

Permitting Solar PV in Massachusetts

A Guide for Municipalities

This series of case studies was developed for municipalities in Massachusetts to be used as a guide to improve permitting processes for residential and commercial solar photovoltaic (PV) systems.

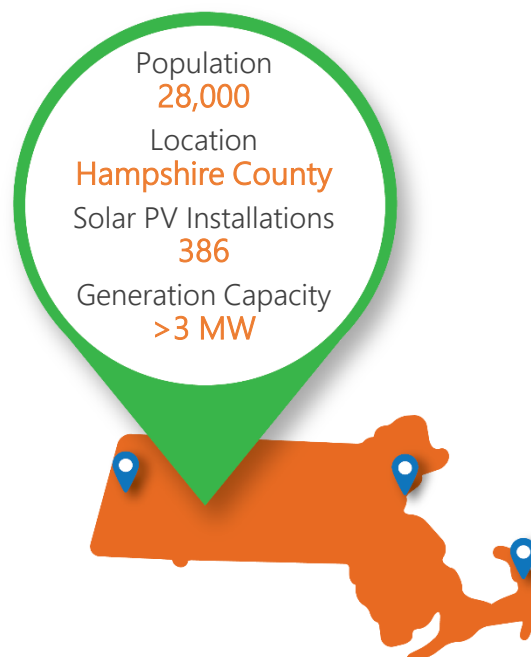
The case studies highlight how various municipalities in Massachusetts have improved permitting processes for solar PV, thereby saving time and money for government officials, solar installers, and residents.

These resources have been developed by the Massachusetts Department of Energy Resources, with support from the Clean Energy States Alliance.

Municipalities covered in this series:

- Boston
- Northampton
- Pittsfield
- Wellfleet

Northampton, MA



Specialization, Online Integration & Teamwork

Northampton was selected as a case study for its effective and straightforward approach to streamline its permitting process. The city has taken several steps to increase solar permitting efficiency through e-mail permit submission, an electronic database, a solar specialist for reviews, and increased department familiarity with PV. Northampton is working to develop a fully integrated online permitting system, continuing its commitment to streamlining permitting processes.



Image courtesy of: https://www.flickr.com/photos/pink_dispatcher/483756270/in/photostream/

Northampton, MA | Solar Photovoltaics (PV) Permitting: Technology & Teamwork

THE CITY OF NORTHAMPTON

Northampton, a city of 28,000 people, lies in western Massachusetts. In 2011, the Massachusetts Department of Energy Resources designated Northampton as a Massachusetts Green Community and in 2013, the city participated in Solarize Mass, resulting in the installation of 108 solar PV systems. To date, Northampton's total installed solar capacity is over 3 MW.

The Northampton Building Department has issued 386 permits for ground and roof-mounted residential solar. About 70% of their solar permits are small-scale residential systems.¹

EARLY ADOPTERS

Northampton first adopted permitting software in 1998, which primarily served as an internal electronic database but did not allow for online permit submission. The Northampton Building Department is currently investigating options for online permit submission. The new platform will provide services across multiple departments in Northampton. In the interim, the building department provides a downloadable permit application form that can be submitted via e-mail. If requested, permits can also be issued to applicants via e-mail. This low-cost alternative to online permitting software streamlines and simplifies the permitting process.

THE PERMIT REVIEW PROCESS

Northampton has a standardized permitting process. After an applicant submits a permit application, the building inspectors' office undertakes a four-step permit issuance process. Figure one below illustrates the process.

What is SOLARIZE MASS and the Green Community Designation?

Solarize Mass is a community based campaign that aims to increase the adoption of small-scale solar. Tiered pricing structures save participants more money as more people sign contracts. The Green Communities designation and grant program seeks to cut energy costs and strengthen economies in all 351 Massachusetts municipalities. Communities must meet specific criteria after which the state will provide grants to finance energy efficiency and renewable energy projects.

"We reduced our permit fees as part of our city's commitment to alternative energy and to more accurately represent the cost of permitting for solar."
- Conversations with the building commissioner

Figure 1: The four-step solar PV permit process in the City of Northampton



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THE PERMIT REVIEW PROCESS (CONTD.)

Northampton requires solar permit applications to contain detailed system plans, a stamped letter from an engineer confirming the roof can hold the added weight of a roof-mounted system, and information about the system's components, mounting, and electrical layout. When all of these materials are submitted, an application is logged into the city's database triggering simultaneous review by a building inspector and an electrical inspector. If the applicant meets the permit application requirements, the Northampton building department issues a residential solar PV permit in less than a week.

COMMERCIAL PERMITTING AND INSPECTION IN NORTHAMPTON

In the commercial sector, Northampton switched to flat fees and now uses a calculation sheet to pinpoint the necessary associated costs. The building commissioner stated that Northampton is committed to fast turnover and that the time they spend on a given permit has decreased in the past few years. They are continuing this commitment by switching over to new online submission software, and hope to provide an online checklist as well.

FEES AND INSPECTIONS

In Northampton, the solar PV contractor typically will request inspections near the end of the project's construction. Depending on the complexity of the installation, the electrical inspector will perform either one or two inspections, followed by a final inspection by the building inspector. For roof mounted systems, Northampton's building permit and electrical permit are both flat fees of \$75 and \$60, respectively. In July of 2015, Northampton reduced its permitting fees from an incremental-based valuation fee of \$6 per \$1000 and an electrical service fee of \$110 to the current flat fees of \$75 and \$60. The simplified and reduced fees, reflect the building department's commitment to renewable energy, cover its costs, and encourage the installation of solar PV in Northampton.

PV Permit Fee Calculator for Commercial Systems

Written by Scott Troyer & Kurt Newick

Jurisdiction Name: **City of Northampton**

Project Address: **Project Address Here**

PV Project Size (kW DC): **25**

	Select Separate Reviews Required	Input Average Review Hours	Hours Computed for PV Project Size 25 kW
PV Plan Reviews		10 kW 100 kW	
Electrical Plan Review N/A	<input checked="" type="checkbox"/> TRUE	0.5 1.5	0.8
Structural Plan Review (1st cycle)	<input checked="" type="checkbox"/> TRUE	0.5 1.5	
Clerical Time for 1st cycle	<input checked="" type="checkbox"/> TRUE	0.4 0.5	0.4
Subtotal, Plan Review (1st cycle)		1.4 3.5	1.3
2nd Cycle Review %	20%	0.1 0.4	0.1
Total, Plan Review (nearest 1/2 hr.)		1.5 3.9	1.5
PV Inspections			
Rooftop Array	<input checked="" type="checkbox"/> TRUE	0.5 1.0	0.7
Ground Array	<input type="checkbox"/> FALSE	0.5 1.0	0.0
Electrical Inspection N/A	<input checked="" type="checkbox"/> TRUE	0.5 2.0	
Subtotal, Inspection (1st cycle)		1.5 4.0	0.7
Inspection Turn Down Rate %	20%	0.225 0.6	0.1
Total, Inspection (round to 1/2 hr.)		1.7 4.6	1.0
Jurisdiction's Billable Rates			
Permit Issuance Fee:	\$55.00		
Plan Reviewer Billable Hourly Rate	\$145.00		
Inspector Billable Hourly Rate	\$150.00		
Clerical Billable Hourly Rate	\$50.00		
Total Hours (Plan Review & Inspection), nearest 1/2 hr.		3.5 8.5	2.5
Total Calculated PV Permit Fee			\$329

Logarithmic Factor (to compute fee): 1.325195741

Figure 2: Example snapshot of Commercial Fee Calculation Sheet

Fee Details	Building Permit	Electrical Permit
Fee	US\$ 75	US\$ 60

Table 1: Permit fees in Northampton

Northampton, MA | Solar Photovoltaics (PV) Permitting: Technology & Teamwork

NORTHAMPTON'S SOLUTION

Online Integration

The City of Northampton has a more efficient approach to solar permits through the use of e-mail submission, an electronic database. Integrating technology into the city of Northampton's workflow has cut down the amount of paper, desk-to-desk time, and clerical work. When the building department upgrades its software, it expects higher quality applications due to the limitations of its current system, an improved ability to track permits, and enhanced interdepartmental communication.

Teamwork

Inspectors provide feedback to contractors to improve future applications or to remedy ongoing problems. If contractors submit applications without all of the necessary requirements, the building inspectors will call or work with installers in person to resolve issues. The current building commissioner stated that cooperation and communication are essential for simplifying the permitting process.

Specialization

Northampton's assistant building commissioner manages the residential solar applications, while the building commissioner oversees commercial applications. This specialization allows each commissioner to hone in on particular portions of the state building code and to develop a specialty.

NORTHAMPTON | Checklist for Permitting Best Practices

	Permitting Checklist
	Permitting Templates
	Limited Inspection Time Windows
✓	Permitting Websites
✓	Online Permitting
✓	Eliminate Excessive Inspections
	Implement Expedited Process
✓	Do Not Require Community-Specific Licenses
✓	Simplified Permit Fees
✓	Train Permitting Staff in Solar



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Case Study
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¹ Based on data tracked by the Massachusetts Department of Energy Resources for qualified units under the Solar Carve-Out I and II programs. For more information, visit www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/