

**SOLAR ENERGY SYSTEMS**

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

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

***\*Incorporating comments from the public about specific provisions in the draft\****

**Comments from the public related to specific provisions in the draft are shown in this manner.**

\*One resident offered additions and deletions embedded within the text. Those excerpts with **yellow highlights** and **commentary following the excerpt** are shown like this.

All comments are inserted in what appears to be the most appropriate location after specific provisions of the draft ordinance. Some comments may apply to more than one section. No names are attached to comments. This symbol ----- is inserted between comments by different people. This document includes all comments submitted *in writing* by email or letters. *Verbal comments made at the public hearing are not included.* Interested parties may watch DCAT to listen to the public hearing. Within any section, comments are not placed in any particular order. Comments that did not fit into a particular location are included at the end. Pertinent portions of written comments are included largely verbatim but are paraphrased as needed to assist in conveying the information.

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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.

**Change the definition for Solar Energy System from “A structure and the related components used to transform solar energy into electricity, including a solar photovoltaic system and a solar thermal system” to the following: “A structure and the related components used to transform solar energy into either electricity (through a solar photovoltaic system) or heat (through a solar thermal system).”**

**Rationale: As it is currently written, the definition implies that both solar photovoltaic systems and solar thermal systems are used to generate electricity. Although a “solar thermal system”**

may, in some cases, be used to generate electricity, this would involve solar thermal electric power generation plants that

“collect and concentrate sunlight to produce the high temperature heat needed to generate electricity. All solar thermal power systems have solar energy collectors with two main components: *reflectors* (mirrors) that capture and focus sunlight onto a *receiver*. In most types of systems, a heat-transfer fluid is heated and circulated in the receiver and used to produce steam. The steam is converted into mechanical energy in a turbine, which powers a generator to produce electricity.”

[reference:[https://www.eia.gov/energyexplained/?page=solar\\_thermal\\_power\\_plants](https://www.eia.gov/energyexplained/?page=solar_thermal_power_plants) ]

It is believed that this is NOT the type of system intended here (see the definition for Solar Thermal System), thus the need for clarification. If it IS intended to include this type of system, much more needs to be specified.

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Move to amend “Solar Energy System” to read as follows:

A structure or device and related components used to transform solar energy into electricity or thermal energy.

Rationale: This definition will 1, simplify the language and 2, add the word “device” because the term “structure” in the proposed definition may not apply to roof-mounted panels.

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

Change the definition for Solar Photovoltaic System from “A solar collection, inversion, storage and distribution system that converts sunlight into electricity” to “*An array of panels that converts sunlight into electricity, plus any accessory components necessary for either storage and/or distribution of electrical power (either to the commercial power grid or direct on-site use).*”

Rationale: Technically speaking, it is the array of PV (“solar collection”) panels that converts the sunlight into electricity. A particular system may or may not have any inverters and may or may not have any storage components.

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

Change the definition for Solar Thermal System from “A solar collection system that directly heats a heat-transfer medium” to “*A solar collection system that directly heats a heat-transfer*”

*medium and where the heat gain is directly utilized as its end-use (such as for space heating and/or domestic hot water)."*

**Rationale: This system is presumed to NOT be of the sort to generate electricity (see #1 above). I'm not clear what the objection to the original wording that included end-uses of the solar thermal system.**

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. 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.

**Solar carports that are attached to homes should rightly be classified as building-mounted systems; carports that are not attached to homes or other existing structures should be classified as "freestanding systems" to accurately reflect their circumstance. This distinction will avoid misuse of carport installations to skirt regulations for freestanding systems. (Note: There is little visual distinction between a carport mounted on two poles and a freestanding device mounted on one or two poles.)**

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**Language such as "limited accessory equipment " in the definition of roof or building-mounted systems, ...is vague.**

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**\*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.

Where we define Roof System & Free standing System: As currently defined, a pole mounted tracker on top of a roof is implied to be a roof system. Is that what we want to allow? Or do we want to not allow any pole mounted trackers on a roof? I suggest no trackers on any roof.

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Move to amend “Freestanding Solar Energy System” to read as follows:

A ground mounted solar energy system (including stationary or tracking system) that is detached from a residence or other structure. A solar energy system that is installed on a detached carport is considered a freestanding solar energy system.

Rationale: Including reference to “Enterprise Systems”, as proposed in your draft, is not applicable to the definition. Any solar system mounted on a detached “carport” should be considered a “freestanding solar system” whether the power produced is used on site or off site as in “enterprise” installations.

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.

**Enterprise System: The definition is fine. I would suggest adding "An enterprise system is considered in general as any other Commercial Use for purposes of all town regulations". I am also assuming that land on which an Enterprise System may be built would be subject to full property tax rate and not expected to be subsidized by the Council with lower property taxes?**

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.

**I believe the definitions could be more carefully tied to the specific sections of the ordinance as the current labels are not completely consistent.**

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**Might an answer to the solar zoning challenge reside in an idea which I understand the Canney Farms Association is considering: a neighborhood solar park? While allowing residents who so desire to have solar roof-top arrays, this concept offers the additional option of stand-alone solar trackers in a small designated neighborhood "park" on common land which the**

neighborhood either already owns or could acquire for this purpose. This may be especially desirable for neighborhoods and residences in historic districts and/or along designated scenic roads, but it could apply to all neighborhoods. (In addition to Canney Farms' common land, the "tot lot" in the Faculty Development also comes to mind, as does other land associated with conservation subdivisions.)

Such "solar parks" are much smaller than "solar farms", and yet should provide sufficient electrical capacity for the neighborhood. And, given their relatively small size, they never run afoul of net-metering issues, as some larger solar farms might. And they could fit nicely into many neighborhoods if a little bit of appropriate land could be identified.

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Shared Solar Energy refers to serving houses and or/development situated on two ore more separate lots. Is this term still used in the rest of the ordinance? If so, how about a system that serves two or more commercial buildings rather than houses?

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Move to amend "Shared Solar Energy System" to read as follows:

A solar energy system that serves houses and/or developments situated on two or more contiguous lots. The system is considered accessory to the uses on each of the lots that it serves.

**Rationale:** This change eliminates possible confusion in distinguishing neighborhood installations where a neighborhood may collaborate from "enterprise systems" which may include expansive commercial projects.

➤ *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.

\*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.)

**Further comment on definition of Carports:** As it stands now, the ordinance does not permit a freestanding solar system more forward than the front face of the principle building. Under the current definition of carport, one could build a carport any distance from the road as long as it

meets front yard setbacks. The photodistributed to the PB showed an example of a freestanding two-legged solar device, i.e. carport approximately 20-25 feet from the road. Unless the Town differentiates between freestanding carports and those attached to principle buildings, freestanding carports may end up being a way to skirt our regulations about setbacks for freestanding systems.

❖ *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 (R)	Residence A (RA)	Residence B (RB)	Residence C (RC)	Central Business (CB)	Professional Office (PO)	Church Hill (CH)	Courthouse (C)	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	P	P	P	P	P	P	P	P
Enterprise solar energy system (principal use) (See Article XX)													
• Roof- or building-mounted	P	X	X	P	P	P	P	P	P	P	P	P	P
• Freestanding	CU	X	X	CU	X	X	X	X	CU	CU	CU	CU	CU

COMMENTS ABOUT TABLE OF USES ABOVE

Under Multiunit residential or nonresidential freestanding systems change every P to SE. 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.

Under Enterprise Roof or building-mounted change the P in the Residential and Research-Industry Zones to CU.

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Finally, we understand that Enterprise Systems are large, commercial systems in which energy is generated for off-site use. Given the tremendous potential in terms of scale, we ask that as commercial enterprises, Enterprise Systems not be permitted in our Residential Zones (RA, RB, RC, and R). They should be permitted by conditional use only in our Research-Industrial Zones, many of which exist along our gateways.

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I'm wondering where a freestanding facility could be located in the very dense Church Hill, Professional Office and Courthouse zones? Since they would have a great impact on neighbors and views from roads, I think a Special Exception should apply.... including for the fraternity buildings in the PO zone.

The appropriate configuration and location of solar equipment is very dependent upon the individual site. Are the existing Site Plan Review Regulations sufficiently specific to provide predictability for landowners? If not, Special Exception or Conditional Use should be applied in more zones.

The term "Enterprise System" creates an image of a very large -scale system. But as defined, that is not necessarily the case. If the goal of this ordinance is to minimize the visual impact of the facility, the USE of the electricity is irrelevant: the facility of an Enterprise System should really be regulated according to its location, visibility from the road and appropriateness of scale to its surroundings, like any other solar installation in town. CU or SE would provide an opportunity for more public input on ones that have a larger potential impact.

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Enterprise System on a Roof should not be "P" in R, RC and ORLI zones. They should be by CU in these three zones.

Move to amend the proposed Table of Uses to not permit Enterprise Solar Systems within Residential Zones by replacing “P” and “CU” with “X”.

Rationale: The community has designated zones for commercial type development and areas for residential development. Permitting “Enterprise Solar Systems” which may be expansive in size, in residential zones is inconsistent with the objectives of our zoning regulations.

Move to amend the proposed Table of Uses, Enterprise Solar System to require a conditional use permit in both the Commercial Core Zones and Research Industry Zones and to prohibit freestanding solar systems in the Coes Corner zone.

Rationale: We should anticipate that Enterprise Solar Systems will, of necessity, be quite large and the impact of such systems may be substantial. To permit such installations by right would be folly. There is potential for severe negative impact to the community. While this rapidly evolving technology should be supported, we should not leave ourselves vulnerable to abuse. Further, one wonders if a roof-mounted “Enterprise System” could ever qualify as a “principle use” since the roof would presumably be over the principle use.

❖ *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;

Move to replace the “encourage” with “regulate”.

Rationale: The purpose is to regulate.

- b. promote environmental sustainability while respecting the aesthetics and the landscape of Durham and the use of productive agricultural lands; and

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

As we heard, the term “aesthetics” can be very subjective thus it would be better to use language that has more broadly understood meaning.

- 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.

Change section R.3. from “Solar installations that use less than one kilowatt...” to “Solar installations that produce less than one kilowatt...”

Rationale: Clarify the distinction between consuming power versus generating power.

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Move to replace “use” with the word “produce”.

Rationale: Solar installations are best evaluated by how much energy they produce rather than the amount they consume.

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.** 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. 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.

**\*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.

Many of our historic homes were built very close to the road, some within the frontward setback. Along Packers Falls Road for instance, many homes were built only 10-20 feet from the road, thus the current placement regulations fall short of the goal of creating some distance between the roadway and a freestanding solar system. This issue is augmented because several homes (at least 10 within 2 miles of my house) also have extensive side yards or fields that are part of their property. According to the current regulations, a 10’ tall solar system could be built within 10-20 feet from the road, depending on where the front face of the house is. A 25’ solar tracker could be sited possibly 40-50 feet from the road—again aggravated by the fact that it may end up in an open field not far from the road (determined by front or back faces of these historic homes. It is worth noting that several people who own property that meet this description (homes close to the road and extensive side yards or fields within their property) signed the letter requesting that the Town create more stringent regulations for these sorts of properties. Ironically, we find these sorts of situations along our rural, more scenic roads, including designated scenic roads, thus it is important that the PB consider these particular circumstance.

I suggest the town treat a field that is part of a house site the same way we decide to treat a field that does not have a building on it. From a visual perspective, a field is a field whether or not there is a building on the property and if it stretches along the road, it should be treated as such to protect those view sheds.

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Our understanding is that freestanding systems shall be placed no closer to the road than the front face of the house if under 10 feet tall and no closer than the back face of the house for those over 10 feet. While these regulations may be adequate for many properties, they do not adequately address circumstances in which historic homes sit close to the road. This is particularly problematic along Designated Scenic Roads and/or our Gateways. Placement of freestanding systems for those properties should have to meet an additional setback and/or screening requirements so that freestanding systems are not so visible from the road. This is particularly an issue where properties have extensive side yards (i.e. open fields or lawns that stretch along the road) that create a scenic vista, as is the case in some of our more rural areas of town.

In instances where freestanding solar systems will be installed in fields that are visible from the road, whether on a parcel that contains buildings or not, we ask that you consider a graduated setback requirement that considers the height of the system relative to the distance from the road. The taller the system, the further back from the road it should be so as to mitigate its visual impact. We also ask that systems installed in fields be screened from the road. This will be more easily accomplished the further back the system is placed.

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You can place a freestanding panel on the side or back of your lot right up to the setback. I guess that says you neighbor's view doesn't count? This is an inconsistency in the general theme of the ordinance, to put it simply – it is ok for you to have this in your view, but the rest of us don't have to look at it.

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Move to amend Section R, 4, B Placement to read as follows:

Placement. ~~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. In addition, ~~for~~ no part of a freestanding solar energy system that exceeds 10 feet in height 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.

**Rationale: Clarification needed. Further, the Board should consider how this requirement will apply to permitted, existing structures that are very close to the road and have significant side yards to ensure that the intent of the ordinance to preserve viewscales is met. (See Section R, 2, Purpose)**

- 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).

\*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.**

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**Move to delete the section.**

**Rationale: While “Special Exceptions” may be reasonable in some circumstances, the use of the phrase “not practical” is worrisome because it is vague and subjective.**

- 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.

**Section 5b regarding nameplate capacity and annual onsite requirements is confusing, unnecessary and potentially discouraging to those who wish to install solar systems.**

**Limits on the size of systems should include an indication of the size of solar thermal systems, which are not measured in kW.**

- c. 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. 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.

\*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 from the road.

\*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.”

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Beth Olshansky has a good point, that a 100-foot setback for tall facilities does not provide enough of a buffer from roadways or other properties. I support her suggested graduated screening plan according to height. I also share her concern about the need for provisions addressing solar installations serving older houses located close to the roadway.

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Language such as “buffered” in 5d ...is vague.

- 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.

Language such as “not practical” in section 5e, ...is vague.

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Move to delete the section.

**Rationale: While “Special Exceptions” may be reasonable in some circumstances, the use of the phrase “not practical” is worrisome because it is vague and subjective. The more definitive the ordinance the better.**

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

\*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 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.

\*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.**

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**It is unclear why the roadways listed under 6d are prioritized, and not others, or whether certain criteria are used that would or could allow other roadways to be added. I am concerned the lack of criteria may encourage residents to advocate for additional inclusions.**

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**A large-scale Enterprise Systems less than 10 feet in height should not be required to be screened, if located appropriately. It is unreasonable to require hundreds of feet of screening of such a system if it is located far enough from roadways and abutters ....I for instance, in a field. Perhaps a formula could be used that increases the allowable size of the installation as distance from the road increases.**

**I agree with David Hills that such a solar array has a certain beauty to it and bespeaks a**

community and landowner who cares about our environment. I would have no objection to seeing such an array if properly sized and sited on Gateways to the Town.

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Dame Road is also a scenic road and although it seems to be the favorite road to neglect, it should be mentioned in the ordinance under 6 d for consistency.

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Please also add Piscataqua Road. It would be a shame to not preserve that scenic vista, particularly given the town's foresight, wisdom and large investment in our Wagon Hill Farm for precisely that reason many decades ago.

Enterprise system proposed for Vacant Land, or on a Farm, or a large open field should be approved by the Durham Agricultural Commission.

Enterprise System on land in any Conservation, must require a Public Hearing.

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Move to amend this paragraph to read as follows:

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~~ 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 town or state roads. ~~from Bay Road, Bennett Road, Durham Point Road, Mast Road, or Packers Falls Road.~~

Rationale: Enterprise Systems should be restricted to non-residential zones. "General" conformance dilutes the intent of the Conditional Use Permit ordinance.

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.

**The exemption for small, non-grid tied systems should be added to section 7a.**

- 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.

**The ordinance does not clearly address the installation of underground electrical lines. Do they need to be outside the setback, too? Does this need to be made clearer?**

- 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 feet above the ridge of the roof or ten 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.

\*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.

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**This section needs to be re-worked to account for the differences between roof-mounted systems on flat roofs vs pitched roofs. Height of 10 feet above a ridge pole on a pitched roof is decidedly different from that on a flat roof. Also, we have height restrictions in various zones for a reason. There is no rationale to eliminate height restrictions.**

- 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?**

**The decommissioning requirements and expectations of the Town should be made clearer or removed.**

- 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.

\*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.

**It should be made clear(er) that mixed use (residential and commercial) is allowed under both single family / duplex residential systems and Enterprise solar systems (if that is the case), and that in case of Enterprise Systems that energy generated can be used by both onsite and offsite buildings or uses.**

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**Any existing system that is being updated, must conform to the then current standards; i.e. should not be grandfathered in past standards.**

**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	Permitted in all commercial core and research-industry zones (except for Central Business District, below)  Special exception in CB, R, RA, RB, and RC zones  <del>*Special exception in CB, R, RA, RB, and RC zones</del> <b>in all zones</b>  Site plan review
Enterprise solar system (principal use)	Permitted use in R, RC, and all Commercial Core and Research-Industry zones  *Permitted use in <b>R, RC, and all Commercial Core; Conditional Use in R, RC, and Research zones</b>  Site plan review	Conditional use in R, RC, all Commercial Core zones except for CB, and all Research-Industry zones  Site plan review  <del>*Conditional use in R, RC, Coes Corner, and all Commercial Core zones except for CB, and all Research-Industry zones.</del>  <b>Site plan review</b>

*[Regarding yellow highlights above]* **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 table will need to be revised to be consistent with changes adopted by the Board.

**GENERAL COMMENTS ON THE DRAFT ORDINANCE**

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.

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The ordinance uses the terms “screened” and “buffered” interchangeably. In the Site Plan Regulations, which will be used to regulate in some instances, “buffer” means just a vegetated area between uses. It could be just a grassy area, so would not provide visual screening. The terminology needs to be specific.

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I looked over the most recent proposed ordinance on placement of free standing solar panels that you sent along. I would say that as written the ordinance is contrary to the following sections of RSA 672:1

III. Proper regulations enhance the public health, safety and general welfare and encourage the appropriate and wise use of land;

III-a. Proper regulations encourage energy efficient patterns of development, the use of solar energy, including adequate access to direct sunlight for solar energy uses, and the use of other renewable forms of energy, and energy conservation. Therefore, the installation of solar, wind, or other renewable energy systems or the building of structures that facilitate the collection of renewable energy shall not be unreasonably limited by use of municipal zoning powers or by the unreasonable interpretation of such powers except where necessary to protect the public health, safety, and welfare;

Aesthetic (as mentioned in the proposed ordinance) does not appear in any of the RSA’s that I have read, but keeping with the character of the area does. “Aesthetics” invites a court case; modern structures such as solar panel and cell phone towers are aesthetically pleasing to some and not to others and with the RSA stated above, I would guess there is little defense for “we don’t want to see the panels” within the law. In a similar fashion, guarantee of cell tower

placements was backed by the law and some citizens that tried to block the placement of one in Durham cost the rest of us up north of \$200,000 in legal fees and we lost...

I have watched this entire process from the first complaint to the Town Council by a citizen; that the process has come this far is troubling. Solar is here and will be utilized more and more. As stated in RSA 672 encouraging the use of solar is a policy for NH. The ordinance that you were good enough to make available for us to view is not ready for primetime. I understand the views of those complaining, but I think it would be better to start with; a conditional use permit for all placements of freestanding panels, period. Then each case can be reviewed in order to gather enough experience to come up with a reasonable and legal ordinance. Picking a setback or restriction out of the blue – which is where we are now – is not in the interest of landowners, does not have scientific basis (the best locations for panels are facing SW with no interference, the roadside usually being the clearest) and I believe will lead to a lawsuit that we will lose and cost us in legal fees that we do not need.

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Ten years ago, when I first saw a wind turbine on a local mountain I was appalled. Over the next ten years I have come to a different point of view. We are in the process of truly harming our planet with fossil fuels. Everything I read says that we can generate 80% of our countries electricity needs with alternative energy at this point in time. As with any change, the first step is always the hardest. This is especially true when it changes peoples' view of what is acceptable pushing their comfort levels.

Now, when I look at wind turbines or solar panels it makes me hopeful for our future. I see them as a positive step. They are a message to us that we have a way to transition away from fossil fuels. Equally as important they remind us that we must be energy conscious in our daily lives.

Unlike most citizens in Durham, I believe the more we see solar panels, the more it will encourage us to think about energy usage and how we can move forward toward reduction of fossil fuels. I support placing solar panels wherever individuals desire to install them. I know this is an anathema to many in Durham. My feeling is that these individuals value how things look over societal needs. But maybe like myself they will eventually come to have a positive view of them over time as I have. They are our future!

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**Tax Implications**

The current policy of the Town is to provide tax abatement for solar installations. The introduction of "Enterprise" installations raises the question as to whether commercial enterprise solar installations would provide increased tax revenue. I suggest the planning board members discuss this issue and offer a recommendation to the Town Council regarding tax implications.