

## **SOLAR ENERGY SYSTEMS**

### **DRAFT ORDINANCE - Durham, New Hampshire**

**Revised draft presented for new public hearing at Planning Board meeting on September 12**

Notes in red and highlighted in yellow are suggested additions or revisions.

*Notes in blue italic are comments.*

Submitted by Beth Olshansky

Proposed amendments to the Durham Zoning Ordinance to accommodate solar energy systems.

❖ ***Make the following changes in Article II. Definitions.***

- ***Add this new section for “Solar Energy Systems.” Place this section right before “Solid Waste” and retain the order as shown here.***

SOLAR ENERGY SYSTEMS – Specific definitions pertinent to solar energy systems follow.

Solar Energy – Radiant energy emitted by the sun.

Solar Energy System – A structure and the related components used to transform solar energy into electricity, including a solar photovoltaic system and a solar thermal system.

Solar Photovoltaic System – A solar collection, inversion, storage and distribution system that converts sunlight into electricity.

Solar Thermal System – A solar collection system that directly heats a heat-transfer medium.

Roof- or Building-Mounted Solar Energy System – A solar energy system attached to and completely supported by a building and not extending beyond the building footprint more than 5 feet, **nor taller than 5 feet above the ridge line of the roof.** The system may include limited accessory equipment that is ground mounted. A single-family or duplex residential solar energy system or a multiunit residential or nonresidential solar energy system that is installed on a carport is considered a roof- or building-mounted solar energy system **if the carport is attached to a main building. If carport is freestanding, it shall be considered a freestanding solar system.** *Note: A carport attached to a building should be treated differently than a freestanding carport otherwise we inadvertently create a loophole in which a two-legged freestanding device (i.e. carport) can be installed in places where a one-legged freestanding device is not permitted. See suggested definition of carport below.*

Freestanding Solar Energy System – A ground-mounted solar energy system, including a stationary or tracking system (either single axis or dual axis). An enterprise solar energy system that is installed on a carport is considered a freestanding solar energy system.

Single-Family or Duplex Residential Solar Energy System – An accessory use that is designed to provide energy for the principal use.

Multiunit Residential or Nonresidential Solar Energy System – An accessory use that is designed to provide energy for the principal use.

Enterprise Solar Energy System – A principal use designed to generate energy for use off site.

Shared Solar Energy System – A solar energy system that serves houses and/or developments situated on two or more separate lots. The system is considered accessory to the uses on each of the lots that it serves.

➤ ***Add the following new definition for “Carport.”***

CARPORT – A roofed structure for parking motor vehicles that is open on at least two sides. A carport may be a freestanding structure or attached to a building. **When attached to a building, a carport shall be considered a roof- or building-mounted structure. When freestanding, a carport shall be considered a freestanding structure.** *(Note: Otherwise, carports will be used as a loophole in our ordinance to skirt regulations put in place for freestanding devices.)*

❖ *Modify the Table of Uses as follows:*

*Add the new uses below in the Table of Uses in Section 175-53 under Subsection VI. Utility & Transportation Uses at the end after Personal Wireless Services Facility:*

CATEGORY OF USES	RESIDENTIAL ZONES				COMMERCIAL CORE ZONES					RESEARCH-INDUSTRY ZONES			
	Rural ©	Residence A (RA)	Residence B (RB)	Residence C (RC)	Central Business (CB)	Professional Office (PO)	Church Hill (CH)	Courthouse ©	Coe's Corner (CC)	Office Research – Route 108 (OR)	Mixed Use and Office Research (MUDOR)	Office Research Light Industry (ORLI)	Durham Business Park (DBP)
<b>VI. UTILITY &amp; TRANSPORTATION USES</b>													
Single family or duplex residential solar energy system (accessory use) (See Article XX)	P	P	P	P	P	P	P	P	P	P	P	P	P
Multiunit residential or nonresidential solar energy system (accessory use) (See Article XX)													
• Roof- or building-mounted	P	P	P	P	P	P	P	P	P	P	P	P	P
• Freestanding	SE	SE	SE	SE	SE	PSE	PSE	PSE	PSE	PSE	PSE	PSE	PSE
Enterprise solar energy system (principal use) (See Article XX)													
• Roof- or building-mounted	P CU	X	X	P CU	P	P	P	P	P	P CU	P CU	P CU	P CU
• Freestanding	CU	X	X	CU	X	X	X	X	CU	CU	CU	CU	CU

*Re: Table of Uses: Where impacts have the potential to be visually significant, I think we should be using Special Exception or Conditional Use to help insure appropriate siting.*

❖ ***Modify the Wetland Conservation Overlay District and Shoreland Preservation Overlay District as follows:***

➤ ***Add the following use at the end of Section 175-60. Permitted Uses in the WCOD A.:***

8. Roof- or building-mounted solar energy system.

➤ ***Add the following use at the end of Section 175-71. Permitted Uses in the SPOD A.:***

9. Roof- or building-mounted solar energy system.

➤ ***Add the following use at the end of Section 175-61. Conditional Uses in the WCOD:***

7. Freestanding solar energy system.

➤ ***Add the following use at the end of Section 175-72. Conditional Uses in the SPOD:***

6. Freestanding solar energy system.

❖ ***Add the following as a new section in Article XX – Standards for Specific Uses, Section 175-109, and reletter R. Temporary Sawmill (including the table shown at the end).***

R. ***Solar Energy Systems.*** Solar energy systems shall be allowed in conformance with the following standards and procedures (See Definitions for solar energy systems).

1. **Authority.** This ordinance is adopted pursuant to RSAs 362-F, 374-G, 477:49, 672:1 III-a, and 674:17 (I)(j).

2. **Purpose.** The purpose of this ordinance is to:

a. encourage the implementation of solar energy systems in accordance with the recommendations stated in the Energy Chapter of the 2015 Durham Master Plan;

b. promote environmental sustainability while respecting the aesthetics and the rural character and scenic landscapes of Durham and the use of productive agricultural lands; and

c. comply with and support the State of New Hampshire's goal of developing clean, safe, renewable energy resources as provided for in the statutes referred to in 1., above.

3. **Applicability.** Solar installations that use less than one kilowatt and are not connected to the electrical grid are not covered by this ordinance, though they may be subject to other specific regulations.

4. **Single-Family or Duplex Residential Solar Energy System (accessory use).**

a. **Basic requirements.** This accessory use serves single-family or duplex residences situated on the same lot. Both roof- or building-mounted and freestanding systems are a permitted accessory use in all zoning districts. Only a building permit is required (except under c. below).

b. **Placement.** 1) For a freestanding solar energy system, no part of the system may be placed closer to the front property line (and side property line in the case of a corner lot) than the fully enclosed part of the house closest to the street; 2) In addition, for a freestanding solar energy system that exceeds 10 feet in height (any part of the system), no part of the system may be placed closer to the front property line (and side property line in the case of a corner lot) than the fully enclosed part of the house furthest from the street; 3) Where side yards are extensive and visible from the Designated Scenic Roads or Gateways (e.g. fields or maintained yards that stretch along the road), placement of freestanding solar energy systems shall be approved by Special Exception, with consideration given to ability to screen system from the road.

*OR alternatively:* 3) Where side yards are extensive and visible from the Designated Scenic Roads or Gateways (e.g. fields or maintained yards that stretch along the road), placement of freestanding solar energy systems shall be treated as fields under item 5d.

*While this ordinance has done a reasonable job considering possible freestanding installations in neighborhoods such as RA and RB where there is a density of houses, it overlooks circumstances in our more rural areas where there are often homes built close to the road which also have extensive side yards. Given the stated purpose of the ordinance to respect “the aesthetics and the landscapes of Durham,” these parts of town are what make up our rural character and scenic vistas, thus they should be given special and different consideration, especially along our Designated Scenic Roads and Gateways.*

c. **Special Exception.** A proposed system that does not conform with b. above, may be approved by a special exception. ~~provided it is not practical to place the system as specified in b., above~~ (See Section 175-26 Special Exceptions). *This suggested language is cleaner and avoids confusion.*

5. **Multiunit or Nonresidential Solar Energy System (accessory use).** This accessory use serves all uses other than single-family or duplex residences –

multiunit developments, commercial uses, other nonresidential uses, mixed uses, and shared systems, including systems serving residential subdivisions.

A roof- or building-mounted system is a permitted accessory use in all zoning districts. Only a building permit is required.

The following standards and procedures apply to freestanding multiunit residential or nonresidential systems.

- a. Site plan review with the Planning Board is required.
- b. The maximum allowed rated nameplate capacity for the system is the capacity that is needed to serve the estimated annual on-site requirements of the property.
- c.
  - 1) No part of the system may be placed closer to the front property line (and side property line in the case of a corner lot) than the part of the fully enclosed principal building closest to the street;
  - 2) In addition, for a system that exceeds 10 feet in height (any part of the system), no part of the system may be placed closer to the front property line (and side property line in the case of a corner lot) than the fully enclosed part of the principal building furthest from the street;
  - 3) Where side yards are extensive and visible from the Designated Scenic Roads or Gateways (e.g. fields or maintained yards that stretch along the road), placement of freestanding solar energy systems shall be approved by Special Exception, with consideration given to ability to screen system from the road.

*OR alternatively:* 3) Where side yards are extensive and visible from the Designated Scenic Roads or Gateways (e.g. fields or maintained yards that stretch along the road), placement of freestanding solar energy systems shall be treated as fields under item 5d.

*While this ordinance has done a reasonable job considering possible freestanding installations in neighborhoods such as RA and RB where there is a density of houses, it overlooks circumstances in our more rural areas where there are often homes built close to the road which also have extensive side yards. Given the stated purpose of the ordinance to respect “the aesthetics and the landscapes of Durham,” these parts of town are what make up our rural character and scenic vistas, thus they should be given special and different consideration, especially along our Designated Scenic Roads and Gateways.*

- d. In cases where there is no building or no distinct principal building on the lot or where there are multiple lots, the system shall be set back at least 100 feet from the front property line and buffered screened from the road. Where

freestanding systems are taller than 10 feet, additional setback requirements shall be calculated at 10 additional feet per one foot of additional height.

*Note: In terms of visual impact in an open field, 100 feet is not that far back if we are talking about one or more 25-foot, free-standing structures. I propose that the required setback be relative to the height of the structure with a 100 ft minimum for a structure 10 feet tall or less. For every foot of height beyond 10 feet, the required setback shall increase by 10 feet, thus a 15-ft structure would be set back 150 ft, etc. Also, the definition of buffer is inadequate, because terms like “partially and periodically obstruct view” are not in keeping with the purpose statement., thus we should use the term “screened.”*

- e. A proposed system that does not conform with c. or d., above, may be approved by a special exception (separate from the special exception if one is needed for the accessory use) provided: 1) it is not practical to place the system as specified in c. or d., above; and 2) the system is screened from the road and from neighbors in accordance with a plan submitted by the applicant and approved by the Planning Board.
  - f. The Planning Board may require an analysis of potential glare at its discretion.
6. **Enterprise Solar Energy System (principal use)**. This designation refers to a system that is designed to provide electricity to uses off site. The following standards and procedures apply to enterprise solar energy systems.
- a. Site plan review is required for all systems, including roof- or building-mounted systems.
  - b. The system shall be set back 100 feet from the front property line. **Where freestanding systems are taller than 10 feet, additional setback requirements shall be calculated at 10 additional feet per one foot of additional height.** *Same rationale as noted under 5d.*

The system shall be **buffered** **screened** from neighboring roads and properties in accordance with the Site Plan Regulations and as reasonably determined by the Planning Board.

- c. The applicant shall submit an analysis about potential glare at the Planning Board’s request.
- d. Where a solar energy system is allowed by conditional use, the conditional use permit shall be granted only if the Planning Board determines that: a) the proposal conforms to the **general applicable** conditional use criteria contained

in Article VII; and b) the location, topography, site conditions, design, and proposed screening for the proposed project are such that it will not be prominently visible from Bay Road, Bennett Road, Durham Point Road, Mast Road, ~~or Packers Falls Road~~ **and our Gateways: Rt. 4, Rt. 108, and Rt. 155.** *The word “general” used above is vague and confusing.*

7. **Other provisions.** The following additional provisions apply to all solar energy systems.
- a. **Building permit.** A building permit is required for the installation of any system.
  - b. **Setbacks.** Every part of a freestanding system, including components elevated above the ground and moving components, shall conform to required setbacks for the zoning district.
  - c. **Maximum Height.** For roof- or building-mounted systems located in any of the four residential zoning districts, the maximum height for any part of the system is **ten-five** feet above the ridge of the roof **or ten-five** feet above the highest part of the roof where there is no ridge. For roof- or building-mounted systems not located in one of the residential zoning districts, there is no height limit. The maximum height for freestanding systems is 25 feet.
  - d. **Impervious surface.** The maximum impervious surface ratio in the Table of Dimensions does not apply to solar energy systems.
  - e. **Submission requirements.** Applicants for projects that require a site plan shall submit all pertinent information, including specifications for the equipment, to the Planning Board, as specified in the Site Plan Regulations. Applicants for a special exception shall submit plans showing all pertinent aspects of the project and all elements specified by the Zoning Board of Adjustment.
  - f. **Decommissioning.** Applicants for freestanding Multiunit Residential or Nonresidential Solar Energy System and freestanding Enterprise Solar Energy Systems shall submit a plan as part of site plan review for the removal of the structures and reclamation of the site when the system is no longer in use. *What about prominent residential systems? Shouldn't we require those to be decommissioned if there is a lapse in use?*
  - g. **Historic District.** Additional procedures and standards for proposed solar energy systems located within the Durham Historic District are contained in Article XVII of this ordinance.
  - h. **Review process.** The process for review of proposed solar energy systems is specified in Table 175-109 R below. In case of any conflict between this



table and the text of the ordinance or the Table of Uses, the text of the ordinance and the Table of Uses shall prevail. *Shouldn't we be able to write this so there is no conflict? This statement confuses me.*

- i. Solar easements. Private property owners may establish solar skyspace easements to preserve access to solar energy at their option pursuant to RSAs 477:49, 50, and 51.

**TABLE 175-109 R - REVIEW PROCESS FOR SOLAR ENERGY SYSTEMS**

<i>Type of use</i>	<i>Roof- or Building-mounted</i>	<i>Freestanding</i>
Single family or duplex residential system (accessory use)	Permitted as accessory use to any single family or duplex residence  Building permit only	Permitted as accessory use to any single family or duplex residence  Building permit only  Special exception if system does not meet placement requirement
Multiunit residential or nonresidential system (accessory use) including shared systems	Permitted in all zones  Building permit only	Special exception in CB, R, RA, RB, and RC zones — in all zones  Site plan review
Enterprise solar system (principal use)	Permitted use in R, RC, and all Commercial Core; Conditional Use in R, RC, and Research zones  Site plan review	Conditional use in R, RC, Coes Corner, and all Commercial Core zones except for CB, and all Research-Industry zones.  Site plan review

*Rationale for changes to Table 107-109R: Freestanding devices for Multiunit or nonresidential uses and Enterprise system have the potential to be large and visually imposing. Thus they should be considered under either SE or CU. All Enterprise systems of any kind, other than those in the highly developed commercial core, should be reviewed as CU for the same reason stated above. It is not so much thinking about what existing buildings they might be attached to but what future building projects may evolve in highly visible site that would warrant a CU review process.*

● \* \* \* \* \*

*This is what we currently have for definitions in our ZO:*

*Definitions: BUFFERING – The use of landscaping (other than grass on flat terrain), or the use of landscaping along with berms, walls or fences that at least partially and periodically obstructs the view. Inadequate.*

*SCREENING – A device or materials used to conceal one (1) element of a site from other elements or from adjacent or contiguous sites. Screening may include one (1) or a combination of the following materials of sufficient mass to be opaque or which shall become opaque after twelve (12) months and which shall be maintained year-round in an opaque condition: walls, fences, berms or plantings.*

