

Streamlining the Solar Permitting Process and Developing Supportive Zoning Bylaws



MAPC Workshop
January 20, 2015
9:00am-11:30am



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Streamlining the Solar Permitting Process and Developing Supportive Zoning Bylaws



Agenda

- 8:45 – 9:00 am** **Coffee and Networking**

- 9:00 – 9:30 am** **Introduction: Developing Effective Local Zoning Bylaws for Solar PV Growth**
MAPC **MAPC’s New Solar Permitting and Zoning Bylaws Toolkit**

- 9:30 – 10:00 am** **Developing Effective Local Regulations for Solar**
DOER

- 10:00 – 10:20 am** **Municipal Case Study: Framingham**
Framingham

- 10:20 – 10:40 am** **Municipal Case Study: Cambridge**
Cambridge

- 10:45 – 11:15 am** **Q&A with Panelists**

- 11:15 – 11:30 am** **Closing Remarks and Networking**



<http://blog.rpu.org/?p=587>



MAPC Clean Energy Programs

1. Regional Energy Projects

- ESCO Procurement
- **Regional Solar Initiative**
- LED Streetlight Purchasing Program

2. Local Energy Action Program

- Community energy baselining
- Outreach and visioning
- Connecting municipalities with utilities and incentives
- Green Communities Designation Support

3. Energy Technical Assistance

- Community Electricity Aggregation (CEA)
- Resiliency and preparedness
- MassEnergyInsight (MEI) setup and data entry
- Grant writing and reporting
- Energy committee and volunteer organizing
- Shared Energy Manager services
- **Clean Energy Toolkit**



Municipal Energy Toolkit



[Planning for Energy Action](#)



[Education & Outreach](#)



[Staffing & Volunteers](#)



[Funding & Financing](#)



[Supply Contracts](#)



[Procurement](#)



[Efficiency in Municipal Facilities](#)



[Renewable Energy](#)



[Municipal Light Plants](#)

mapc.org/clean-energy

Streamlining the Solar Permitting Process and Developing Supportive Zoning Bylaws



GOAL:
To help to equip municipal permitting and zoning offices with best practices to facilitate and encourage the development of solar photovoltaic systems in the Commonwealth



Guide to Streamlining the Solar PV Permitting Process and Developing Supportive Zoning Bylaws

Introduction

Increasing Solar Use Across Massachusetts

Since 2010, the cost of solar panels has decreased over 50%¹ while energy costs have continued to rise.² As a result, solar energy has become a desirable option for many homeowners, municipalities, commercial entities, and industrial facilities searching for price stability and eco-friendly energy sources. Increased use of solar energy fosters reduced carbon emissions, better air quality, greater energy resilience, and lower energy costs for consumers. However, permitting for the installation of rooftop and ground-mounted photovoltaic (PV) systems can be expensive, complex, and time-consuming; and inconsistencies among permitting processes and local regulations throughout the Commonwealth can be prohibitively challenging for installers who work in multiple communities.

The goal of this guide is to equip municipal permitting and zoning offices with best practices to facilitate and encourage the development of solar photovoltaic systems in the Commonwealth. Municipalities can implement the practices that make the most sense for their structure and capacity. Ultimately, regional consistency in PV permitting and zoning regulations will reduce the time and costs associated with solar and attract more highly-skilled developers to all parts of Massachusetts. In turn, municipal, residential, and business consumers will have more choices when considering solar energy systems and will have access to lower prices for a clean, stable form of energy for their homes and facilities.

¹ SEIA and GTM Quarterly Report Q1 2013

² <http://www.eia.gov/forecasts/spot/region/electricity.cfm>

1 | Last updated January 5, 2015. For the most up-to-date information and additional resources, visit <http://www.mapc.org/clean-energy>.

Developing Effective Local Zoning Bylaws for Solar PV Growth

Why improve existing solar permitting and zoning policies?



Developing Effective Local Zoning Bylaws for Solar PV Growth

Why improve existing solar permitting and zoning policies?

Promote the expansion of solar energy in a low-cost way

Clearly present local regulations and minimize disputes

Create an encouraging environment and reduce siting challenges

Enhance regional consistency and attract more highly-skilled developers



Developing Effective Local Zoning Bylaws for Solar PV Growth

The Soft Cost Factor: Time and Money

The National Renewable Energy Laboratory (NREL) reports that **soft costs are now the largest cost of a solar installation.**

Nationally, soft costs account for:

64% of *residential costs*

52% of *small commercial costs*

57% of *large commercial solar installation costs*



Developing Effective Local Zoning Bylaws for Solar PV Growth



The Soft Cost Factor: Time and Money

Permitting and inspection fees range nationally from \$0 to over \$2,500.

Permit approval time can also be a significant barrier.

- Wait time: 126 days in U.S. vs. 35 days in Germany
- Permit review: 14.5 hours in U.S. vs. **20 minutes** in Germany



Developing Effective Local Zoning Bylaws for Solar PV Growth



Massachusetts Policies on Solar Zoning

The **Green Communities Act** requires compliance with five criteria to qualify as a Green Community (see Section 22 of the Green Communities Act, codified at M.G.L. ch. 25A § 10(c)).

Criterion 1 of the Green Communities program requires the use of As-of-Right Siting to remove barriers to installation.

Criterion 2 directs municipalities to expedite permitting processes for renewable energy systems that have been developed under as-of-right siting.



Best Practices to Encourage Solar Development in Massachusetts

1. Conduct a Permitting and Zoning Bylaws Audit
2. Develop/Amend Solar Zoning Bylaws to Expedite PV Installations
3. Provide Permitting Checklists
4. Utilize Narrow Inspection Time Windows
5. Develop a Permitting Website
6. Offer Online Permitting
7. Explore Options for Permitting Fees



Best Practices to Encourage Solar Development in Massachusetts

1. Conduct a Permitting and Zoning Bylaws Audit



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The goal of this guide is to equip municipal permitting and zoning offices with best practices to facilitate and encourage the development of solar photovoltaic systems in the Commonwealth. Municipalities can implement the practices that make the most sense for their structure and capacity. Ultimately, regional consistency in PV permitting and zoning regulations will reduce the time and costs associated with solar and attract more highly-skilled developers to all parts of Massachusetts. In turn, municipal, residential, and business consumers will have more choices when considering solar energy systems and will have access to lower prices for a clean, stable form of energy for their homes and facilities.

¹ SEIA and GTM Quarterly Report Q1 2013
² <http://www.eia.doe.gov/forecasts/price/report/electricity.php>

1 | Last updated January 5, 2015. For the most up-to-date information and additional resources, visit <http://www.mapc.org/clean-energy>.

Can a person unfamiliar with the permitting process easily understand the types of documents required to apply?

Is solar permitting information listed on our website easy to find?



Best Practices to Encourage Solar Development in Massachusetts



2. Develop/Amend Solar Zoning Bylaws to Expedite PV Installations

Bylaws can help eliminate barriers and reduce uncertainties in zoning requirements.

Look for ways to ease implementation and create regional consistencies (i.e. via DOER's model zoning template).

Model Zoning for the Regulation of Solar Energy Systems¹
Department of Energy Resources
Massachusetts Executive Office of Energy and Environmental Affairs
December 2014

This model zoning and accompanying Guidance were prepared to assist Massachusetts cities and towns in establishing reasonable standards to facilitate development of solar energy systems. These systems include small-, medium- and large-scale as well as both ground-mounted and roof-mounted installations.² The model zoning language provided here is not intended for adoption precisely as it is written. Communities will need to carefully consider how this language may be modified to suit local conditions and where it should be 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.

As small-, medium-, and large-scale ground-mounted and roof-mounted solar energy systems become more prevalent in Massachusetts, many communities are attempting to regulate the installation of these systems through their Zoning Bylaw/Ordinance. Developing these regulations has been particularly challenging for a number of reasons. Most notably, the Massachusetts General Laws contains several provisions that specifically address the ability of local governments to regulate solar energy systems and/or to protect solar access from development or vegetation (shading) on adjacent properties. While the language within Chapter 40A Section 3 states that a local government may not prohibit these uses, it does say they cannot be "unreasonably regulated" without providing guidance on what that particular phrase means. The Solar Energy Systems Policy Guidance, which accompanies this model zoning and succeeding sections of this document provide more explanation regarding the implications of the statutes on this issue and its significance to local zoning.

Unlike model bylaws/ordinances typically developed by the Commonwealth, the regulatory language provided here is not packaged as a "stand-alone" section of a Zoning Bylaw/Ordinance. With ground-mounted and roof-mounted solar energy systems, the statutory framework and "accessory" nature of some of these installations lend themselves to a different approach. This model zoning therefore assumes that municipalities will have many "typical" sections within their Zoning Bylaw/Ordinance and that several of these sections would be amended to address this issue. For the purposes of this model zoning, the Bylaw/Ordinance sections that are amended include:

¹ This material is based upon work supported by the U.S. Department of Energy under Award Number DE-EE0005692. This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.
² This material was prepared by the Hoesley Witten Group.



Best Practices to Encourage Solar Development in Massachusetts

3. Provide Permitting Checklists



- Reduce errors and inefficiencies
- Minimize permit submission and approval time
- Reduce the amount of time that permitting staff spend



Best Practices to Encourage Solar Development in Massachusetts

4. Utilize Narrow Inspection Time Windows



<http://hamptonroadssolargroup.blogspot.com/2012/01/beau-gillis-system-passes-inspection.html>

Require inspections to occur within a narrow timeframe, such as a 2-3 hour block, to reduce both consumer and contractor costs



Best Practices to Encourage Solar Development in Massachusetts

5. Develop a Permitting Website



The screenshot shows the Cambridge CDD@344 website. The header includes the city name, navigation links (Calendar, Projects, Publications, Forms, Contact Us), and a search bar. A menu bar lists various departments: COMMUNITY DEVELOPMENT DEPARTMENT (344 Broadway), CLIMATE & ENERGY, ECONOMIC DEVELOPMENT, FACTS & MAPS, HOUSING, PARKS & PLAYGROUNDS, PLANNING & URBAN DESIGN, TRANSPORTATION, and ZONING & DEVELOPMENT. The main content area is titled "Solar" and includes a navigation breadcrumb: "CDD > Climate and Energy > About Renewable and Clean Energy > Solar". The text describes the benefits of solar energy and mentions that the City of Cambridge is offering up to \$2000 for solar hot water systems. It also includes a "Solar Photovoltaic (PV)" section and an "Interactive Solar Map" section. A "Quick Links" section has dropdown menus for "Select a Topic", "Neighborhood or Square", and "Current Projects...". There is also a "Community Development" section with contact information for Brian P. Murphy, Assistant City Manager for Community Development.

A dedicated website can create an easily accessible space for developers and homeowners to find up-to-date resources, track the progress of permits, and increase their understanding of the process.



Best Practices to Encourage Solar Development in Massachusetts

6. Offer Online Permitting

- Eliminate the burden of travel to permit offices
- Ensure consistency in application format
- Lessen time spent and errors made



take advantage of
FAST TRACK PERMITTING
FOR LONG-FORM APPLICANTS WHO QUALIFY

ELIGIBILITY

- Residential buildings with 4 or more units
- Commercial and industrial properties

SYSTEM REQUIREMENTS for FAST TRACK

- Uses solar photovoltaic or solar thermal technology
- Accessory use
- Roof-mounted
- Stand alone project (i.e. not part of a larger construction or renovation)
- Conforms to underlying zoning code

THE FAST TRACK ADVANTAGE

- Speeds up the approval of applications for solar PV permits
- Allows the City to keep pace with a growing solar market
- Devotes more resources to complex applications and priority projects (e.g. new housing)

SUBMISSION MATERIALS

- Letter from a professional engineer indicating the roof is able to support the load of the system
- Stamped survey showing where the system is located on the roof
- A cost and control affidavit, which is generally completed by a licensed construction professional and attests that they will oversee and verify system construction in accordance with local engineering and code specifications
- Drawings of the mounting system, which are typically provided by the manufacturer
- Proof of workman's compensation insurance
- A copy of the contract with the building owner

quick reference
SHORT-FORM BUILDING PERMIT

ELIGIBILITY

- Residential buildings with 3 units or fewer

ON THE APPLICATION

- Note the occupancy type of the building
- Designate the work type as "solar"
- Enter estimated project costs
- Describe the size (kW) and location of the system in the comments section

ADDITIONAL MATERIALS

- Stamped survey showing where the system is located on the roof along with roof structural drawings
- Manufacturer's drawings of the mounting system
- Proof of workman's compensation insurance
- Copy of the contract with the homeowner OR homeowner waiver form (if homeowner is applicant)

7 fast track offers SEVEN DAY TURNAROUND for permit approval
* 7 business days

get started:
<https://onlinepermitsandlicenses.cityofboston.gov/isdpermits/>

the short-form can be completed ENTIRELY ONLINE SAME-DAY TURNAROUND



Best Practices to Encourage Solar Development in Massachusetts

7. Explore Options for Permitting Fees

Consider ways to reduce permitting costs.

Some ideas:

- Eliminate permitting fees
- Cap permitting costs
- Tie the permitting fee directly to the processing time
- Base the permit fee on PV installer labor costs



<http://solarprofessional.com/articles/design-installation/avoiding-and-resolving-pv-permitting-problems>



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Presenters:

Emma Krause, Massachusetts Department of Energy Resources

Erika Jerram & Amanda Loomis, Town of Framingham

Meghan Shaw, City of Cambridge





COMMONWEALTH OF MASSACHUSETTS

Charles Baker, Governor

Matthew Beaton, Secretary

Daniel Burgess, Acting Commissioner

MAPC Solar Workshop

*MAPC Solar Workshop
January 20, 2015*



*Emma Krause, Rooftop Solar
Challenge Coordinator
Department of Energy Resources*

Massachusetts

- **MA DOER** - develops and implements policies and programs aimed at ensuring the adequacy, security, diversity, and cost-effectiveness of the Commonwealth's energy supply
<http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/doer/>
- **Green Communities Division** - strives to help all 351 Massachusetts cities and towns find clean energy solutions that reduce long-term energy costs and strengthen local economies
<http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/>
- **Mass Clean Energy Center (MassCEC)** - dedicated to accelerating the success of clean energy technologies, companies and projects in Massachusetts—while creating high-quality jobs and long-term economic growth for the people of Massachusetts <http://www.masscec.com/>

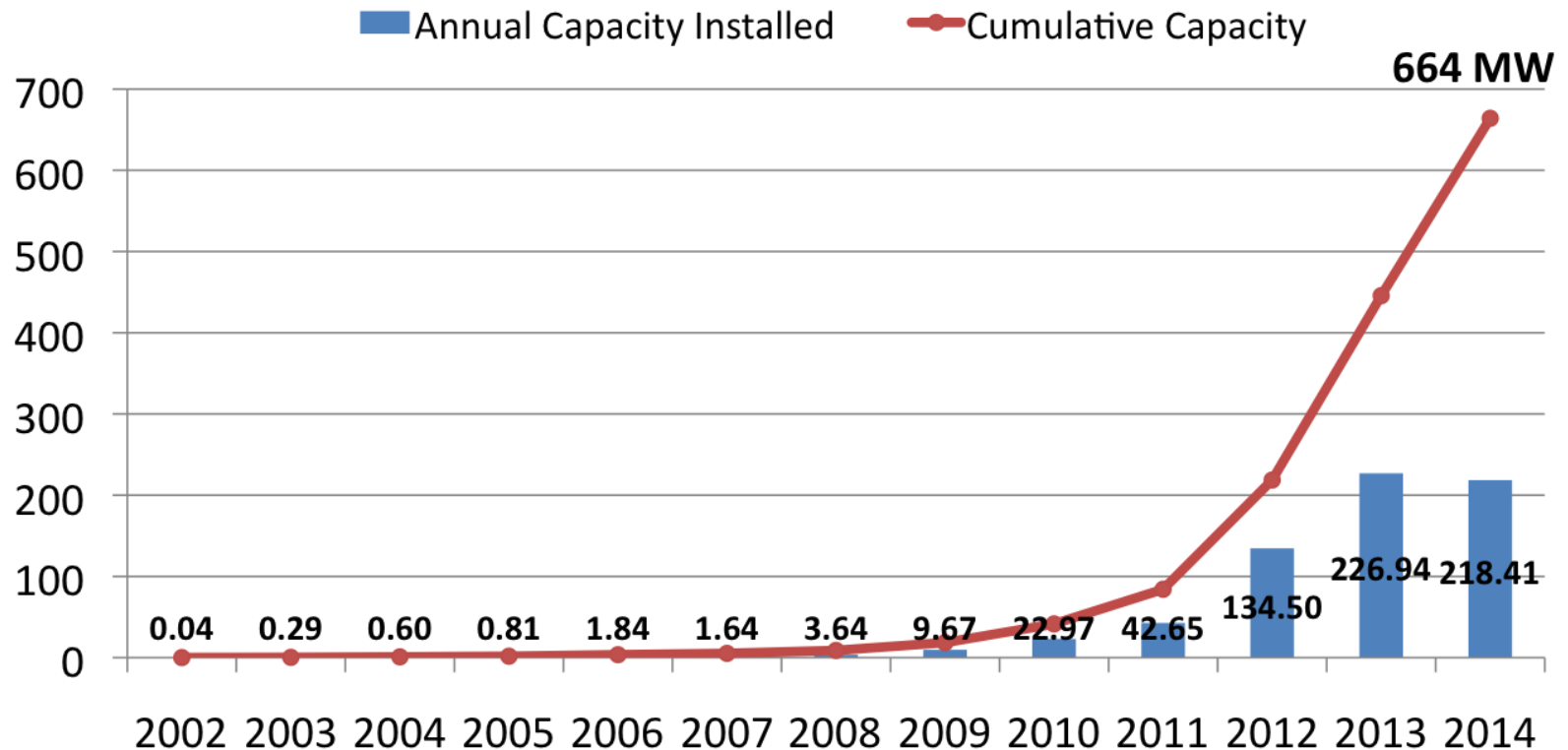


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Remarkable Solar Growth in Massachusetts

Installed Solar Capacity in Massachusetts (as of 10/1/14)



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Rooftop Solar Challenge Round I

- **DOE SunShot Rooftop Solar Challenge –** reducing soft costs of small commercial and residential rooftop solar PV
 - Conducted outreach to local financial institutions
 - Updated DOER's interconnection website
 - Created an implementation guide for Community Shared Solar (CSS)
 - Reviewed and developed model local permitting process, including guidance for structural review
 - Developed model solar bylaw zoning language
 - PARTNERS: MassCEC, MassDevelopment, BBRS, SEBANE, Boston, Cambridge, Winchester, Hatfield and Harvard



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Permitting Guide Overview

- Solar PV Basics and Definitions
 - Flowchart of the Rooftop Solar PV Permit Process
 - Standard Permit Application for Rooftop PV Systems Sized 300 kW and Less
 - Qualification Flowchart for the Fast Track Permit Application
 - Fast Track Permit Application for Residential Rooftop PV Systems Sized 10 kW and Less
 - Design Template Package
 - Application and Template Guide
 - Permit Fee Table
 - Suggested Procedural Guidelines



Rooftop Solar Challenge Round II

- Participating in a regional effort to target non hardware “soft” costs for photovoltaic (PV) electricity systems and increasing coordination across Connecticut, Massachusetts, New Hampshire, Rhode Island, and Vermont.
- Coordinated by national energy non-profit CESA and called the New England Solar Cost-Reduction Partnership
- Focused on permitting and interconnection challenges; the need for new financing tools and planning and zoning rule variations
- Also continuing Solarize Mass through partnership with MassCEC
- Partners: MassCEC, City of Boston, City of Cambridge, City of Winchester

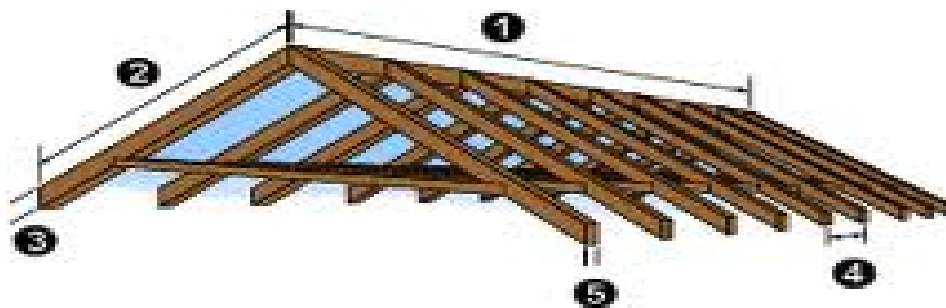


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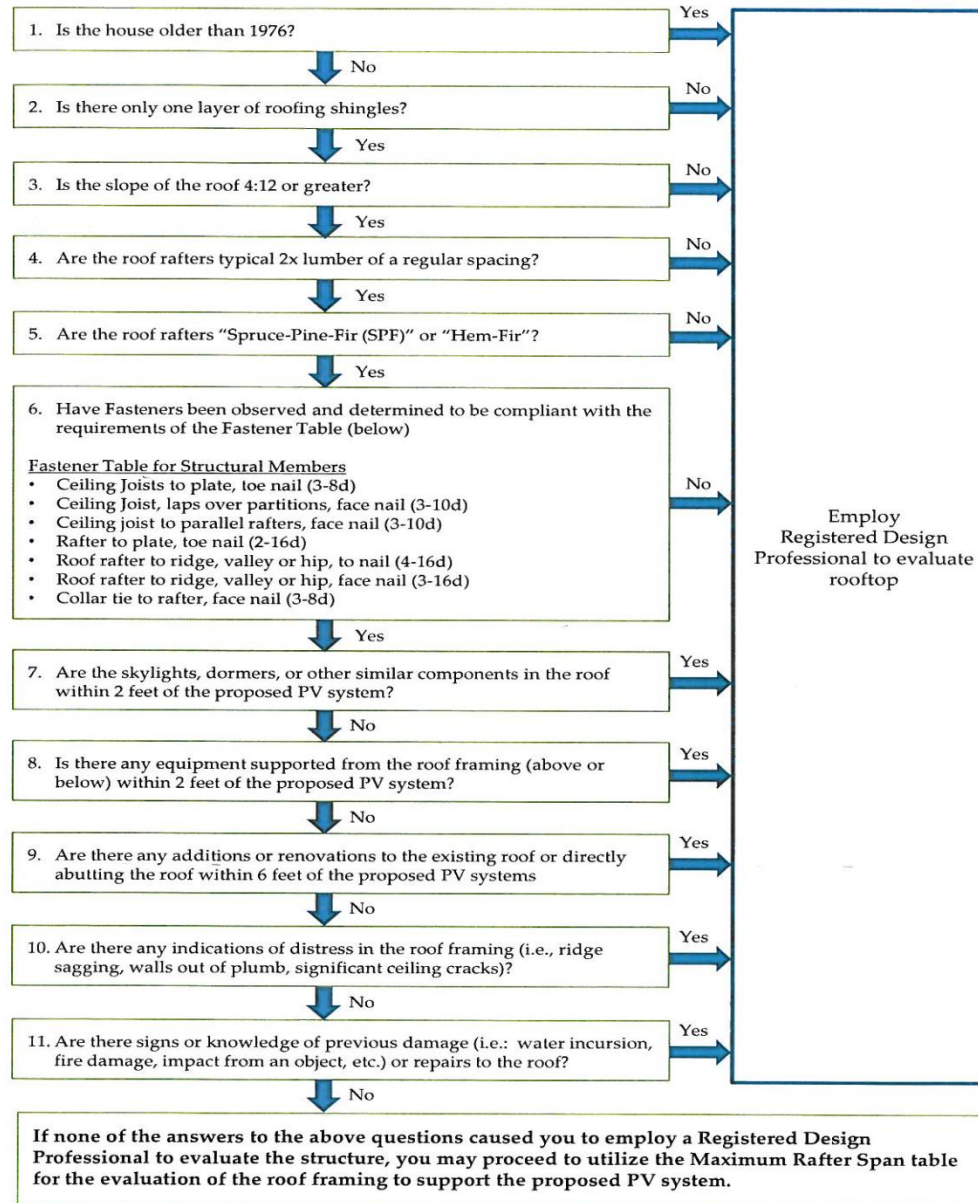


Structural Review Guidance

- Developed a prescriptive process, whereby the user tests a building's condition against a series of questions using the Flowchart
- The development of a prescriptive method was undertaken to specifically address the installation of a rooftop solar PV system on the roof of a one- and two-family residence without the expense and time of utilizing a licensed structural engineer for evaluation of load carrying capacity.



Prescriptive Process Flowchart for Residential PV <10 kW



Stakeholder Outreach

- Because all 25 municipalities interviewed require building and electrical inspection department approval for installed systems (and some also require structural and fire department inspections) DOER reviewed the permitting guide with the state agencies that represent these stakeholders

**SBEE – State Board
of Electrical
Examiners**

**DPS – Department
of Public Safety**

**BFPR – Board of
Fire Prevention
Regulations**

**BBRS – Board of
Building
Regulations
and Standards**



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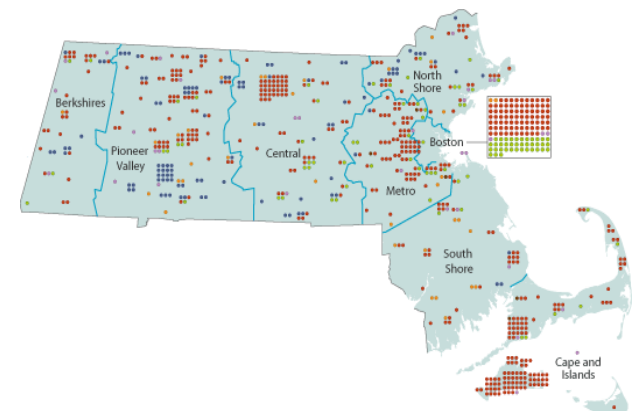
Inspector Technical and Safety Trainings

- Solar PV Basics and Definitions
- Trainings on technical and safety aspects of solar in MA
- Overview of model permitting guide and explanation of how it could be use
- Trainings can be found at:
<http://www.mass.gov/eea/energy-utilities-clean-tech/webinar-future-and-archive.html>



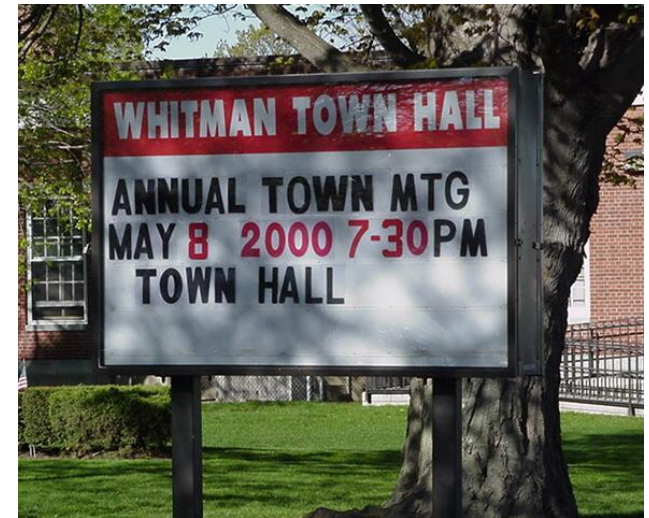
Model Zoning & Guidance for Solar Energy System Regulation

- 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”



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.



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



Model Zoning – How to Use

- The model zoning language provided 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.



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.



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/>.

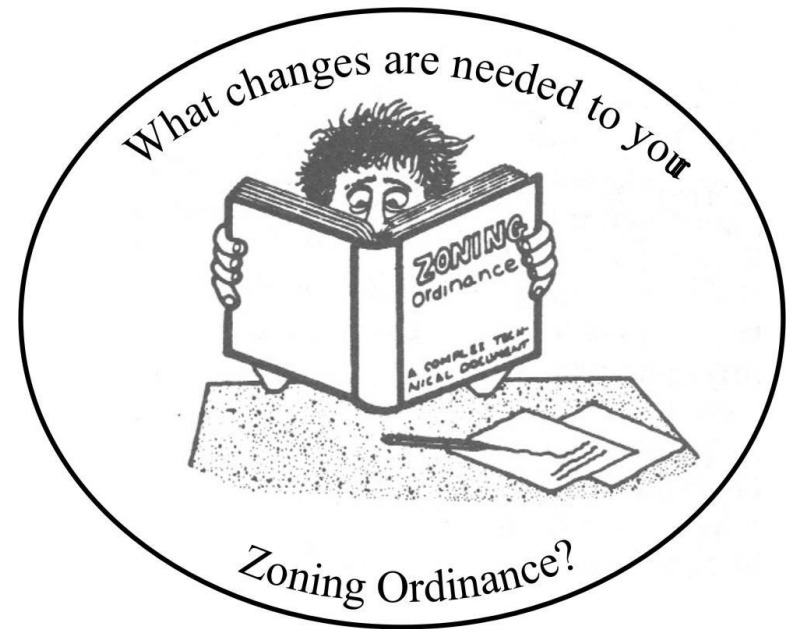


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What can local governments do? (cont.)

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



Green Communities Division

Serves as the hub for all Massachusetts cities and towns on energy matters



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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
Joanne.Bissetta@state.ma.us

CERO – WORCESTER: Kelly Brown
Kelly.Brown@state.ma.us

WERO – SPRINGFIELD: Jim Barry
Jim.Barry@state.ma.us



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QUESTIONS??

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

Rooftop Solar Challenge Program Coordinator
<http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/permitting-and-structural-review-.html>



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Framingham Solar Overlay By-Law

Part of a Comprehensive
Approach to Sustainability

MAPC - January 20, 2015

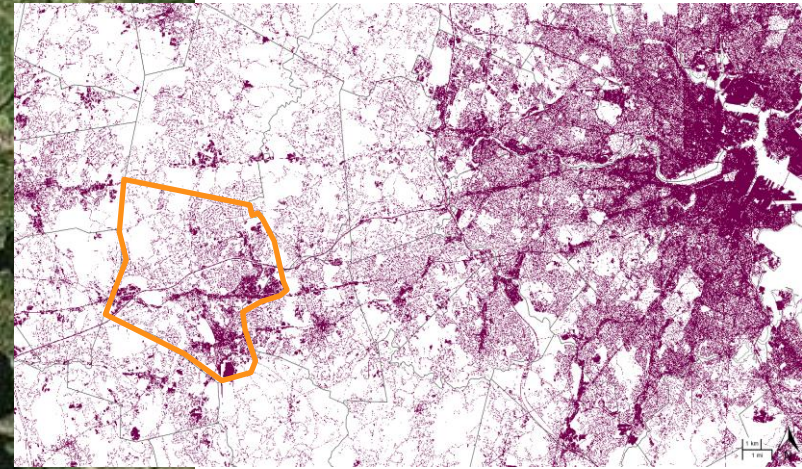
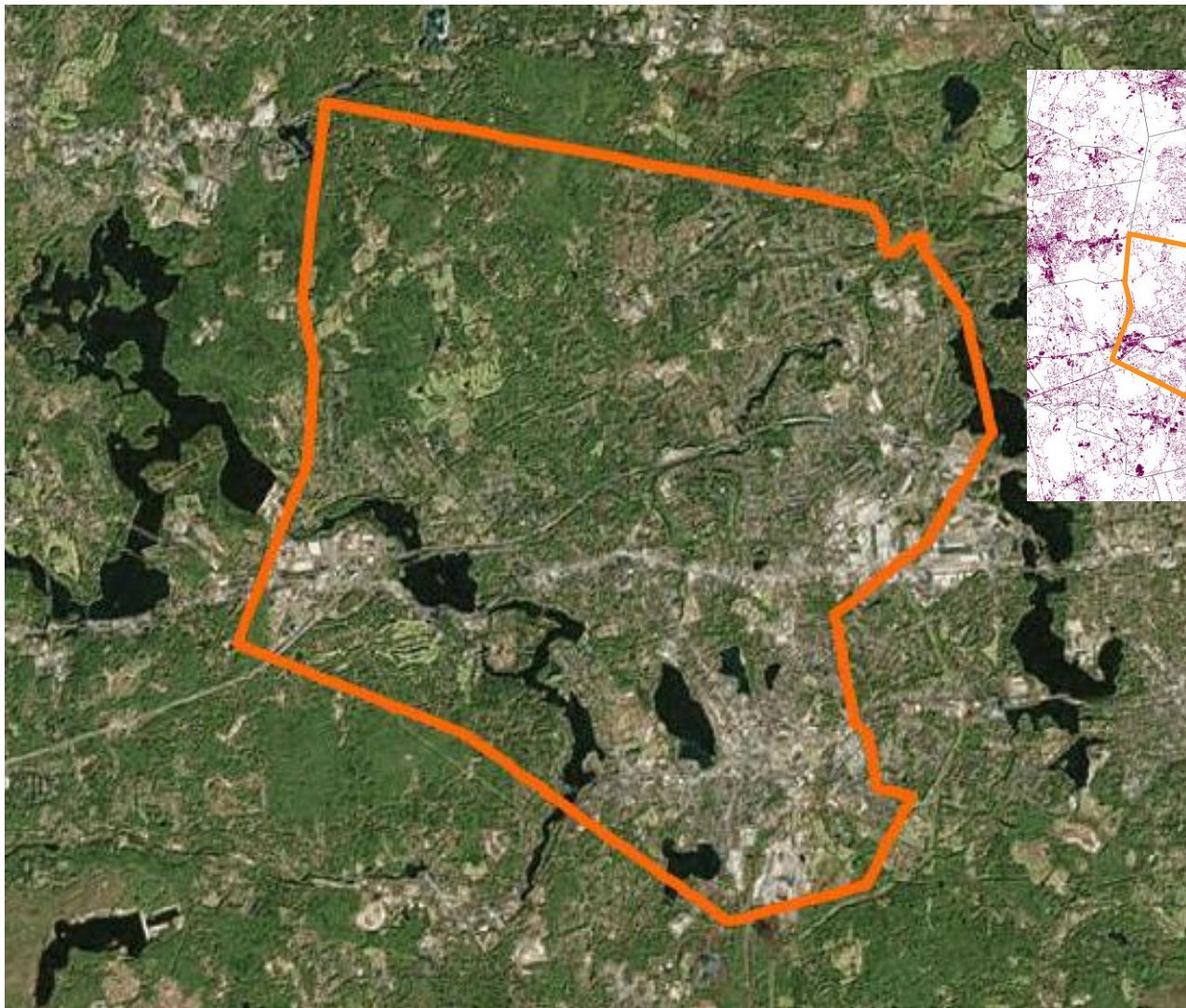
Erika Oliver Jerram, AICP
Deputy Director of Community
& Economic Development

Amanda Loomis
Planning Board Administrator

AGENDA

- Introduction
- Background/Context of Sustainability Initiatives
- Solar Overlay By-law

Introduction



Impervious Area

Sustainability in Framingham

- Background

- Discussions began more seriously in 2012
- Selectmen began the steps required for Green Communities Designation
 - As-of-right siting for renewable energy projects
 - Expedited permitting process for energy facilities
 - Create a plan to reduce municipal energy consumption by 20% over 5 years
 - Adopt the BBRS Stretch Code
 - Adopt Vehicle Efficiency Policy and Create Vehicle Inventory - to start purchasing efficient vehicles



Steps to Green Communities

Feb
2013

- Framingham Selectmen adopt an efficient vehicle purchase policy in February 2013

May
2013

- Expedited Permitting, Solar Overlay, and Stretch code passed Town Meeting in May 2013

Oct
2013

- Municipal Energy Reduction Plan - completed in October 2013

Jan
2014

**GREEN COMMUNITIES
DESIGNATION**

Parallel process:
ESCO for Town-owned properties.
Adopted May 2014
– \$5.9 m contract
with Ameresco



Current Sustainability Initiatives



Residents-
SolarFlair/ NSL/
MassSave



LEAP

Municipal-
Green
Communities/ESCO

Businesses -
Nstar/AECOM

Outreach-
Schools, Web,
Programs



Herb Connolly Acura

FRAMINGHAM
Earth Day Festival

Choose
FRAMINGHAM

Solar By-Law Highlights

1. Purpose and Intent

Provide standards for placement, design, construction, operation, monitoring, modification, and removal of solar installations.

2. Definitions

3. Applicability



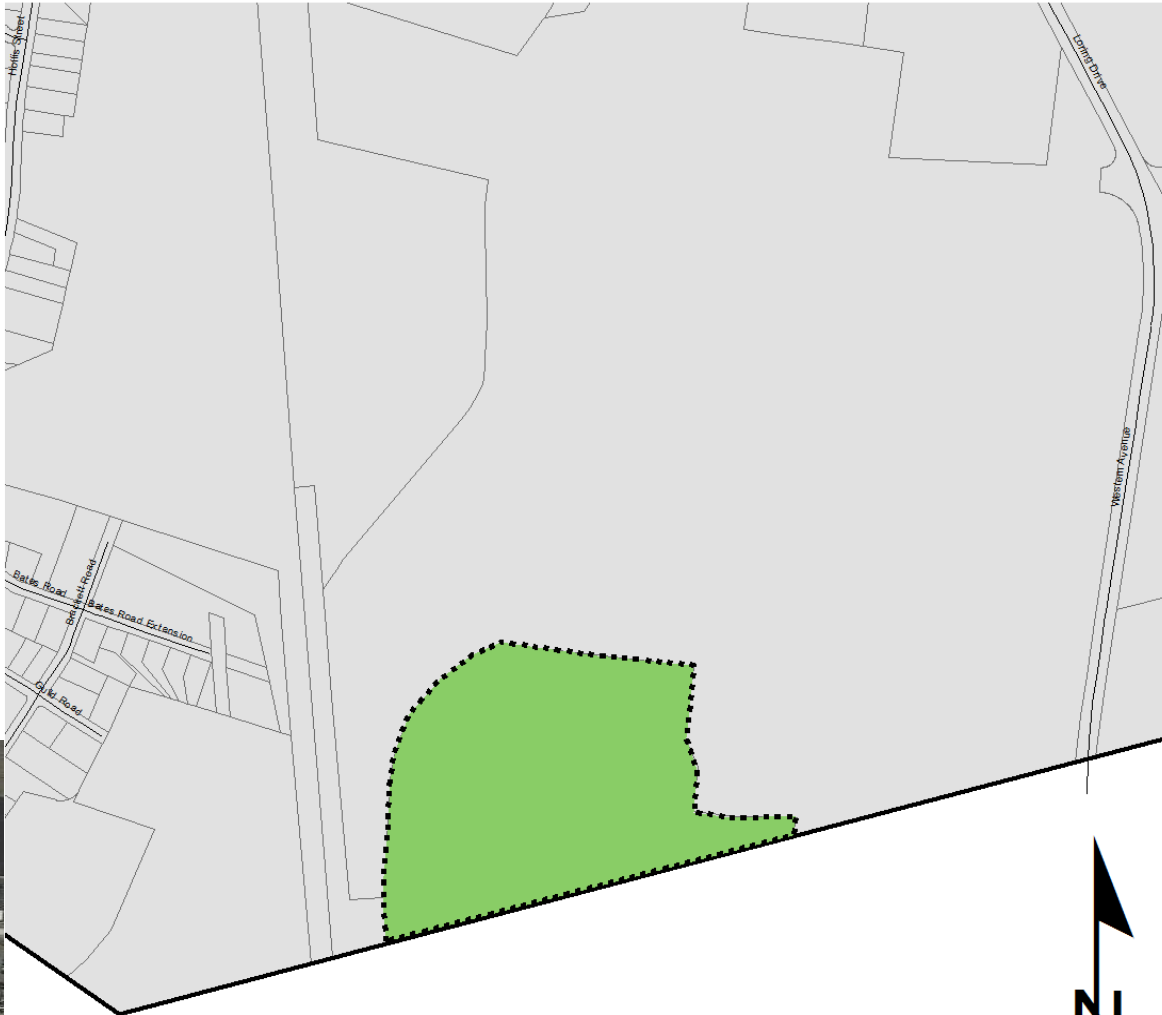
Solar By-Law Highlights

- Visual Impact/Design Standards
- Dimensional Regulations
- Maintenance
- Emergency/Safety/Security
- Abandonment and Removal Requirements
- Financial Security





3/35 Western Ave
Framingham Landfill





63 Western Ave
Adesa



Choose
FRAMINGHAM



175 Crossing Blvd





How Did Framingham Get There...The Process



1. Stakeholder Participation
2. Developed the Zoning
3. Town Meeting



Lessons Learned/ Considerations

1. Location, Location,
Location

2. Solar Carports and
Rooftop Solar

3. Pre- and Post- Solar
By-law

