



COMMONWEALTH OF MASSACHUSETTS

Deval L. Patrick, Governor
Richard K. Sullivan, Jr., Secretary
Mark Sylvia, Commissioner

Regulating Solar Energy Systems at the Local Level in Massachusetts

Emma Krause, Rooftop Solar Challenge Coordinator
Green Communities Division

Kurt Gaertner, Director of Sustainable Development
MA Executive Office of Energy & Environmental Affairs

Thank you for joining us.

The webinar will start in a few minutes...

Webinar
May 28, 2014

Green Communities Division Programs & Resources for Municipalities

- Green Communities Designation and Grant Program
- MassEnergyInsight energy tracking tool
- Municipal Energy Efficiency Program
- Energy Management Services Technical Assistance (EMS)
- Mass Municipal Energy Group (MMEG)
- Website filled with tools & resources - www.mass.gov/der
- Email updates via listserv - Sign up by sending an email to: join-ene-greencommunities@listserv.state.ma.us



Outreach - Regional Coordinators

- Regional Coordinators act as direct liaisons with cities and towns on energy efficiency and renewable energy activities
- Located at each of the DEP Regional Offices:



SERO – LAKEVILLE: Seth Pickering
Seth.Pickering@state.ma.us

NERO – WILMINGTON: Joanne Bissetta
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CERO – WORCESTER: Kelly Brown
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WERO – SPRINGFIELD: Jim Barry
Jim.Barry@state.ma.us



Recording & Presentation

- The webinar is being recorded and will be available on our website in approximately 48 hours at: www.mass.gov/energy/greencommunities
- The slide presentation will also be posted at: www.mass.gov/energy/greencommunities
- Website and contact information is listed at end of presentation



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Introduction: Rooftop Solar Challenge

Emma Krause

Rooftop Solar Challenge Coordinator

Green Communities Division

Poll Question

- Who is our audience today?
 - Municipal officials
 - Municipal energy managers
 - Energy committee members
 - Vendors



Rooftop Solar Challenge Overview



- **DOE Sunshot Rooftop Solar Challenge (RSC)** – reducing soft costs of small commercial and residential rooftop solar PV
- RSC works to address the differing and sometimes expensive permitting, zoning, metering, and connection processes required to install and finance residential and commercial solar systems
- DOER is working to bring together city, and state officials, regulatory entities, private industry, universities, local utilities, and other regional stakeholders to clear a path for rapid expansion of solar energy and serve as models for other communities across the nation



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RSC I Award

- **RSC I Award: \$566,354**
 - Conducted outreach to local financial institutions
 - Updated DOER's interconnection website
 - Created an implementation guide for Community Shared Solar (CSS)
 - Developed guidance for structural review for local permitting processes; reviewed other local permitting
 - Worked on development of model solar bylaw zoning language
 - PARTNERS: MassCEC, MassDevelopment, BBRs, SEBANE, Boston, Cambridge, Winchester, Hatfield and Harvard

<http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/sunshot-rooftop-solar-challenge.html>



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RSC II

- **RSC II Award: \$477,671**
 - Developing a solar loan financing program in conjunction with the DOER Renewables Department
 - Continuing to update DOER's interconnection website
 - Creating Owner's Agent Technical Assistance grants for Community Shared Solar
 - Finalizing model local permitting process, review, working with CT to streamline across state lines
 - Developed model solar bylaw and accompanying policy guidance
 - PARTNERS: MassCEC, DPS, BPFR, BBRs, BSEE, Boston, Cambridge, and Winchester



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Agenda

Introduction

Policy Guidance

1. What is the challenge?
2. Background on solar energy system legislation in Massachusetts
3. Where do localities have control and how should they regulate solar energy systems?

Zoning Guidance

1. Model zoning recommendations



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Introduction: Model Zoning & Guidance for Solar Energy System Regulation

- Developed to help communities establish solar energy regulations
- Address small, medium, & large-scale roof and ground mounted systems
- Reflect statutory limits on municipal ability to regulate solar energy systems
 - Chapter 40A:3 says that solar systems may not be prohibited or unreasonably regulated – without defining "reasonable"



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Introduction: Model Zoning & Guidance for Solar Energy System Regulation cont'd

- The Policy Guidance explains the implications of the statutes and their significance to local zoning.
- The model is not "stand-alone" zoning. The statutory framework & "accessory" nature of some of these installations led to a different approach.
- Assumes that municipalities will have "typical" zoning sections which would be amended to address solar:
 - Definitions;
 - Allowable Uses;
 - Dimensional Requirements; and
 - Site Plan Review.



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POLICY GUIDANCE FOR REGULATING SOLAR ENERGY SYSTEMS



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Overview of the Policy Guidance Document

- Summarizes, explains, and helps communities apply four of the statutes that apply to Solar Energy Systems:
 - Chapter 40A Section 3 (solar exemptions)
 - Chapter 40A Section 9B (solar access)
 - Chapter 187 Section 1A (solar easements)
 - Chapter 40C (Historic Districts)
- Covers the use of techniques like Solar Mapping & Shadow Analyses
- Speaks to the use of subdivision & other land use regulations to complement solar zoning
- Addresses outreach & education to citizens regarding solar energy



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What is the challenge?

- Solar energy systems are increasing in popularity across the Commonwealth. As a result, local officials are asking:
 - Should we regulate solar energy systems? If so, how?
 - Can we regulate height, aesthetics, or other design elements?
 - Is this a matter for zoning or a general bylaw?
 - Is there relevant case law?
 - What do the statutes say on the matter?



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What size are we talking about?



Small-scale

Medium-scale

Large-scale



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The Statutes

- Chapter 40A Section 3: "Subjects which zoning may not regulate..."
- Chapter 40A Section 9.B: Solar Access
- Chapter 187 Section 1.A: Easements
- Chapter 40C: Historic Districts



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Chapter 40A Section 3

"No zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare."



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Chapter 40A Section 3 (cont.)

1. Zoning bylaw/ordinance vs. general bylaw/ordinance
2. Zoning bylaws/ordinances and the state building code
3. Allowable use
4. Unreasonable regulation



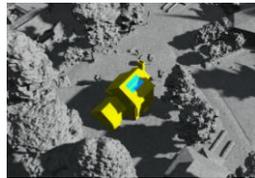
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Chapter 40A Section 9.BL Solar Access

- Solar Access Districts
- Special Permit Process for Protecting Solar Access



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Chapter 40A Section 9.B: Solar Access (cont.)

- Connection to LEED™
- Transfer of Development Rights
- Solar Mapping
- Shadow Analyses
- Special Permit Criteria



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Chapter 187 Section 1.A: Easements

- Solar Easement contents:
 1. Description of the dimensions;
 2. Restrictions on vegetation, structures, and other objects;
 3. The amount of permissible obstruction;
 4. Provisions for trimming vegetation; and
 5. Terms and conditions for revising or terminating the easement.



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Chapter 40C: Historic Districts

"When ruling on applications for certificates of appropriateness for solar energy systems, as defined in section one A of chapter forty A, the commission shall also consider the policy of the commonwealth to encourage the use of solar energy systems and to protect solar access."



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What can local governments do?

- Public education
 - Involve key stakeholders
 - Incorporate solar energy system goals and education into the Comprehensive/Master Plan process
 - Complete a municipal energy plan or Green Communities Designation and Grant Program application.



For more information on the Green Communities Designation and Grant Program, please visit: <http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/>.



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What can local governments do? (cont.)

- Audit your local zoning
 - Definitions
 - Allowable Uses
 - Provisions for Site Plan Review (or Design Review)
 - Dimensional Requirements
- Develop local zoning language



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MODEL ZONING FOR THE REGULATION OF SOLAR ENERGY SYSTEMS



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Poll Question

- Does your municipality have solar zoning in place?
 - a. Yes
 - b. No
 - c. Don't know



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Model Zoning – How to Use

- The model zoning language provided here is not intended for adoption precisely as it is written.
- Communities will need to carefully consider how and where this language may be modified to suit local conditions and inserted into an existing zoning bylaw/ordinance.
- Further, it is highly recommended that any language adapted from this model be reviewed by municipal counsel prior to adoption.



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Resources – Model Bylaws Three Step Process for New Local Bylaw

1. Model bylaw provides a framework for local zoning
2. Blue commentary sections highlight questions local decision makers should answer to tailor the model to local circumstances
3. Review customized bylaw with legal counsel

Commentary: With regard to issues of access and safety, communities looking to adopt zoning for medium-scale solar energy systems should be aware of any unique local requirements that could apply. For example, if the fire department will want an Emergency Response Plan as part of approval, this should be folded into the review process as seamlessly as possible.



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Zoning Sections to Amend

- Definitions
- Allowable Uses
- Dimensional Requirements
- Site Plan Review (if applicable)
- Pre-existing non-confirming uses and structures
- Historic District Regulations (if applicable)

Sampletown Zoning Bylaws	
Table of Contents	
Section 1. Authority	
Section 2. Purpose	
Section 3. Definitions	
Section 5. Use Regulations	
5.1 Residential District	
5.2 Commercial District	
5.3 Industrial District	
5.4 Historic District	
5.5 Table of Allowable Uses	
Section 6. Dimensional Regulations	
Section 7. Pre-existing uses and structures	
Section 8. Administration	
8.1 Board of Appeals	
8.2 Special Permits	
8.3 Site Plan Review	



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Definitions

Terms defined:

- Photovoltaic System
- Rated Nameplate Capacity
- Solar Access
- Solar Collector
- Solar Energy
- Solar Energy System
 - Solar Energy System, Active
 - Solar Energy System, Grid-interactive
 - Solar Energy System, Ground-mounted
 - Solar Energy System, Large-scale
 - Solar Energy System, Medium-scale
 - Solar Energy System, Off-grid
 - Solar Energy System, Passive
 - Solar Energy System, Roof-mounted
 - Solar Energy System, Small-scale
- Solar Thermal System



Solar Thermal System



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A Note on Aesthetics ...

- Arguably a matter of protecting public welfare. But aesthetic regulations are not recommended due to the strong statutory protections in Chapter 40A Section 3. Communities regulating solar systems aesthetics should be very cautious.
- Where Site Plan Review standards already address aesthetics, such as screening requirements, these standards should also apply to solar systems. Just don't single out & regulate solar more stringently than other uses.

"No zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare." (Chapter 40A Section 4)



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Allowable Uses

	R1	R2	R3	C	I	P
PRINCIPAL USE						
Medium-Scale Ground-Mounted Solar Energy System	SPR	SPR	SPR	Y	Y	Y
Large-Scale Ground-Mounted Solar Energy System	SP	N	SPR	SPR	SPR	SPR

	R1	R2	R3	C	I	P
ACCESSORY USE						
Roof-Mounted Solar Energy System	Y	Y	Y	Y	Y	Y
Small-Scale Ground-Mounted Solar Energy System	Y	Y	Y	Y	Y	Y
Medium-Scale Ground-Mounted Solar Energy System	SPR	SPR	SPR	Y	Y	Y



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Allowable Uses: Other Considerations

- Connection to the Massachusetts Green Communities Designation and Grant Program
- Siting Preferences
- Overlay Zoning Districts
- Agricultural Exemption



Siting Preferences

For more information on the Green Communities Designation and Grant Program, please visit: <http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/>.



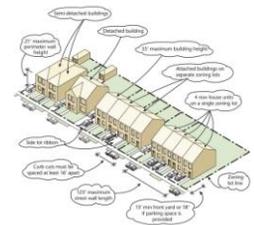
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Dimensional Requirements

- Height: How tall can buildings and structures be?
- Setbacks: How far do principal and accessory buildings and structures have to be from the lot line?
- Lot Coverage: What percent of the lot can buildings, driveways and other features cover? Does solar count?



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Height

● Example:

1.0 Building Height Regulations 1.1 Exemptions

1.1.1 Mechanical equipment and appurtenances necessary to the operation or maintenance of the building or structure itself, including chimneys, ventilators, plumbing vent stacks, cooling towers, water tanks, broadcasting and television antennae and roof-mounted solar energy systems.



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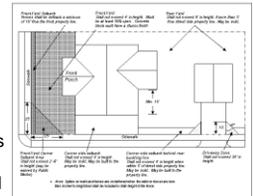


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Setbacks

Example:

Small- and medium-scale ground-mounted solar energy systems accessory to a principal use may be located no closer than [twenty (20) feet] from the front, side or rear lot line. All ground-mounted solar energy systems in residential districts shall be installed either in the side yard or rear yard to the extent practicable.



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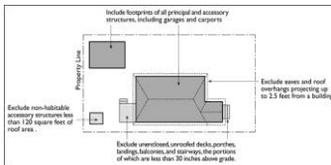


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Lot Coverage

● Example:

Solar energy systems shall not be included in calculations for lot coverage or impervious cover as defined in [INSERT SECTION REFERENCE FOR 'DEFINITIONS']:



One community's existing guidance for calculating lot coverage



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Site Plan Review

● Background...

- What is site plan review?
- When does it apply?
- Guidance on when to use Site Plan Review is provided in the Massachusetts Smart Growth/Smart Energy Toolkit "Zoning Decisions" Module

Example Site Plan Review Section:

1.0 Site Plan Review

- 1.1 Site Plan Review Granting Authority
 - Certain uses are designated in the Table of Uses as requiring site plan approval.
- 1.2 Rules and Regulations and Fees - Each Board designated as a site plan review granting authority...
- 1.3 Projects Requiring Site Plan Review
 - 1.3.1 The construction or exterior alteration of a business or commercial structure or parking area/lot;
 - 1.3.2 Development that would require more than ten parking spaces;
 - ...
- 1.4 Purpose
- 1.5 Application
- 1.6 Public Hearing and Decision
- 1.7 Site Plan Review Design Standards
- ...



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Site Plan Review: Examples in the Guidance

Example 1: Site Plan Review provisions for medium-scale ground-mounted solar energy systems in residential zoning districts.

Example 2: Site Plan Review provisions for large-scale ground-mounted solar energy systems.

Example 3: Site Plan Review provisions for roof-mounted and small-scale ground-mounted solar energy systems as part of a larger project that triggers Site Plan Review.



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Site Plan Review: Example 1

Example 1 (Site Plan Review provisions for medium-scale ground-mounted solar energy systems in residential zoning districts):

1.0 Site Plan Review

1.1 Applicability

1.1.1 Medium-scale ground-mounted solar energy systems proposed within residential zoning districts shall undergo Site Plan Review prior to construction, installation or modification as provided in this section.

1.2 Site Plan Document Requirements

1.2.1 A site plan showing:

...
1.2.2 Proof that the project proponent will meet the required site plan review notification procedures.

1.3 Site Plan Review Design Standards

1.3.1 Standards for medium-scale ground-mounted solar energy systems proposed within residential zoning districts

1.3.1.1 Utility Notification - ...

1.3.1.2 Utility Connections - ...

1.3.1.3 Safety - ...

1.3.1.4 Visual Impact - ...

1.3.1.5 Land Clearing, Soil Erosion and Habitat Impacts - ...



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Site Plan Review: Example 2

Example 2 (Site Plan Review provisions for large-scale ground-mounted solar energy systems):

Follows the same general approach as Example 1, but adds performance measures suitable to a larger system.

Additional Performance Standards:

- Site Control
- Operations and Maintenance Plan
- Lighting
- Signage
- Emergency Services
- Monitoring and Maintenance
- Abandonment or Decommissioning



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Site Plan Review: Example 3

Example 3 (Site Plan Review provisions for roof-mounted and small-scale ground-mounted solar energy systems as part of a larger project that triggers Site Plan Review):

1.0 Site Plan Review

1.1 Site Plan Document Requirements

- 1.1.1 Requirements for Roof-Mounted and Small-Scale Ground-Mounted Solar Energy Systems - Where these solar energy systems may be accessory to a use allowed through Site Plan Review, the site plan review shall include review of their adequacy, location, arrangement, size, design, and general site compatibility.

1.1.1.1 Roof-Mounted Solar Energy Systems – For all roof-mounted systems, the applicant shall provide:

- ... 1.1.1.2 Small-Scale Ground-Mounted Solar Energy Systems – For all ground-mounted systems, the applicant shall provide: ...
- 1.1.1.3 System Components – ...
- 1.1.1.4 Installer Details – ...

1.2 Site Plan Review Design Standards

- 1.2.1 Standards for roof-mounted and small-scale ground-mounted solar energy systems
- 1.2.1.1 Utility notification - ...
 - 1.2.1.2 Emergency access - ...
 - 1.2.1.3 Safety - ...



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Special Permits

1.0 Special Permit with Site Plan Review

1.1 Special Permit Requirements

- 1.1.1 Where required a special permit shall be issued prior to construction, installation or modification of any large-scale ground-mounted solar energy system. The special permit granting authority shall include as part of its special permit review and proceedings all the provisions and requirements of the Site Plan Review standards applicable to large-scale ground-mounted solar energy systems.



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Pre-existing non-conforming uses and structures

Example:

1.0 Pre-Existing Non-Conforming Uses and Structures

- 1.1 Improvements that do not change the use or the basic, exterior characteristics or appearance of the building or structure are allowed. Such improvements include but are not limited to the following:

- 1.1.1 Installation or Replacement of Solar Energy Systems.



Most of the homes in this older suburban neighborhood are considered pre-existing non-conforming structures, since they do not meet the current minimum lot size requirements of the town.



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Historic District Regulations

- Local Historic Commissions must consider the policy of the Commonwealth to encourage the use of solar energy systems and to protect solar access
- Commissions are encouraged to write good design guidelines that can help site solar while achieving historic preservation goals
- Commissions can require that systems not be visible from public areas, to the greatest extent practicable.
- When systems cannot be out of view they can be required to meet architectural standards (e.g., building-integrated, use of solar shingles) to the greatest extent practicable.



Out of view from the main road



Material specification



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Take Home Points

- In Massachusetts, solar energy systems are provided special protections under state law (Chapter 40A Section 3), and they may not be prohibited or unreasonably regulated except where necessary to protect the public health, safety or welfare.
- Any new language adapted from this model should be carefully reviewed by municipal counsel prior to adoption
- Communities are encouraged to proactively zone for solar



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Further Information

DOER Model Zoning, Policy Guidance and other information:
<http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/gc-grant-program/criterion-1.htm>
Massachusetts Smart Growth / Smart Energy Toolkit
www.mass.gov/envir
Clean Energy Results:
Ground-Mounted Solar Photovoltaic Systems – Questions & Answers
<http://www.mass.gov/eea/docs/doer/renewables/solar/solar-pv-guide.pdf>
Massachusetts DG and Interconnection Main Page
<https://sites.google.com/site/massdgc/>
MA Clean Energy Center
<http://www.masscec.com/>
Renewable Energy Portfolio Standard & Alternative Energy Portfolio Standard Programs
<http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/rps-aps/>



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QUESTIONS??

- The webinar was recorded and will be available for viewing at your convenience, along with the slide presentation, on our website at:

<http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/>

For any further questions, please contact:

Emma Krause at emma.krause@state.ma.us

Thank you for joining us!



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