

SOLAR ENERGY SYSTEMS
DRAFT ORDINANCE - Durham, New Hampshire
Revised draft incorporating public comments submitted in writing
Public hearings held on September 12 and 26 and October 10
For review by Planning Board on November 7, 2018

Written comments from the public are shown in this manner with the name of the writer at the end in parentheses. (Steve Pearce)

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

The purpose of this document is to assist the Planning Board in its review of the revised draft by incorporating pertinent comments from the public. This document includes comments submitted *in writing* by email or letter. *Verbal comments made at the public hearings are not included.* Interested parties may watch DCAT to listen to those comments. Comments that refer to or appear to apply to a specific provision in the draft ordinance are placed after that provision. A line like this ----- is inserted between comments by different people. Within any section, comments are not placed in any particular order. I prepared an earlier document following the public hearing on September 12. Those comments are placed first and I add “9-12” after them for readers who want to know which comments were included in that document. More general comments that did not fit into a particular location but which speak to *the ordinance* more broadly are included at the end. I used my judgment about which excerpts to include at the end based on the extent that they might provide some framework for the Planning Board. The reader is referred to the website where the entirety of all comments and other documents are included, at this link: https://www.ci.durham.nh.us/boc_planning/solar-energy-systems-%E2%80%93-proposed-zoning-amendment.

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]

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. *(Don Brautigam)*

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. *(Mal Sandberg)*

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Under definition of Solar Energy System, the term ‘related components’ is vague and could be open to interpretation. Examples might help, e.g., inverter, energy storage batter, generator, etc. This definition should also include reference to “heat” in addition to electricity, as solar thermal systems do not produce electricity. *(Mary Downes)*

Broaden the definition to read:

Solar energy devices or design features of a structure that are used for the collection, storage, and distribution of solar energy for space heating, space cooling, lighting, electric generation, or water heating, including solar photovoltaic and/or solar thermal systems.

Solar Energy System: Solar energy devices or design features of a structure used for the collection, storage, and distribution of solar energy for space heating, space cooling, lighting, electric generation, or water heating.

Including storage in the definition will accommodate the anticipated growth in battery storage devices linked to solar energy systems.... (Robin Mower)

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. (Don Brautigam)

-----9-12

Separate definitions for “solar photovoltaic system” and “solar thermal system” are unnecessary as they are not referenced elsewhere in the document. (Mary Downes)

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. (Don Brautigam)

-----9-12

Separate definitions for “solar photovoltaic system” and “solar thermal system” are unnecessary as they are not referenced elsewhere in the document. *(Mary Downes)*

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.)
(Petition signed by 53 residents)

Language such as “limited accessory equipment “ in the definition of roof or building-mounted systems, ...is vague. *(Mary Downes)*

****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. *(Beth Olshansky)*

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Greater clarity and readability would be achieved throughout the document if “Roof or Building-Mounted Solar Energy System” were changed to “Building-Mounted Solar Energy System” and the definition was expanded to: “A solar energy system attached to a roof or other part of a building...”

Greater clarity in this same definition would be achieved by amending the language that follows to “that does not extend more than 5 feet beyond the building footprint.”

Adding exceptions to what is considered part of the system would prevent potential confusion or objections around standard electrical connections from the solar PV system. The definition could be expanded thus: “Electric lines, conduit, transformers or poles that are required to connect a solar energy system to the electrical distribution system are not included in this definition.” *(Mary Downes)*

Should the word “building” be replaced with “structure”? How would a system mounted on a parking garage be classified?]

A reasonable height limit for the mounted system would be in keeping with the height limits we have agreed to for buildings for similar reasons and is found in other communities’ ordinances. The applicant is always welcome to seek a variance. I understand that the Board removed the 5-foot “overage” language at its last meeting, but I object. Imagine if you moved into a compact residential neighborhood and subsequently your view across the street was of a significantly higher industrial-looking apparatus. Technology changes: perhaps lighter array structures would allow for taller devices that a roof could support. Please reintroduce the 5-foot-above-the-ridge-line height limit. *(Robin Mower)*

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. *(Firoze Katrak)*

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. *(Mal Sandberg)*

-----9-12

NHSEA is supportive of the existing definition of “Roof- or Building Mounted Solar Energy System,” which includes carport-mounted solar energy systems, and advises against re- classifying carport-mounted systems as “free-standing systems.” In classifying carports, the deciding factor should not be whether or not the carport is attached to a home, but whether or not the structure has been approved as a carport and is used for its intended purpose. Re- classification of detached carports may create unnecessary confusion and barriers to reasonable development of solar energy systems. *(New Hampshire Sustainable Energy Association)*

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

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Single-Family or Duplex Residential Solar Energy System – An accessory use solar energy system designed exclusively for use by the single family or duplex home on which property it is located [question: does this clearly cover in-law apartments?] *(Mary Downes)*

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

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Multiunit Residential or Nonresidential Solar Energy System – An accessory use solar energy system designed for use exclusively by a 3-unit or greater residential, or nonresidential building, on which property it is located. *(Mary Downes)*

First, the zoning ordinance continues to use both the word MULTIUNIT (without hyphen) and MULTI-UNIT (with hyphen, e.g., “RESIDENCE, MULTI-UNIT”) and should be standardized in the main document. Second, the above definition makes no sense

whatsoever, since it is identical to the above definition. Why not use the definition that is found later, under the standards, i.e. R(5):

5. Multiunit or Nonresidential Solar Energy System – An accessory use that 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. (Robin Mower)

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? (Firoze Katrak)

-----9-12

Enterprise Solar Energy System – A solar energy system whose principal use is to generate energy for buildings or other uses on a different property from the one in which the system is sited (this does not preclude use of a portion of the energy generated by buildings or facilities on the same site). (Mary Downes)

We encourage you to re-consider the definition of “enterprise system”. In some instances, small and unobtrusive solar systems may generate energy for off-site use. The NHSEA model solar ordinance recommends generation capacity of the system as size classification. (New Hampshire Sustainable Energy Association)

[Add to end of definition, above] This may also be referred to as a “utility-scale energy system” and is typically used for commercial purposes. (Robin Mower)

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. (Mary Downes)

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. *(John Carroll)*

Shared Solar Energy refers to serving houses and or/development situated on two or 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? *(Judith Spang)*

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. *(Mal Sandberg)*

-----9-12

Shared Solar Energy System – An accessory use solar energy system that generates energy for use on two or more separate lots. The system is considered accessory to the property on which it is located. *(Mary Downes)*

[Add this definition] Utility-scale Solar Energy System – A principal use designed to generate energy for use off site. This may also be referred to as an "enterprise solar energy system" and is typically used for commercial purposes. *(Robin Mower)*

➤ *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. *(Beth Olshansky)*

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There are several references to “carports” in the document, and I think it is unclear what the intent of the Planning Board is regarding what is and is not allowed on a carport as the references are inconsistent. The first reference (under building mounted) says that systems on a carport are considered “building mounted”. The second reference (under freestanding) says an enterprise system on a carport is a “freestanding system”; I would remove this second reference as it is confusing and covered by the definition of enterprise systems. The last reference is to the definition of carport itself, which as written would allow for a large covered parking area or lot to be considered a carport. *(Mary Downes)*

❖ *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)
VI. UTILITY & TRANSPORTATION USES													
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. *(Beth Olshansky)*

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. *(Petition signed by 53 residents)*

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. *(Judith Spang)*

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

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. *(Mal Sandberg)*

-----9-12

Outright prohibitions on ground-mounted solar in any district should be avoided. The opportunity for special exceptions should be left open. If the Planning Board gets inundated with requests for special exceptions, that would be a good problem to have. It is better (and easier) to amend an ordinance that is resulting in too many applications than to amend one that is simply stifling interest and investment in solar energy without anyone realizing this is happening. *(Mary Downes)*

❖ *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. (Mal Sandberg)

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. (Beth Olshansky)

-----9-12

Paragraph 2b on the purpose of the ordinance should be amended to better reflect the Master Plan priorities and the public discussion around this draft ordinance,

b. promote energy self-sufficiency and sustainability while respecting Durham’s scenic vistas and agricultural lands; (Mary Downes)

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.

9-12

Other New Hampshire towns, such as Hollis and Alton, incorporate protection of local aesthetic values, as stated in the goals section of their solar ordinances, adopted in 2017:

Alton

- 1. To allow for the use of Solar Energy Systems in the community while maintaining Alton's scenic vistas and protecting property values.
- 2. To preserve the community's rural character, particularly as seen from public roads.

Hollis

- a. Allow for the use of Solar Energy Systems in the community while maintaining Hollis’s scenic vistas.
- b. Preserve the community’s rural character, particularly as seen from public roads.
- c. Minimize potential adverse impacts of Solar Energy Systems in the community by ensuring that such facilities are properly screened and are properly sited within existing topographic features of the property. *(Robin Mower)*

- 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. *(Don Brautigam)*

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. *(Mal Sandberg)*

-----9-12

Paragraph 3 should be amended for accuracy and grammar (italicized words have been added, [] indicates what was removed):

Applicability. Solar installations that generate [delete ‘use’] less than one kilowatt of energy and that are not connected to the electrical grid are not covered by this ordinance, though they may be subject to other specific regulations. *(Mary Downes)*

- 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).

9-12

Setting Maximum Capacity Limits on Solar Energy Systems

In reference to 5b on page 13, restricting capacity of solar energy systems to the current capacity needed to serve the current estimated annual load is unduly restrictive. It is common for solar energy systems to be designed and built to allow for planned conversion of vehicles and heating systems and/or hot water, and other appliances to electric energy. Setting a maximum capacity limit to the current electricity load creates a barrier to further expansion of beneficial electrification as it relates to powering thermal, appliance, and transportation sectors with distributed renewable energy. *(New Hampshire Sustainable Energy Association)*

- 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. *(Beth Olshansky)*

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 form 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. *(Petition signed by 53 residents)*

You can place a freestanding panel on the side or back of your lot right up to the setback. I guess that says your 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. *(Mike Pazdon)*

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 viewscapes is met. (See Section R, 2, Purpose) *(Mal Sandberg)*

-----9-12

I recommend removing the requirement in 4b that a freestanding system setback is to the "fully enclosed" part of the house, and allow the setback to start at the edge of the home's footprint, whether there is a farmer's porch or some other covered, but non-enclosed feature. I would also not prohibit all parts of the system from being placed closer to the front property line than this, as inverters, storage units or other accessories may be more appropriately placed nearer to the road without otherwise impeding the intent of the ordinance. If there is concern, then put a limit on size or height of this accessory equipment. The language in 5c parallels the language in 4b and should be consistent. In 5c, there is reference to 'principal building' but it is unclear how that is defined and whether a barn or other non-residence would qualify. If there is a definition of principal building elsewhere in codes, it could be referenced or footnoted here for clarity. *(Mary Downes)*

Whether Durham allows solar trackers in one's front yard or backyards is not going to be a global game changer since most solar systems in Durham are likely to be roof-mounted (especially given new roof-mounted technologies such as that install at the Great Bay Discovery Center. Yet those decisions will significantly impact our community. For this reason, I do hope the PB will carefully consider recommendations that will serve to preserve those most vulnerable scenic places. *(Beth Olshansky)*

Siting Solar Energy Systems Closer to Property Lines than Principal Buildings
In reference to 5c on page 14, there may be some instances when the only viable option for a resident or business to partake in the benefits of solar energy systems will be for that system to be located closer to the front property line than the principal building closest to the street. As the Draft is currently written, individuals and businesses finding themselves in such circumstances will have no option for locating a solar energy system on their property. We encourage the Planning Board to not be overly restrictive on the placement of solar systems within the property and to consider creating a pathway for approval of systems located in a front or side yard. *(New Hampshire Sustainable Energy Association)*

- 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. *(Beth Olshansky)*

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. *(Mal Sandberg)*

-----**9-12**

The phrase in 4c “provided it is not practical to place the system as specified in b., above” should be removed. The applicant can make the judgement call as to whether or not it is worth the time and expense of going to the Planning Board for a special exception under the circumstances, and the Planning Board may decide to accept the

proposal as is (e.g., if the system is in a highly rural area with no impact or visibility to abutters), require amendments, or outright reject the proposal. *(Mary Downes)*

Please be mindful about the phrasing that the solar array needs to be properly sized and located. One cannot simply just install solar arrays anywhere. They must be placed to optimize the sun's rays. Without the potential of fully offsetting the household's energy needs, most households will shy away from the installation of solar arrays. The current proposal does extremely limit the locations of future solar arrays, thereby making it much less efficient or beneficial to install a solar array, especially the freestanding solutions such as ground mounted or trackers. Households that are determined to lower their carbon footprint via the use of solar arrays will only face a limited amount of choices if the current proposal goes into effect.

If households are constrained in their installation of solar arrays, there are limited options. Option one would be to clear enough wood line in the back of household lots to reduce the amount of shade given by the trees that populate most of our backyard. Logging these trees is not an option in most cases, since it removes hundreds of trees that have positive impacts on air quality and also reduce possible corrosion. Cost is also a prohibitive factor, since most ethical tree removal companies will charge way beyond what the average household can afford for projects this size. *(Sascha Barth)*

We the residents of Durham wish to state that we feel that the Solar Ordinance when concerning residential solar should not be restricted for aesthetic reasons, solar should be placed where it utilizes the sun the best. (Petition from 22 Durham residents)

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.

9-12

Clarification to Section 5 would be gained by changing the wording as follows (italicized words have been added, [] indicate what was removed):

5. Multiunit or Nonresidential Solar Energy System (accessory use). This type of solar energy system provides an accessory use [serves all uses other than] to buildings other than single-family or duplex residences including, but not limited to: 3 or more [multi-]unit developments, on-site commercial or industrial uses, other nonresidential uses, mixed use developments, and shared systems, including [systems] those serving residential subdivisions.

It is not clear, however, what ‘other nonresidential uses’ in this description would include. It may be possible to give an example of this or remove the reference.

The standards and procedures could be clarified by changing the wording as follows (italicized words have been added, [] indicate what was removed):

[The following standards and procedures apply to] Freestanding multiunit residential or nonresidential systems must comply with the following standards and procedures: (Mary Downes)

- a. Site plan review with the Planning Board is required.

9-12

Site plan review and approval by the Planning Board [is required] (Mary Downes)

- 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. (Mary Downes)

-----9-12

Part b of this section regarding nameplate capacity should be eliminated as it is confusing and unnecessary. (Mary Downes)

- 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. *(Beth Olshansky)*

See Mary Downes’ suggestions. In addition: She raises an excellent point about defining “principal building.” The ZO includes a definition for “principal use” but not “principal building” or “principal structure.” *(Robin Mower)*

- 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.” *(Beth Olshansky)*

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. *(Judith Spang)*

Language such as “buffered” in 5d ...is vague. *(Mary Downes)*

- 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. *(Mary Downes)*

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. Please discuss this issue as it relates to this section and in Section 5, E, 1. The more definitive the ordinance the better. *(Mal Sandberg)*

-----**9-12**

Part e of this section should, like a similar reference in 4c, be amended to allow for special exception regardless of the “practicality” of placing the system other than as described in 5c or 5d. *(Mary Downes)*

- f. The Planning Board may require an analysis of potential glare at its discretion.

9-12

Reference to the Planning Board having the authority to require an analysis of glare (Section 5f and 6b) can be more effectively described in section 7e Submission requirements (see below). *(Mary Downes)*

Language should be identical here and in 6c, below. (Robin Mower)

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.

9-12

In Section 6, the word ‘provide’ should be replaced with ‘generate’ and ‘thermal energy’ should be added to the description so that it reads as follows:

6. Enterprise Solar Energy System (principal use). This designation refers to a system that is designed to generate electricity or thermal energy for off-site utilization. The following standards and procedures apply to enterprise solar energy systems. (Mary Downes)

-----9-12

For Enterprise systems, the Planning Board might consider giving priority to developers of systems intended to generate electricity or heat for use by residents or businesses located within Durham, rather than to those who intend to sell the electricity to the highest bidder (like hydropower might be). This could help the Town to meet its renewable energy goals while limiting the ability outside developers to appropriate open lands for the purpose of utility-scale power generation. (Mary Downes)

- 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. (Beth Olshansky)***

-----9-12

[The first sentence should read:] The system shall be set back no less than 100 feet from the front property line.

Without visual representation (or other empirical data), it is hard to evaluate the 100 feet. That said, a 100 foot setback is a surprisingly short distance for tall or massive structure, so I would argue that you keep this language; an applicant has the right to seek a variance. (Robin Mower)

- c. The applicant shall submit an analysis about potential glare at the Planning Board’s request.

9-12

Reference to the Planning Board having the authority to require an analysis of glare (Section 5f and 6b) can be more effectively described in section 7e Submission requirements (see below). (Mary Downes)

See comment on 5 f, above. (Robin Mower)

- 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. (Beth Olshansky)

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. (Mary Downes)

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 abuttersI 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. *(Judith Spang)*

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. *(Mike Pazdon)*

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. *(Firoze Katrak)*

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. *(Mal Sandberg)*

-----9-12

Reference in Section 6d to specific roads where solar installations would be prohibited should be removed. If Durham wants to set greater restrictions on certain parts of town, then language could be added that the Planning Board will be particularly sensitive to systems proposed along scenic roadways and gateways. Outright prohibition is unnecessary and unduly restricts property-owning residents along certain roadways, particularly those that are already screened from the road by virtue of topography, trees or otherwise out of sight. *(Mary Downes)*

As an avid cyclist, runner, hiker and hunter I do believe that I have covered almost every square yard of our community, especially the two roads most mentioned, Packers Falls Road and Durham Point Road. Living on Packers Falls Road, I fail to see where the abundance of vinyl siding, fake wood fences, permanently parked RV's and prefabricated/ mobile homes constitutes any level of scenic value. Please be mindful I mean none of this as an insult to the residents on this road, I personally own a house with very un-scenic yellow siding, and do appreciate the variety of architecture on the road. My family actually made a conscious decision to move to Packer Falls instead of a more groomed development because the road felt so much more authentic.

Durham Point Road is a nice road, I cycled it more than any other road in Durham (with the exception of Packers Falls Road), but I still fail to see where it is any more scenic than hundreds of other roads in the state. I sure hope that higher property values does not make a road more scenic? *(Sascha Barth)*

[Rerword second part of section d. b), above, as follows: "b) ... from any designated scenic road (Bay Road, Bennett Road, Durham Point Road, or Packers Falls Road) or scenic viewshed, as specified in the 2000 Master Plan." See list of viewsheds from 15 roads from 2000 Master Plan, provided by Robin Mower, on website.]

It is conceivable that other roads may be designated as scenic roads in the future, and the use of the word "scenic" links the regulation to the rationale; viewsheds specified in the Master Plan include for the Mill Pond Center along Route 108, our gateway. Also, the Master Plan chapter "Vision and Community Chapter," adopted on November 18, 2015, includes this statement: "...Residents noted scenic views along the Oyster and Lamprey Rivers, College Woods, Mill Pond, Adams Point, Wagon Hill and more." NOTE: Enterprise systems are commercial and may in fact not benefit any Durham property owner or municipal function. *(Robin Mower)*

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. (Mary Downes)

-----9-12

A Building Permit is referenced in section 7a under Other Provisions, but this has been specified in the Table of Uses and may be redundant here. (Mary Downes)

- 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? (Judith Spang)

-----9-12

Setbacks in section 7b are not necessarily consistent with those described elsewhere in the ordinance. Are the required setbacks for the zoning district the same as the setbacks for a freestanding system, or does the zoning ordinance recognize solar in the same way it recognizes other improvements?

Reference in this section to 'moving components' should be amended to 'components that track or move,' to be clearer. (Mary Downes)

- 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. (Beth Olshansky)*

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. (Mal Sandberg)

- 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.

9-12

In Section 7e, a more comprehensive list of submissions requirements should be included in order to make provide applicants with specific direction regarding what they have to submit without having to search through the ordinance. The reference to the Site Plan Regulations and ZBA should be moved to the intro as follows (new/moved language is italicized):

e. Submission requirements. Applicants for projects that require a site plan review shall submit all pertinent information to the Planning Board as specified in the Site Plan Regulations and all elements specified by the Zoning Board of Adjustment, including:

- **Specifications for the equipment to be installed,**
- **Distance from road, including justification for placing closer than 100' if such placement is proposed**
- **Siting and description of interconnection to the electrical grid and/or on-site storage,**
- **Screening and/or buffering plans,**
- **Description of potential glare visible from roadways or abutting properties, and plan to address, if present,**
- **Decommissioning Plan for freestanding systems that serve more than two residential units,**
- **Any other relevant site and project specific details regarding the removal of the structures and reclamation of the site when the system is no longer in use. (Mary Downes)**

- 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? (Beth Olshansky)

The decommissioning requirements and expectations of the Town should be made clearer or removed. (Mary Downes)

- 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. (Beth Olshansky)

- 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. (Mary Downes)

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

-----**9-12**

“Solar easements” and “solar skyspace”, which are referenced in section 7i are not defined nor otherwise discussed in the ordinance, though the authorizing legislation references them. If the ordinance is going to allow property owners to establish them, I think they should be defined within the Ordinance itself without making the reader go to the state RSA.

As referenced in #7 above, paragraph 7i of the draft ordinance refers to solar easements and solar skyspace pursuant to RSAs 477:49, 50 and 51. Further elaboration of the process for establishing such easements in Durham would be helpful in this section. (Mary Downes)

In the past I have objected to the use of non-legal words such as “encourage” in our land use regulations, but it may be worth considering the inclusion of language such as the following two (2) notes:

Owners of solar energy systems are encouraged but not required to obtain solar access easements from neighboring landowners to ensure solar access. The municipality does not guarantee and will not protect any individual property rights with respect to solar access.

When an applicant owns two or more adjacent lots, and at least one of those lots is proposed to utilize solar energy collection devices, the applicant is requested to consider establishing a solar access easement or a similar legal mechanism to make sure that structures or vegetation on one lot does not unreasonably obstruct solar access for the solar energy collection devices in the adjacent lot. *(Robin Mower)*

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 *Special exception in CB, R, RA, RB, and RC zones in all zones <i>(Beth Olshansky)</i> Site plan review
Enterprise solar system (principal use)	Permitted use in R, RC, and all Commercial Core and Research-Industry zones *Permitted use in R, RC, and all Commercial Core; Conditional Use in R, RC, and Research zones <i>(Beth Olshansky)</i> Site plan review	Conditional use in R, RC, all Commercial Core zones except for CB, and all Research-Industry 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 <i>(Beth Olshansky)</i>

[Regarding table and 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. (Beth Olshansky)**

This table will need to be revised to be consistent with changes adopted by the Board.
(Mal Sandberg)

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. *(Beth Olshansky)*

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. *(Judith Spang)*

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. *(Mike Pazdon)*

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 thing 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! *(Peter Wolfe)*

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. *(Mal Sandberg)*

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It is my opinion that this ordinance divides Durham into two classes of solar citizens in a sense; those whose parcels and buildings, like my own, enable them to install an invisible solar installation, and those without that capacity. It does this in the name of preserving the aesthetics of Durham and its rural character. I find that to be deeply unsettling and it challenges my understanding of what Durham stands for.

...But this ordinance in its focus on restricting solar to only the aesthetically palatable goes against the nature of the Save Our Shores campaign and the designation of the Lamprey River. In those cases, citizens sacrificed endless hours, endured personal attacks, and harmed their own economic well-being in the fight against environmental destruction. However, this ordinance, by being so focused on the aesthetics impacts, abets additional and more destructive environmental damage, because it restricts the solutions. By restricting solar, we actively encourage fossil-fuel consumption, the primary driver behind climate change. In restricting solar to preserve the wealth that is our view we become complicit as any fossil fuel company.

...But the impact of this ordinance does not end here with our view. Other communities will refer to this as a potential template to enshrine the own privilege. This ordinance seeks to make solar invisible on the landscape and other, less progressive, communities will be certainly be willing to snap this up. While I am not advocating for the unrestrained placement of panels across the entire landscape, I am advocating that we should not become so myopic that we confuse the aesthetics of Durham for its character.

If the story of Durham is truly one of environmental protection and leadership, then solar panels should have a place on the landscape in view, because certain things should be visible. Stops signs should be visible. Climate leadership should be visible. In that vein, so too should our town’s solar panels. They should stand alongside the Isles of Shoals, Great Bay, and the Lamprey River as our commitment to a healthy environment and a safe future for generations to come. *(Chris Skoglund)*

The Planning Board has the difficult task of finding a nuanced position that will reflect the values of the *entire community*. Durham has decades of history documenting its

commitment to both its natural and scenic resources. Longtime resident Dudley Dudley recalls that this value system existed as long as she can remember, some 80 years ago.

More recently, we find evidence in the 2000 Master Plan under SCENIC VIEWS:

“The landscape of an area defines its cultural, natural, and historical heritage and thus provides the members of a community with a sense of identity. Durham’s identity is marked by the views of and from roadways, the major rivers, and the Great and Little Bays. In addition, the areas of historical and existing agricultural operations create a pastoral landscape that helps to define the community.”

Under Important aspects of views, listed are the following items which all affirm Durham’s longstanding commitment to preserve our viewsheds:

- Continuous views that “follow” you as you travel along the road or are deep views.
- Lack of scattered development or other disturbances in views.
- Durham has four locally designated scenic roads – Bennett Road, Packers Falls Road, Durham Point Road, and Bay Road – and a Federally designated scenic river – the Lamprey River.

... I would also like to remind the PB that our ordinance should set out a clear vision and regulations that are aligned with the Purpose Statement. Those residents who are not able to meet those regulations can always seek relief at the ZBA, which regularly grants relief to those who have no other options. If we are serious about preserving our town’s character and scenic places, we would be wise to set out clear guidelines that can be waived under certain circumstances. *(Beth Olshansky)*

NHSEA [New Hampshire Sustainable Energy Association] is pleased to see Durham taking on a leadership role in working towards the goal of providing sound solar zoning and siting guidance that will create a clear and efficient path towards development of solar energy systems. NHSEA is appreciative of the opportunity to provide comments the current draft of Durham’s Solar Energy Systems Ordinance (the Draft).

We hope that local solar ordinance will provide clarity without being overly restrictive to provide adequate opportunity for property and business owners as well as non-owners to develop or benefit from local solar energy generation on buildings, ground mounted systems, or community solar systems.

Visual Impacts and Aesthetics

Restrictions on proposed solar energy systems based on perceived visual impacts and/or project aesthetics may create unintended barriers to what would otherwise be an efficient development of reasonable projects. Consideration of visual impacts and

project aesthetics are perceived by some as important factors in maintaining cultural character of a community, but are simultaneously elusive and subjective concepts defined differently according to each individual's preferences and values. NHSEA is supportive of the use of a permitting matrix such as the one depicted on page 7 of the Draft and advise against further restricting of permitting based upon subjective aesthetic considerations. As noted in the Draft, buffers can be an appropriate method for addressing aesthetic considerations for certain free standing solar energy systems, however buffers should not necessarily be required regardless of size and location of the system (as required in 5d and 6b). (*New Hampshire Sustainable Energy Association*)

There have been many comments about the disruption of scenic roadways by installations such as ground mounted solar arrays, or solar trackers like the one installed on Packers Fall Road in 2017. It is my firm belief that people become accustomed to the appearance of solar arrays within a short amount of time. Indeed, several neighbors who walk by my home tell me that the tracker seems to get smaller all the time. I can't help thinking that there was an outcry when the first automobiles appeared on roadways, and that electric and telephone wires were considered eyesores. Many people did not enjoy the look of satellite dishes for TV reception when they first became popular. History books will tell you that the inhabitants of Paris were less than pleased by the construction of the Eiffel Tower, yet now it is one of the city's most cherished landmarks. (*Sascha Barth*)

- We already regulate impacts on our neighbors, even for somewhat minor measures including the aesthetics of homeowners' fences,
- Any property owner who is serious about installing solar panels is likely to: (a) figure out how to do it while complying with a reasonable ordinance, or (b) if required to do so, be willing to make the effort to go through the Zoning Board to obtain a variance just as homeowners do who want to build in out wetlands,
- The amount of solar energy generation derived from unrestricted installation in this small town is unlikely alone to offset our myriad daily energy-squandering practices, and
- Our planet's ability to stall, let alone reverse, global warming does not depend on the Town of Durham's allowing unrestricted solar installations.

...Recently adopted Master Plan chapters, as well as surveys and forums from which the Plan was developed, as well as past Master Plans have continuously and repeatedly reflected the community's deep appreciation for our natural setting, gateways (whether or not defined as such), and scenic vistas. The Planning Board has both the authority and

the obligation to protect those scenic vistas. The Master Plan forum held in May 2017 provided reinforcement for the community's commitment to protecting gateways.
(Robin Mower)

...thoughtfully designed and rigorously executed regulation would *promote*, rather than impede, the development of solar power. Such regulation would specify where and how solar power couldn't be developed, but just as importantly, would specify where and how solar power *could* be developed. In this way, potential disputes over solar power projects would be minimized or possibly even avoided, whereas with little or no regulation, such disputes would be inevitable and impeding. I would encourage Durham to thoughtfully, and rigorously, regulate solar power.

The Dismissiveness Toward Aesthetics

In written and spoken comments, by some residents and board members alike, there's been a discernable dismissiveness toward the aesthetic impacts of solar power projects, apparently again as a response to the dire threat of climate change. As said, I agree with perceptions of the threat of climate change. But I disagree with the dismissiveness toward aesthetic impacts. At every level of environmental review, from local to state to federal, aesthetic impacts has been an established and essential consideration in the evaluation of any project, solar or otherwise. The evidence is ample and clear. It includes the pervasive mention in Durham's own planning documents over the years of the imperative of preserving the town's *rural character*, and other such language that speaks to aesthetic qualities. It also includes the 1969 National Environmental Policy Act, the leading federal law governing federal environmental review of projects in the country, which establishes aesthetic impacts as a parallel consideration with all other impacts, from air quality to water quality. I would encourage Durham to consider aesthetic impacts, and the visual pollution they cause, as seriously as all other impacts in developing, and eventually in enacting and executing, this ordinance. (Robert Braille)