expire if:

- (a) The solar energy facility is not installed and functioning within 24 months from the date the permit is issued; or
 - (b) The solar energy facility is out of service or otherwise unused for a continuous eighteen-month period.
- (21) A solar energy facility that is out of service for a continuous twelve-month period will be deemed to have been abandoned.
- (a) The Township may issue a notice of abandonment to the owner of a solar energy facility that is deemed to have been abandoned. The notice shall be sent certified mail, return receipt requested.
 - (b) The owner shall have the right to respond to the notice of abandonment within 30 days from notice receipt date.
 - (c) If the owner provides information that demonstrates the solar energy facility has not been abandoned, the Township shall withdraw the notice of abandonment and notify the owner that the notice has been withdrawn.
 - (d) If the Township determines that the solar energy facility has been abandoned, the owner shall remove the facility, including all solar panels, inverters, interconnection hardware, substations, racking or mounting structures, fencing, and all other structures and equipment, at the owner's sole expense within six months after the owner receives the notice of abandonment.
 - (e) If the owner fails to remove the solar energy facility in the time allowed under Subsection C(21)(d) above, the Township may pursue legal action to have the solar energy facility removed at the owner's expense.
- (22) Where site plan approval is required, in addition to those items required for an application to be deemed complete, a site plan application shall depict the following:
- (a) Location of proposed and existing overhead and underground utility and transmission lines.
 - (b) Location of any proposed or existing substation, inverter, transformer or equipment enclosures.
 - (c) Description of any necessary upgrades or modifications to existing substations or the necessity for a new substation.

- (d) Description of how the energy generated by the facility will be connected to the electrical distribution or transmission system or the electrical system of the intended energy user.
 - (e) For solar energy facilities over two MW, the location and elevations of all transmission lines, support structures and attachments to a substation(s).
 - (f) Location of existing hedgerows and vegetated windbreaks.
 - (g) Landscape maintenance plan that demonstrates how the ground cover and screening plantings will be maintained.
 - (h) Decommissioning plan documenting how the property will be restored once the solar energy facility has been removed and an estimate of the cost of decommissioning.
 - (i) Major site plan applications shall include an acoustical analysis.
 - (j) Major site plan applications for solar energy facilities over two MW shall include documentation detailing the available capacity of the existing electric infrastructure in the region and the effect the proposed facility will have thereon.
 - (k) For projects over two MW, interconnection agreement with the regional electricity transmission organization, PJM.
- D. Principal use requirements. The following requirements shall apply to solar energy facilities where they are permitted or conditional principal uses:
- (1) Minimum lot size shall be 20 contiguous acres.
 - (2) The following setbacks shall apply to ground-mounted systems:
 - (a) Front yard: 100 feet.
 - (b) Side yard: 100 feet, or not less than 200 feet where a lot abuts a residential district.
 - (c) Rear yard: 50 feet, or not less than 100 feet where a lot abuts a residential district.

- (d) Substations and inverters shall be set back a minimum distance to achieve no discernable difference from existing noise levels at the property line.
 - (3) The following minimum screening requirements shall be met. However, notwithstanding the minimum requirements, the applicant shall demonstrate, to the satisfaction of the Planning Board, that the proposed screening provides a year-round visual screen of the facility from neighboring residential properties.
 - (4) The proposed solar energy facility shall comply with the buffer requirements in § 102-23L and be designed to comply with the industrial standards in Table 7 therein.
 - (5) Substations and other associated transmission structures shall be screened with a double row of evergreen plantings with a minimum height of eight feet.
 - (6) Existing hedgerows or vegetated windbreaks that provide screening of the subject site from neighboring properties shall be retained and augmented unless waived by the Planning Board.
 - (7) Fencing shall be required at a height of six feet on nonresidential properties where deemed by the Planning Board to be necessary for health, safety or welfare.
 - (8) Ground-mounted systems shall not be located in wetlands, floodplains, riparian areas, historic districts, or scenic viewshed corridors and shall be subject to all New Jersey Department of Environmental Protection regulations and permitting.
 - (9) Grid-scale solar energy facilities shall not be located on properties with greater than eighty-five-percent prime agricultural soils with the exception of properties in the ROM and MFG zoning districts.
 - (10) No site may be deforested to construct a grid-scale solar-energy generating facility.
- E. Accessory use requirements. The following requirements shall apply to solar energy facility accessory uses whether they are residential-scale, farm-scale solar energy facilities or accessory to commercial uses:
- (1) A zoning permit must be issued for all systems.

- (2) Roof-mounted systems shall not exceed the maximum building height in the zone district.
 - (3) Ground-mounted systems shall meet the side and rear yard setback standards for accessory structures in the zone in which the structure is located.
 - (4) Ground-mounted systems contained within an area of 2,000 square feet or greater shall be screened from public rights-of-way and neighboring residential uses. A solid screen of plantings shall be provided along rights-of-way and plantings, or a solid fence shall be provided along property lines shared with a residential zone district. The minimum height of the screening shall be five feet. Existing vegetation shall be retained to the extent practical.
 - (5) For single-family residential sites that contain forest resources as defined by the Highlands Water Protection and Planning Act Rules,¹ deforestation is limited to square footage of solar panels that will provide a maximum of 110% of the previous year's energy demand for the residence and accessory structures. Clearing of trees shall not extend past the one-hundred-ten-percent limitation to eliminate shadow fall on the solar energy facility.
- F. Farm-scale solar energy facilities. These conditions relate to farm-scale solar applications whether they are nonpreserved farms or preserved farms.
- (1) On nonpreserved, farmland-assessed farms, ground-mounted facilities shall be permitted on a farm management unit, provided the area of solar energy facility does not exceed a ratio of one acre devoted to the solar facility to five acres devoted to agriculture or horticultural operations (approximately 17%). A maximum of 10 acres may be devoted to the solar energy facility on a farm management unit. This area shall be calculated including required roadways and buffers. In no case shall a facility be rated to generate more than two MW of electricity.
 - (2) A solar energy facility on a preserved farm shall be permitted at a scale of energy production not to exceed 110% of the previous year's energy demand for the farm management unit or occupying no more than 1% of the total acreage of the farm

1. Editor's Note: See N.J.A.C. 7:38.

management unit, whichever is greater. In no case shall a facility be rated to generate more than two MW of electricity.

- (3) Ground-mounted farm-scale facilities which are to be located as accessory uses on an agriculturally assessed farm or preserved farm shall be placed as far from public rights-of-way and viewsheds in the most visually remote areas as possible.
- (4) Deforestation for purposes of installing a ground-mounted farm-scale solar-energy generating facility as an accessory use on a site containing forest as defined by the Highlands Water Protection and Planning Act Rules² and which site has an approved woodland management plan and is eligible for farmland assessment may not exceed 10% of the site. Such deforestation is permitted only if a ratio of one acre devoted to solar energy facility to five acres of managed woodland is maintained, and a maximum of 10 acres is deforested, including all areas cleared for the facility, support roads, and structures and for lands cleared to eliminate shadow fall on the facility.
- (5) All farm-scale solar-energy generating facilities shall comply with all agricultural management practice rules for solar energy generation established by the State Agricultural Development Committee (SADC).
- (6) In no case shall such facilities be located closer than 300 feet to any residential improvement on an adjacent lot.
- (7) The solar energy facility location shall avoid prime agricultural soils.