Last updated *Apr 29, 2026*

Recent updates expand the ordinance's applicability to battery energy storage systems. Please contact sarah@cleanenergynh.org with questions.

NH Model Solar Zoning Ordinance

Introduction

There are many reasons for communities to encourage sensible solar development. Solar energy systems for homes and businesses can help to reduce energy costs, increase the reliability of the electricity grid and generate local jobs. Larger-scale solar energy systems bring additional economic benefits, growing the local tax base with minimal demand on municipal services (e.g. water, sewer, emergency response). Solar development can even protect land for future use and create valuable habitat for native plants, insects, and animals, since solar arrays can be decommissioned at the end of their useful life and are fundamentally less impactful to natural resources than other types of development. Furthermore, particularly when paired with energy storage, solar that is connected to the distribution grid can enhance reliability by reducing the need to rely on the regional transmission system during times of grid stress.

When done right, planning and zoning can expand opportunities for solar energy by reducing project costs, mitigating potential impacts, and balancing solar generation opportunities with other local land use priorities. Lack of local regulations or regulations that are unclear or onerous can inadvertently discourage solar energy. Local

governments should identify zoning districts where solar energy generation is an appropriate land use, require conditional use review in other zoning districts, and avoid prohibiting solar development explicitly through local land use regulation. The process and standards for large-scale solar projects should be clearly defined and local regulations should ensure access to solar energy resources is not unduly limited by new or existing restrictions (e.g. height, setback, aesthetic, or lot coverage requirements).

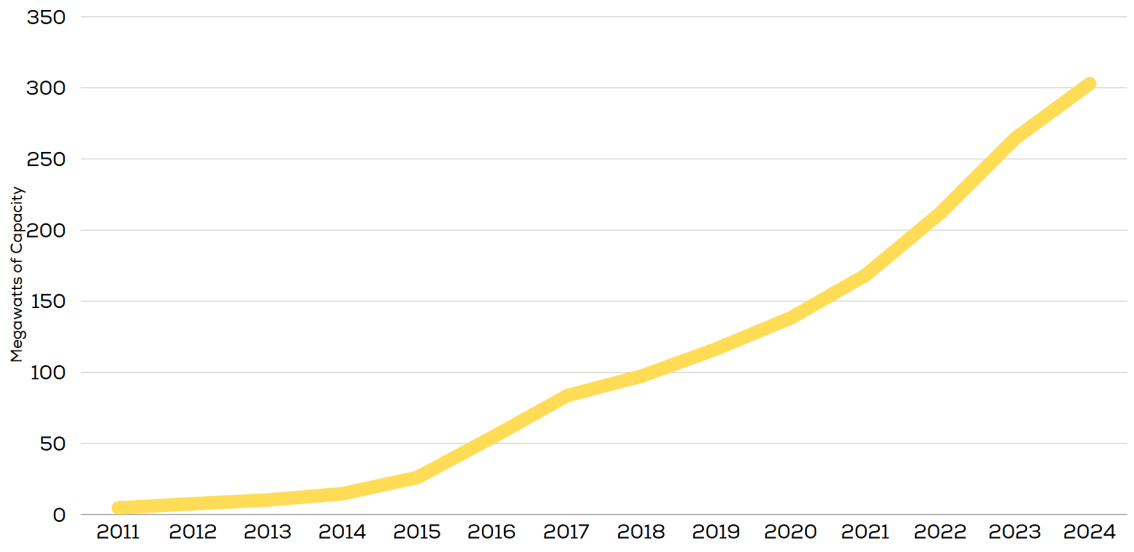
Be proactive rather than reactive. In New Hampshire, local planning boards are often approached by property owners and/or solar developers about solar energy systems proposed as a primary land use. Clean Energy NH has witnessed many towns struggle in such situations for lack of clear planning and zoning guidance. Conversations about solar zoning regulations now will save time and hassle for everyone moving forward.

Background

Solar Trends in New Hampshire

Solar energy is an abundant natural resource in New Hampshire and we are likely to see increasing development of solar power generation statewide. Globally, the cost of solar electricity has declined dramatically and the world is installing more solar capacity than any other form of energy. Moreover, the efficiency of solar panels has improved, making solar an increasingly cost-effective energy source.

Growth of Solar Generation in New Hampshire[1]



[1]New Hampshire Renewable Annual Report, November 1, 2024; 2024 number is extrapolated.

According to the U.S. Energy Information Administration (EIA), "Solar energy supplied about 2% of New Hampshire's total net generation in 2023, almost all of it from small-scale (less than 1 megawatt) installations." Before 2021, New Hampshire's net metering policy allowed solar installations up to 1 Megawatt (MW) in size, which meant that projects were overwhelmingly smaller. Since 2021, solar installations between 1-5MW are allowable for municipal net metering projects. Most solar energy systems in New Hampshire take advantage of net metering. Solar energy systems that do not utilize net metering must participate in the wholesale energy market, which is generally less financially viable except at a large scale. New Hampshire has yet to build a "utility-scale" solar array, though a 50MW project in Fitzwilliam did win state approval, prior to being abandoned due to interconnection costs, and a 20MW project in Farmington will commence construction in the summer of 2025. As of early 2025, the largest solar project installed in New Hampshire is 6 MW-DC and is located in Kingston, NH.

Solar 101

"All black" solar panels Spring Ledge Farm in New London. Photo courtesy of Barrington Solar

Solar Panels

The wattage of solar panels (power generated per panel) has grown steadily over time. In 2025, **residential solar panels** averaged 400-420 watts (average dimensions 3.25' x 5.5') and **commercial solar panels** averaged 500-620 watts (average dimensions of 3' x 6.5'). "All-black" solar panels are available in residential sizes and are increasingly common in rooftop installations. "Bifacial" solar panels are common in ground-mounted solar projects because they can also generate energy on the backside of the panel, capturing sunlight that reflects off the ground.

Behind the Meter vs Front of the Meter

"**Behind the Meter**" solar is installed where there is an existing electric load and the solar can be connected to an existing electric meter. Any solar energy produced is consumed on-site, "behind the meter." Excess power that cannot be used immediately on-site is exported to the grid (typically via Net Energy Metering, see below) or stored in an on-site battery. "**Front of the Meter**" solar is installed at a location where electricity is not consumed. All electricity generated by that system is exported to the grid, where it is consumed by nearby customers, displacing the need to import electricity from farther away.

Net Energy Metering

Net Energy Metering (a.k.a. "Net Metering") is enabled by state law (NH RSA 362-A:9) and is a billing mechanism that compensates smaller-scale (< 5 MW) renewable energy producers for electricity exported to the grid. As of 2025, NH differentiates between "small systems" (<100kW) and "large systems" (100kw-5MW). "Small" systems

(<100kW) receive more credit for exported kWh. Only Municipal Group Host projects—projects where 100% of the customers are municipally-owned electric meters—may net meter between 1-5 MW. Projects may not take a larger array that is on a single property and break it into multiple smaller projects in order to access the net metering program, as doing so is prohibited by PUC rule 903.03.

Group Net Metering

New Hampshire law (RSA 362-A:9, XIV) **allows one large solar energy system to "share" its solar energy across multiple sites.** The "host" sets up an agreement with one or more other electricity customers within the same electric utility and any excess solar energy is credited to one or more off-site electric bills. This can happen on a small scale (e.g. among two or more neighbors) or on a large scale (e.g. a multi-megawatt solar energy system with many "offtakers"). Commercial "solar gardens" or "community solar" projects are common in other states, allowing residents to purchase energy from an off-site solar array if they cannot install solar on their own home. New Hampshire's unique group net metering rules make it difficult and less cost-effective to build those types of projects.

Hosting Capacity

New Hampshire law (RSA 362-A:9, XXII) requires electric distribution utilities to publish "hosting capacity maps" showing the estimated maximum amount of power generation each section of the electric grid can handle without requiring infrastructure upgrades or causing safety or reliability issues. These maps also show which portions of your community have access to three phase power. **Solar energy systems above 15 kW typically require access to three phase power.**

- Eversource's Hosting Capacity Map
- Liberty's Hosting Capacity Map
- New Hampshire Electric Coop's Hosting Capacity Map
- Unitil's Hosting Capacity Map

Rooftop Solar

Residential rooftop solar installations in New Hampshire are typically **6-12kW in size (20 to 40 panels)** and commercial rooftop systems can vary widely in size, with the largest rooftop array in the state (as of 2025) generating 1.2MW-DC. Rooftop solar panels add about 3-4 lbs. per square foot to the roof, including mounting hardware, which in most instances can be supported without adding structural improvements.

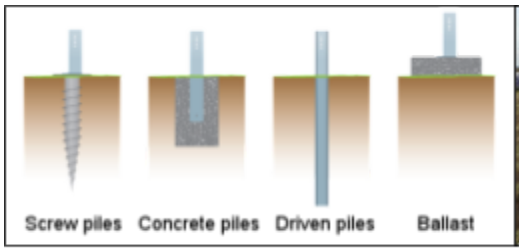
Single Access Tracking array
Photo courtesy of Walden Renewables

Ground-Mounted Solar

- **Pole-mounted** arrays consist of 16-24 panels per pole, reach 15-20 feet at their maximum height, and may be fixed tilt, adjustable tilt, or feature a dual-axis tracker to maximize power generation.

Row-mounted racking system

- **Rack mounted** arrays are arranged in one or more rows that are fixed tilt or single-axis tracking to maximize power generation. Rows are far enough apart to allow sunlight to reach all panels and snow and rain to fall between the rows.
- "**In ground**" mounting systems can be screwed into the ground, pile driven, or set in concrete.
- "**On ground**" mounting systems include ballasted systems and are often used on capped landfills or other brownfields.
- **Dual-use projects** on agricultural properties feature racking systems that are tall enough for agricultural uses to occur underneath the panels, typically at least six feet. These racking systems can meet the landowner's goals for their property, but do typically add costs.



Source: Ionvia Technologies


Ballasted, rack-mounted array in Middleton, NH


Pole-mounted array, photo courtesy of Barrington Solar

Larger projects require **5-10 acres per MW** of installed solar, a portion of that land area covered by solar panels and the remaining land comprising buffer areas and required setbacks. Ground mounted solar arrays are typically **NOT subject to lot coverage and impervious surface requirements** because mounting components have a small footprint with ample exposed vegetation under the array to absorb precipitation. In New Hampshire, projects that cover more than 100,000 square feet do require an Alteration of Terrain (AoT) permit, but projects smaller than 5MW-AC are allowed to receive a permit by notification.

For larger solar arrays, it can be mutually beneficial for the array owner to negotiate a **"Payment in Lieu of Taxation" (PILOT)** to ensure revenue for the town as well as predictable costs over the life of the project. For more about PILOT agreements, read this explainer from Clean Energy NH.

Energy Storage and Micro-Grids

As communities discuss resilience planning and emergency management, renewable energy and micro-grids are one emerging solution. Having large solar arrays in your community can lay a foundation for future opportunities to provide long-term, stable electricity to critical community infrastructure. Smaller scale, grid-connected, on-site battery energy storage is already available through a few, limited New Hampshire utility programs, including Eversource's Connected Solutions program and Liberty Utilities'

Battery Storage Pilot. This model ordinance includes standards for battery energy storage systems that are associated with new or existing solar energy systems.

Solar in Historic Districts

NH RSA 674:45-50 articulates the State's definitions and rules regarding historic districts. If your community has adopted a Historic District(s), it is possible to review and amend these regulations to allow for solar installations without compromising the integrity of these Historic Districts.

There are several helpful guides for communities addressing this issue, including a 2011 Report from the National Renewable Energy Lab,[2] the Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings published by the US Department of the Interior,[3] and a 2012 Report from US Department of Energy's SunShot program.[4]

When providing access to solar resources in historic districts, the goal is to balance the benefits of harnessing solar energy with the intention of preserving and celebrating the community's historic resources. Here are some considerations for allowing solar collection systems within Historic Districts:

Roof mounted systems:

- System design can include flush-mounted black-on-black panels with trim guards to minimize visual impact.
- Mounting brackets for roof mounted systems are spaced sparsely and can be removed and the roof patched with no permanent structural impact.
- Property owners can be encouraged to assess options for inconspicuous ground-mounted systems or installation of solar on a non-historic adjacent building or addition, recognizing that in some cases, a roof mounted system on the historic building itself may be the only practical option.

Ground mounted systems:

- Allow for ground mounted systems that respect the building's historic setting.
- Systems can be located in inconspicuous locations, such as side and rear yards, low to the ground and screened to limit visibility.

New construction and additions:

- Allow for placement of solar that is most compatible with the historic building and its setting and where such installations are integrated into the building materials and design as much as possible such that they are minimally visible.

[2] https://www.nrel.gov/docs/fy11osti/51297.pdf

[3] https://www.nps.gov/orgs/1739/preservation-by-topic.htm#sustainability

[4] https://solsmart.org/resource/installing-solar-panels-on-historic-buildings

Other considerations:

- Encourage, to the maximum extent practical, systems that are not visible or minimally visible from public ways. Installations on building surfaces that face public ways should be thoughtful and limited. Locations with adequate solar exposure behind dormers or on rear facing roof planes should be permitted.
- Encourage materials and colors that blend into the building design and minimize conflict with the historic character of the building and the district.
- Avoid multi-roof systems and disjointed installations.
- Installations on flat roof locations should be screened in keeping with the character of the building or setback from the edge of the roofline.
- Building integrated systems, such as tiles and other materials that mimic building components should be permitted. Such options may not be readily commercially available in New Hampshire, or may be prohibitively expensive.

Energy Overlay Districts

An emerging practice is the use of zoning "overlay" districts to customize how solar and other clean energy infrastructure is regulated in different parts of a community. Overlay districts are not a new concept in planning and many communities have experience establishing overlay districts for the protection of natural or historic resources.[5] As the name implies, an overlay district can be understood to "sit on top" of the underlying zoning districts and provide additional regulation for a particular purpose.

For a community that wants to establish a district where large-scale solar energy is particularly appropriate or desirable, establishing a solar energy overlay district may be a good approach (see Creating a Permitted Use Table below). Establishing a solar energy overlay district should start with a strong understanding of where large-scale solar is technically feasible in a community, based on potential for utility interconnection (see Hosting Capacity Maps above). Input from local stakeholders can be used to identify areas in the community where solar development is appropriate, which could include industrial or commercial districts, brownfield sites, publicly owned lands including water treatment facilities or landfills, or areas adjacent to transportation infrastructure including roads or airports.

Statutory Authority and Limitations

NH RSA 672:1 recognizes that planning and zoning regulation is the responsibility of local government, but declares a statewide interest in regulations to encourage energy

[5] https://www.planetizen.com/definition/overlay-districts

efficient development patterns, including adequate access to direct sunlight for solar energy uses.

- Paragraph III-a declares "the installation of solar, wind, and other renewable energy systems or the building of structures that facilitate **the collection of renewable energy shall not be unreasonably limited by the use of municipal zoning powers** or by the unreasonable interpretation of such powers except where necessary to protect the public health, safety, and welfare."
- Paragraph III-d clarifies that "unreasonable interpretation" of municipal zoning ordinances includes failure of municipal authorities to recognize that **renewable energy systems are an appropriate accessory use of land in New Hampshire** and that prohibition of such accessory uses cannot be inferred from the failure of an ordinance to address them.

New Hampshire State Statute establishes several ways municipalities can encourage access to solar resources:

- **NH RSA 72:61 and 72:62** allows municipalities to **adopt an "exemption from the assessed value**, for property tax purposes, for persons owning real property which is equipped with a solar energy system."
- **NH RSA 674:2**, paragraph III-n enables municipalities to include an **energy section in their master plans**.
- **NH RSA 674:17** and **NH RSA 674:36** paragraph II-k enable municipalities to **adopt zoning ordinances and regulate the subdivision of land to encourage the installation and use of solar** and other renewable energy systems and to protect access to energy sources by the regulation of orientation of streets, lots and buildings, establishment of height and setback requirements, limitation on height and setback of vegetation, and encouragement of the use of solar skyspace easements.
- **NH RSA 72:74** allows for a Board of Selectmen or City Council, after a public hearing, to enter into a long-term tax agreement specifically designed for renewable energy facilities like solar, called **"Payment In Lieu Of Taxation"** or **PILOT**. An owner of the renewable energy facility OR a lessee responsible for paying taxes on the facility can enter into these voluntary agreements. A PILOT agreement might last 5-20 years or more and may be extended if the parties agree to do so. More information here.
- **NH RSA 477 (sections 49, 50, and 51)** allows municipalities to enact planning and zoning regulations that **protect access to energy sources** and that encourage the use of **solar skyspace easements**. NH RSA 477:51 contains model language for solar easements that can be used in the case a property owner wants to pursue the option.

As of 2024, **New Hampshire's net metering tariff** sets limits on how much energy a solar energy system can produce.[6]

- For residential and small commercial customers, the peak generating capacity of the equipment is limited to **100 kW-AC**, the equipment must be located behind the customer's meter, and the power generated must be used primarily to offset the customer's own electricity use.
- For larger generation facilities, the peak generating capacity is **1 MW-AC**.
- For political subdivisions, the peak generating capacity is **5 MW-AC**.

Using the NH Model Solar Zoning Ordinance

About This Document

In 2025, Clean Energy NH partnered with SolSmart to create this Model Ordinance based on current local needs, national best practices, and input from New Hampshire planners and solar developers. SolSmart is a national program, funded by the US Department of Energy, that helps local governments follow national best practices to expand solar energy use in their jurisdictions.[7] This document is an update to an earlier version published by NH Sustainable Energy Association (which later changed its name to Clean Energy NH) in 2018.

This Model Ordinance cannot possibly anticipate all local situations or priorities. Every town and city in New Hampshire is unique and any regulatory scheme must be tailored to your community's existing land uses, master plan goals, and land availability.

DISCLAIMER: This Model Ordinance and associated guidance is not intended to be legal, financial or medical advice. This Model is solely meant to share helpful information and examples of issues and ideas about the subjects discussed. No person associated with this document intends to make any opinion about specific occurrences or events. For issues related to specific legal, financing, and/or medical issues, please consult with a licensed professional.

How to Save a Copy of this Model Ordinance to Adapt/Edit

To save a copy of this document in order to edit and adapt the model ordinance, open the "File" menu at the upper left and select "Make a Copy" or "Download". Contact sarah@cleanenergynh.org if you have any questions of difficulties.

[6] https://www.energy.nh.gov/renewable-energy/net-metering-and-group-net-metering/net-metering

[7] https://solsmart.org/

Tips and Things to Consider

Standalone vs. Baked In

The regulation of solar energy can be achieved through zoning regulations or a standalone solar ordinance. While this Model is designed to be a standalone ordinance, its component parts can be embedded throughout a broader zoning code if preferred.

Help Understanding WHY Certain Regulations Are "Best Practices"

The recommendations in this Model Ordinance are considered best practices, but this document does not necessarily explain WHY that is. This webpage and associated solar planning and zoning guide from SolSmart[8] provides helpful context regarding why accessory solar should be a permitted use, why solar should be exempt from height restrictions, and other regulations suggested in this Model.

Primary-Use Solar as a Permitted Use

As part of adapting this Model Ordinance for your community, you SHOULD have a conversation about where and whether primary-use solar (a.k.a. multi-acre or large scale solar) might reasonably be a permitted use in your community.

1. **Start with a map of your community**, including property lines, land use, development zones, protected areas, roads, etc.

2. **Review your utility's Capacity Hosting Map**. Identify undeveloped or underdeveloped land adjacent to three-phase power lines. *Primary-use solar cannot be developed without access to three-phase power.*
    - Eversource's Hosting Capacity Map
    - Liberty's Hosting Capacity Map
    - New Hampshire Electric Coop's Hosting Capacity Map
    - Unitil's Hosting Capacity Map

3. **Where are you already seeing solar development in your community?** Is there anything to reflect on or learn from the siting or permitting of those projects?

4. **Identify areas where you would WANT to see multi-acre solar installations** established on under-developed land with access to three-phase power. Consider community development goals and priorities, the highest and best use for larger undeveloped and underdeveloped land parcels, and associated potential tax revenue and added burden on municipal services. Consider also any brownfields (e.g. capped landfills, retired gravel pits) or agricultural sites that could benefit from dual-use solar development.

[8] https://solsmart.org/resource/planning-zoning-development

Creating a Permitted Use Table

This Model Ordinance provides an example of how a community might utilize a standard table of uses to clarify where different types of solar arrays are permitted. Consider the following as you adapt this template table to suit your own community:

1. **Align zoning districts (columns) with your own** relevant zoning districts.

2. **Consider allowing accessory-use solar by right in all zoning districts.** It is best practice to make roof-mounted and ground-mounted accessory-use solar a permitted use in all zoning districts.

3. **Consider allowing primary-use solar by-right in at least one district.** Try to identify at least one zoning district in which primary-use ground-mounted solar can be a permitted use. In the previous paragraph, we asked you to identify areas of your community where you would WANT to see primary-use solar. Where do those areas fall?

    a. If those areas fall neatly within an existing zoning district, consider **allowing primary-use solar in that district as a permitted use**.

    b. If those areas are scattered across multiple zoning districts, consider establishing an **Energy Overlay District** (see Energy Overlay Districts above).

    c. If after thoughtful consideration it appears that the appropriateness of primary-use solar will need to be assessed on a case-by-case basis, consider **allowing primary-use solar as a conditional use.**

4. **Consider adding rows in order to create additional permitted uses for ground-mounted solar**. By way of example, the Table of Permitted Uses provided in this Model Ordinance differentiates between solar energy systems less than and greater than 10 acres in size. Some communities may find it easier to allow smaller scale solar development as a permitted use while requiring larger systems to seek a conditional use permit.

    a. **Create new rows only if that allows you to create a new permitted use.** Otherwise, keep your permitted use table as simple as possible.

    b. **ALWAYS use acres rather than system size to differentiate** by size or scale within your table of permitted uses. As solar panels become more efficient, solar energy systems will be able to produce more energy on a smaller footprint. An ordinance that distinguishes systems by power production capacity may soon be out of date.

c. **Choose a threshold that makes sense for your community.** We chose 10 acres as an example in the Model Ordinance because that is the amount of land typically required to develop a 1MW system (see Solar 101 above). The right threshold for you might be informed by the types and sizes of developable land parcels in your community.

5. **Avoid prohibiting solar within any particular zoning district.** Where practical, consider requiring a Conditional Use Permit instead.

Related Resources

SolSmart is part of a larger Energy Smart program, funded by the US Department of Energy. Related programs relating to local zoning for other clean energy technology includes:

- **Charging Smart for electric vehicle (EV) charging**. Few NH communities specifically address EV charging infrastructure in their zoning code. As a result, some communities have been left trying to apply regulations related to traditional refueling stations (e.g. gas stations) to proposals for EV charging projects, causing headaches for everyone involved.
- **Distributed Wind Smart for on-site wind power.**

NH Model Solar Zoning Ordinance

I. Authority

This solar energy system ordinance is enacted in accordance with RSA 674:17(I)(j) and the purposes outlined in RSA 672:1-III-a, 374-G:1, and 362-F:1, as amended.

II. Applicability

The requirements of this article shall apply to all solar energy systems permitted, installed, or modified in [MUNICIPALITY] after the effective date of this solar energy system ordinance, excluding general maintenance and repair.

All solar energy systems for municipal use are exempt from land use regulations pursuant to NH RSA 674:54.[9]

III. Purpose

[MUNICIPALITY] has adopted the following regulations to encourage the efficient and effective development of solar energy systems while protecting the public health, safety, and welfare of [MUNICIPALITY]'s citizens.

Solar energy is a valuable energy and economic resource that can be utilized throughout [MUNICIPALITY] for the following purposes:

1. To align with state goals for developing renewable and clean distributed energy resources in accordance with NH RSAs 374-G:1, and 362-F:1, which highlight the priorities of energy efficiency, fuel diversity, energy security, and stabilization of future energy costs.

2. To align with goals set out in [MUNICIPALITY]'s [MASTER PLAN, CLIMATE ACTION PLAN, RESILIENCY PLAN][10]

3. To enhance the reliability and resiliency of the local power grid and make more efficient use of the local electric distribution infrastructure.

4. To promote consumer choice and allow residents, businesses, and public entities to use a readily available, local, renewable energy resource.

5. To support and encourage the development of ground-mounted solar energy systems, where appropriate, as a primary land use.

6. To support and encourage the dual-use of land where appropriate to provide both electricity generation and agricultural or natural resource benefits.

7. To diversify the community's energy portfolio and reduce exposure to energy price volatility.

8. To improve air quality and protect public health.

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[9] The municipality must still notify its own planning board and governing body of any substantial new or changed use. Additionally, this only applies if the solar energy system is owned by the municipality. If you are considering entering into a lease or power purchase agreement for solar on town/city property, you could add a second exemption: *"Privately owned and operated solar energy systems, under a lease agreement, on town property are exempt from this ordinance."*

[10] Include only if applicable and cite specific plans, chapters, goals, targets.

IV. Definitions

Dual-use solar: A solar energy system co-located on the same parcel with another land use, for example agricultural production (including crop production, grazing, apiaries, or other agricultural products or services) or a brownfield (e.g. capped landfill or former industrial site). Dual-use solar is also known as agrivoltaics or co-location of solar.

Facility Area: The cumulative land area occupied during the commercial operation of the primary use ground-mounted solar energy system. This shall include all areas and equipment within the facility's perimeter boundary – including the solar energy system, onsite interconnection equipment, onsite electrical energy storage equipment, and any other associated equipment – as well as any site improvements beyond the facility's perimeter boundary such as access roads, permanent parking areas, fencing or other permanent improvements. The facility area shall not include site improvements established for impact mitigation purposes, including but not limited to vegetative buffers and landscaping features.

Grid-connected solar energy system: A solar photovoltaic system that is connected to an electric circuit served by an electric utility company.

Ground-mounted solar energy system: A solar photovoltaic system mounted on a rack or pole, fixed tilt or on a single or dual axis tracker, that is ballasted on, or is attached to, the ground. Ground-mounted systems can be either accessory or primary uses.

- *Large-Scale Ground-Mounted (Primary Use*): A solar energy system where the facility area exceeds 10 acres of land.
- *Mid-Scale Ground-Mounted (Primary Use)*: A solar energy system where the facility area is equal to or smaller than 10 acres of land.

Off-grid solar energy system: A solar photovoltaic energy system in which the circuits energized by the solar energy system are not electrically connected in any way to the electric circuits that are served by an electric utility company.

Roof-mounted solar energy system: A solar photovoltaic system mounted on a rack that is ballasted on, or is attached to, the roof of a building or structure. Roof-mount systems are accessory to the primary use.

Solar carport: A solar energy system installed on a carport structure that is accessory to the parking area and may include electric vehicle supply equipment or energy storage facilities for use in electric vehicle charging.

Solar energy system: A device, array of devices, or structural design feature, the purpose of which is to provide for generation or storage of electricity from sunlight, or the collection, storage, and distribution of solar energy for space heating or cooling, daylight for interior lighting, or water heating.

Solar hot water system: A system that includes a solar collector and a heat exchanger that heats or preheats water for building heating systems or other hot water needs, including residential domestic hot water and hot water for commercial processes.

Solar photovoltaic system: A solar energy system that converts solar energy directly into electricity, the primary components of which are solar panels, mounting devices, inverters, and wiring.

Solar resource: A view of the sun from a specific point on a lot or building that is not obscured by any vegetation, building, or object for a minimum of four hours between the hours of 9:00 a.m. and 3:00 p.m. Eastern Time on all days of the year and can be measured in annual watts per square meter.

V. Table of Uses Permitted

	Zoning Districts					
Types of Solar Energy Systems	**Village / High Density**	**Residential**	**Rural/Ag**	**Commercial**	**Industrial**	**Energy Overlay[11]**
Roof-Mounted (Accessory Use)	P	P	P	P	P	P
Ground-Mounted (Accessory Use)	P	P	P	P	P	P
Mid-Scale Ground-Mounted (Primary Use)	CUP	CUP	CUP	P	P	P
Large-Scale Ground-Mounted (Primary Use)	X	CUP	CUP	CUP	P	P

P = Use permitted by right with building and electrical permit.
CUP = Use permitted by Conditional Use Permit.[12]
X = Use prohibited.

VI. Accessory Use Solar

Roof-mounted solar energy systems and ground-mounted solar energy systems are a permitted accessory use within all zoning districts when incidental to one or more permitted primary and/or accessory structure(s), subject to the following development standards. Solar carports and associated electric vehicle charging equipment are a

[11] See previous section for more about Energy Overlay Districts

[12] Some communities may be accustomed to Special Exceptions for specific land uses. We respect this tradition but feel that the Planning Board Conditional Use Process provides more flexibility and streamlines the by requiring review by only one local land use board.

permitted accessory use on surface parking lots in all districts. Solar energy systems that do not meet the following design standards will require a conditional use permit.

A. General Standards for Accessory Use Solar

1. Height
    a. On a pitched/sloped roof, solar energy systems shall be installed parallel to the roof surface, may not extend beyond the edge of the roof peak, and may be no more than ten inches above the roof.
    b. On a flat roof, solar energy systems are exempt from zoning district height limits.[13]
    c. Ground or pole-mounted solar energy systems, including solar carports, must not exceed 20 feet in height when oriented at maximum tilt.

2. Setbacks[14]
    a. Ground-mounted solar energy systems shall comply with the accessory structure setback requirements of the zoning district in which it will be installed.

3. Screening[15]
    a. Roof-mounted and ground-mounted accessory-use solar energy systems are exempt from screening requirements.

4. Lot Coverage
    a. Ground-mounted solar energy systems are exempt from lot coverage and impervious surface requirements if the area under the system contains vegetative ground cover.
    b. Ground-mounted solar energy systems do not count toward accessory structure limitations.
    c. Solar carports in non-residential districts are a permitted accessory use within all zoning districts, are exempt from lot coverage limitations, and must meet all parking standards in this ordinance.

5. Code and Equipment Standards

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[13] If a full height exemption feels too open-ended for your community, consider this alternative: "*On a flat roof, solar energy systems are permitted to exceed the zoning district height limits by up to 10 feet."*

[14] More urban communities or those with "village districts" may wish to limit solar in the front yard. If desired, consider this language: "*In [Village District/Downtown Core/Urban District] ground-mounted solar energy systems shall be located in the side or rear yard."*

[15] Screening requirements can inadvertently shade the solar panels. Zoning regulations should protect access to solar energy resources and avoid blocking the sun.

a. Solar energy systems, including any associated battery energy storage systems, shall comply with applicable building, electrical, and applicable state fire code standards
b. Solar energy system components must have UL or equivalent listings.
c. Battery energy storage systems shall be listed to UL 9540 and installed in compliance with applicable provisions of NFPA 855, Standard for the Installation of Stationary Energy Storage Systems, and the International Fire Code.
d. Solar hot water systems must have an SRCC rating.

6. Emergency Access
    a. Roof-mounted solar energy systems shall comply with applicable state and local fire codes to ensure emergency access to the roof, provide pathways to specific areas of the roof, provide areas for smoke ventilation, and provide emergency egress from the roof.
    b. Where a solar energy system includes on-site battery energy storage, the applicant shall notify the [MUNICIPALITY] Fire Department at the time of permit application and shall be prepared to provide, upon request, documentation of the system's Emergency Operations Plan as required by NFPA 855.

B. Submission Requirements for Accessory Use Solar

1. Permitting
    a. All solar energy systems that are a permitted accessory use require a [TYPE OF PERMIT][16] permit prior to installation.
    b. A [TYPE OF PERMIT] permit is required for any physical modifications to an existing solar energy system.

2. Site Plan Approval[17]
    a. All solar energy systems requiring a building permit must provide a site plan for review, including to-scale drawings, showing the system's location on the building or property, including property lines.
    b. Applications that meet the design requirements of this ordinance will be granted administrative approval by the zoning official and do not require Planning Board review.
    c. Plan approval does not indicate compliance with Building Code, Electric Code, or Fire Code.

[16] Typically a building and/or electrical permit, in some cases a separate solar permit

[17] Communities adopting this model ordinance that have an established site plan approval process should reference that process here and may need to modify the guidance in this section to be consistent with their typical required submissions and process.

d. Off-grid systems shall be approved by the electrical inspector or Building Inspector.

3. Utility Notification
    a. Grid-connected solar energy systems must comply with the interconnection requirements of the local electric utility.
    b. Grid-connected systems shall file a copy of a final approved interconnection agreement with the municipality prior to operation of the system.[18]

C. Historic Buildings and Districts

In addition to adhering to all other relevant provisions in this ordinance, solar energy systems on buildings within designated historic districts or on locally designated historic buildings:

1. Must be approved by the relevant community historical commission.
2. Should be designed, sized, and located to minimize their effect on the character of a historic building using the best practices identified by the most recent version of the "Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings" published by the US Department of the Interior.[19]

VII. Ground-Mounted Solar Energy Systems (Primary Use)

Ground-mounted solar energy systems, including dual-use solar, may be a conditional or permitted use (see table of permitted uses, Section V) subject to the following design standards and submission requirements. Solar energy systems that do not meet the following design standards will require a conditional use permit. The Planning Board may issue a Conditional Use Permit following a fully noticed public hearing on the proposed use, based on the information and testimony submitted with respect to the application.

A. General Standards for Ground-Mounted Primary Use Solar Energy Systems

1. System Layout
    a. Solar energy systems should be laid out with consideration for viewsheds.[20] Conditions may be set to minimize visibility to the extent practical from abutting parcels with residential or commercial uses,

[18] This language is OPTIONAL, determine whether your town wishes to maintain these records..

[19] https://www.nps.gov/orgs/1739/preservation-by-topic.htm#sustainability

[20] Cite any existing local rules and regulations and make sure you're being consistent. Communities should avoid imposing additional screening/fencing requirements for solar that are not applied to other development types.

protected natural areas or viewsheds, or scenic highways[21] through vegetative screening, existing or created topography, or additional setbacks.

2. Setbacks
    a. Solar energy systems shall be considered structures and shall comply with building setback requirements from lot lines for the entire system – including the panels. No portion of a system may cross into the setback, except any fencing, wiring, and equipment necessary for the utility interconnection.
    b. Solar trackers shall have the setback measured from the point and time where the array is closest to the lot line.

3. Foundations
    a. A qualified engineer shall certify that the foundation and design of the solar panel racking and support is within accepted professional standards, given local soil and climate conditions.

4. Power and communication lines
    a. Power and communication lines running between banks of solar panels and to nearby electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by [MUNICIPALITY] in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines, or distance makes undergrounding infeasible, at the discretion of the zoning administrator.

5. Fencing
    a. Fencing[15] shall be installed if required by the electric code or the utility.
    b. Additional security or fencing may be required if the location of the system presents a safety concern for abutting land uses.
    c. Any necessary fencing must not include barbed wire and the applicant should consider wildlife-friendly fencing where feasible (e.g. clearance at the bottom or larger holes to allow small- and medium-sized animals to pass through).

6. Site Management
    a. Land clearing shall be limited to what is necessary for the installation and operation of the system and to ensure sufficient all-season access to the solar resource given the topography of the land.

[21] If you have any protected viewsheds, scenic highways, etc. outlined in your master plan, reference that here.

b. [MUNICIPALITY] encourages the co-location of agricultural uses (dual-use solar) on the project site.
c. Following construction, all cleared land that is not used for agriculture must be vegetated with non-invasive native and naturalized species. [MUNICIPALITY] encourages the use of species that provide beneficial habitat to songbirds, pollinators and/or foraging specifies.[22] Annual species may be used during the construction phase and first year of establishment post-construction.

7. Stormwater Management
    a. Ground-mounted solar energy systems shall not be considered impervious surfaces if the area under the system contains vegetative ground cover.
    b. Ground-mounted solar energy systems are subject to [MUNICIPALITY]'s stormwater management, erosion, and sediment control provisions,[23] and may be subject to NH Department of Environmental Services (NH-DES) Alteration of Terrain (AoT) permit requirements.

8. Code and Equipment Standards
    a. Solar energy systems, including any associated battery energy storage systems, shall comply with applicable building, electrical, and applicable state fire code standards.
    b. Solar energy system components must have UL or equivalent listings.
    c. Battery energy storage systems shall be listed to UL 9540 and installed in compliance with applicable provisions of NFPA 855, Standard for the Installation of Stationary Energy Storage Systems, and the International Fire Code.

9. Emergency Response
    a. Access to the site for emergency response shall be provided and detailed on the site plan.

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[22] If protecting native flora and fauna, is of local importance, consider recommending or requiring additional habitat-friendly site management measures. Resources:

- https://www.takingactionforwildlife.org/resources/land-use-planning-regulations, from University of New Hampshire
- https://www.wildlife.nh.gov/sites/g/files/ehbemt746/files/inline-documents/sonh/ne-guide.pdf. While ground-mounted arrays are technically no longer "grasslands," many practices recommended for grasslands can be relevant. The following resource doesn't talk about solar arrays but does talk about small grassland habitats such as areas around corporate parks, airports, recreation fields, etc.

[23] Cite any existing local rules and regulations related to fencing for new development and make sure you're being consistent. Communities should avoid imposing additional screening/fencing requirements for solar that are not applied to other development types.

B. Submission Requirements for Ground-Mounted Primary Use Solar Energy Systems

1. Site Plan Approval
    a. All Ground-Mounted Primary Use Solar Energy Systems will require site plan approval.[24]
    b. A detailed site plan shall be provided showing the installation area of the site, including:
        i. A clearly defined facility area, including total acreage,
        ii. Any land clearing or grading required for the installation and operation of the system,
        iii. The location of all equipment to be installed on site including utility connection point(s) and any energy storage facilities,
        iv. Access to the site for emergency response, and
        v. A description of all relevant viewsheds.

2. Stormwater
    a. No further local review of stormwater and erosion control shall be required where a project is required to secure the NH DES AoT Permit. For systems requiring an AoT permit, final AoT permit approval shall be incorporated by reference into the final Conditional Use Permit approval and shall be enforceable by [MUNICIPALITY].

3. Equipment Specification
    a. All proposed equipment or specifications must be included with the application via manufacturer's specifications or detailed description.

4. Operation and Maintenance
    a. A property operation and maintenance plan shall be provided that describes continuing site maintenance, anticipated dual-use if applicable, and property upkeep, such as mowing and trimming.

5. Emergency Response[25]
    a. A narrative or manual for the municipal Fire Department detailing response guidance and disconnection locations necessary for fire response, including any on site energy storage, shall be provided with the permit application.

[24] Communities adopting this model ordinance that have an established site plan approval process should reference that process here and may need to modify the guidance in this section to be consistent with their typical required submissions and process.
[25] This section is the purview of the fire department, however it is not uncommon for the land use approval process to gather information for the fire department. You might consult your local fire department to ask what information they would like to see, how they would like to collect it, and whether they would like the opportunity to sign off on solar projects before a conditional use permit is issued.

b. Where on-site energy storage is included, this narrative shall address the storage system specifically, including equipment type, total energy capacity, disconnect locations, and any site-specific emergency procedures, consistent with the Emergency Operations Plan requirements of NFPA 855 §4.1.3. For systems with total energy storage capacity exceeding 600 kWh, the applicant shall also submit documentation of UL 9540 equipment listing and confirmation that a Hazard Mitigation Analysis has been completed in accordance with NFPA 855 §4.1.4.
c. Applicants must be prepared to provide, upon request, additional industry guidance documents related to safety procedures for on site specific equipment.
d. Contact information for the solar collection system owner/operator shall be posted on site at the access way and provided and updated to the municipality.

C. Abandonment and Decommissioning

A decommissioning plan shall be required to ensure that facilities are properly removed after their useful life.

- Decommissioning of the system must occur in the event the project is not producing power for 12 consecutive months.
- The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and assurances that financial resources will be available to fully decommission the site.
- Disposal of structures and/or foundations shall meet the provisions of the [MUNICIPALITY] Solid Waste Ordinance.[26]
- [MUNICIPALITY] may require the posting of a bond or a letter of credit to ensure proper decommissioning.

[26] Cite any existing local rules and regulations related to solid waste disposal and make sure you're being consistent. Communities should avoid imposing additional screening/fencing requirements for solar that are not applied to other development types.