

# City of Cleveland: Guide to Going Solar

## A resource for building owners and solar installers

This guidebook provides an overview of the process for installing solar panels on your home or business. It emphasizes the City’s permitting, inspection, and interconnection requirements for installers, while also providing additional guidance for consumers looking to go solar.

Cleveland’s solar market is on the rise. In a recent study, Cleveland has shown to have more solar installs per capita than the relatively sunlit metro areas of Houston, Atlanta, and Charlotte. As solar prices decline, residents and businesses of Cleveland will continue to adopt solar to reduce energy costs, improve property values, and demonstrate a commitment to sustainability.

The City of Cleveland encourages the installation of solar energy systems. This guide is intended to clarify the process for installing solar at homes and businesses within the City.



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## Steps to Going Solar

Property Owner Driven	Preparation	<b>1. Assess your Property.</b> Many great resources exist to help. Get the <a href="#">solar 101 here</a> or <a href="#">use this online tool</a> to assess your property.
		<b>2. Understand your Finance Options.</b> Read <a href="#">this 4-page guide</a> to learn about your finance options or go <a href="#">here</a> or <a href="#">here</a> to see all the incentives available in your area.
		<b>3. Find an Installer.</b> Local <a href="#">solar companies</a> will provide you with free quotes, so <a href="#">explore your options!</a>
Installer Driven	Approvals and Installation	<b>*4. Permit Application.</b> Obtain approval from the City Building & Housing Department. <a href="#">See p. 3</a> for details.
		<b>*5. Interconnection Application.</b> Let the utility know you will be connecting. <a href="#">See p. 4</a> for details.
		<b>6. Installation.</b> Your installer will manage this process.
	Inspections and Connection	<b>*7. City Inspection.</b> City inspectors will visit the site multiple times to ensure the installation is safe. <a href="#">See p. 7</a> for details.
		<b>*8. Utility Interconnection.</b> Receive final approval from the utility to turn on your system. <a href="#">See p. 7</a> for details.
		<b>9. Enjoy Energy from the Sun!</b> Be sure to check your utility bills to ensure you are getting the appropriate savings... and make sure your system is properly maintained over time.

### *Property Owners*

Steps 1-3 above are mostly for property owners interested in going solar. Your licensed solar contractor should manage the rest of the process for you. You may also be interested in the [Zoning Standards](#) and [Additional Resources](#) at the end of this document.

### *Installers*

The focus of this document is the solar permitting, inspection, and interconnection process in the City of Cleveland (\*steps 4, 5, 7, and 8 above). For permitting and inspection questions not answered by this guide, please contact Cleveland's Building Department at 216-664-2910 or visit the [City's website](#). For Cleveland Public Power (CPP) interconnection questions, email Austin Taylor at [ataylor@cpp.org](mailto:ataylor@cpp.org) or visit [CPP's website](#). For First Energy interconnection questions, visit [First Energy's website](#).

# Permit Application

## Permits

Solar installations are defined as an exterior alteration under the general building permitting system, and as such require a building permit. Both commercial and residential installations (rooftop and ground mounted systems) require zoning review and permits. Solar installations in new construction projects are treated similar to any other building systems in terms of the overall zoning and permitting process, while being subject to the solar specific requirements and scenarios outlined in this document.

All applicants must file for Building permit and Electrical permit. Critical documents due at time of application are listed in the table at right.

Structural drawings are always required to be sealed by a design professional. Roof attachments are preferred but not required to be stamped and sealed for residential dwellings. Electrical drawings are always recommended to be sealed, which reduces turnaround time for permit issuance. If such drawings and plans are not stamped, the permit application requires calculations for electrical and structural attachments that will be reviewed by the City.

Application Submittal Checklist
<input type="checkbox"/> Application Form
<input type="checkbox"/> Electrical Line Diagram
<input type="checkbox"/> Site Plan
<input type="checkbox"/> Structural Drawings
<input type="checkbox"/> Spec Sheets and Installation Manuals

See the [Zoning Standards](#) section of this guide for information on when review from the City Planning Commission is required before a permit is issued.

Ground-mounted systems typically require additional zoning review and less rigorous building permit review when compared to roof-mounted systems. Ground-mounted systems are considered ‘utility structures’ under the Ohio Building Codes, hence the building permit requirement in addition to the electrical permit. Review of ground-mounted systems includes a detailed foundation analysis.

Additional information is available in [Cleveland’s Online Permit Guide](#). The City’s [Building and Housing](#) site can also be used to check application status and to renew contractor’s licenses.

## Fees

Zoning and Plan Review fees are flat, while permit fees for the solar installation system (arrays – storage – inverter – electrical panel) are valuation based. It does NOT include fees that may be applicable for other associated modifications, such as additions to a facility to accommodate storage systems. Electrical permit fees are calculated based on square feet of the total electrical work area involved with the solar installation.

Zoning fee is paid at the beginning. Plan review fee is paid when zoning is approved and permit fees are paid when the permits are ready to be pulled.

*Residential Fee Schedule*

Fees for residential solar permits vary depending on size and scope of project.

<b>Permits</b>	<b>Cost</b>	<b>Minimum Fee</b>
Res. Building Permit (for alterations)	\$5 per \$1,000 of project cost	\$30
New structures	\$10/\$1,000 of project costs (no limit)	
Electrical Permit	\$50 per 1,000 ft <sup>2</sup>	\$50
Plan Review	\$20	\$20
Zoning	\$20	\$20

*Commercial Fee Schedule*

Fees for commercial solar permits vary depending on size and scope of project.

<b>Permits</b>	<b>Cost</b>	<b>Minimum Fee</b>
Com. Building Permit (for alterations)	\$15 per \$1,000 of project cost up to \$1M, then \$11 per \$1,000 of additional project costs	\$150
New structures (such as new ground mounted installs)	\$12 per \$1,000 of project costs up to \$1M, then \$7 per \$1000 of additional project costs	
Electrical Permit	\$50 per 1,000 ft <sup>2</sup>	\$50
Plan Review	\$20	\$20
Zoning	\$150	\$150

In addition, there is a state surcharge of 1% for the plan review and permit fee for residential installations, and 3% for commercial projects.

## Processing Time

Once permits are paid for and approved, a registered contractor with the City of Cleveland can pull the permits. The typical turnaround time for permits varies according to the project's complexity. Generally, expect the permit review to take three to five working days for residential systems, and up to two weeks for commercial. Ohio law requires determination in less than 30 days and requires that permits be issued in the order received, with some exceptions for a specialty reviewer.

## *Zoning Standards*

There are no codes or ordinances in Cleveland that specifically restrict solar. In addition, the state of Ohio has solar-easement provisions similar to those in effect throughout the U.S. Ohio law allows property owners to create binding solar easements for the purpose of protecting and maintaining proper access to sunlight. Easements must be filed in writing and are subject to the same requirements as other easements. More details about Ohio's Solar Access Easement Requirements are available [here](#).

Zoning Review, conducted internally during the overall permit review process, is required for all projects. It does not require a separate application.

During the Zoning Review process, the Cleveland Planning Commission will generally need to approve their scope of the permit application during the following situations:

- When rooftop solar is included as part of new construction.
- For rooftop systems on an existing building that are [historic](#) or located in a [design review](#) or [overlay](#) district.
- For all ground mounted systems.

It normally takes about one month for committee review (Landmarks, Housing Design, Design Review) and final review from the Cleveland Planning Commission. City Planning's directory can be found [here](#).

The City is also reviewing model solar codes to determine applicability to Cleveland.

## Interconnection Application

After obtaining the necessary permits, the next step is to file for interconnection approval with your governing utility, either Cleveland Public Power (CPP) or First Energy (The Illuminating Company). Interconnection approval will enable the solar system to “plug-in” to the power grid and allow net metering benefits. Net metering is a crediting mechanism for solar system owners, which allows owners to receive credit for the energy they generate. This credit is applied against any energy usage that occurs on their monthly utility bill. For example, if a solar system generated an equal amount of energy to what was used, the net energy metered would be zero. Please refer to CPP’s and First Energy’s Interconnection Application Procedures and Guidelines for additional clarity on their Net Metering services.

The interconnection agreement will outline the legal rules and procedures as required for grid-tied systems, including the technical and contractual terms that both system owners and utilities must follow. Because the approval process can take up to four weeks, it is best to apply before construction begins.

The interconnection application process is similar to the building permitting process and requires a separate utility-specific application form, site plan, electrical line diagram, and net-metering agreement. For CPP, the site plan and electrical line diagram are the same (with the same requirements and preferences) as submitted to the City’s Building and Housing department, but must be submitted separately.

### ***Cleveland Public Power***

CPP does not charge for the application process.

Cleveland Public Power’s Interconnection Application Procedure can be found [here](#).  
Cleveland Public Power’s Interconnection Application/Agreement can be found [here](#).

### ***First Energy***

Unless the system is larger than 25 kW, interconnection fees are flat at \$50. Visit First Energy’s [Interconnection Guidelines](#) for more details.

Interconnection Approval Checklist
<input type="checkbox"/> Application Form
<input type="checkbox"/> Electrical Line Diagram
<input type="checkbox"/> Site Plan
<input type="checkbox"/> Net Energy Metering Agreement
<input type="checkbox"/> Spec Sheets
<input type="checkbox"/> NEC required safety placard

## City Inspection

With permits obtained and interconnection approval pending, it is time to begin your installation! To ensure safety and code compliance, the City of Cleveland requires inspections take place during and after installation. No separate fees are required.

It is important to maintain communication with City inspectors to ensure a timely and efficient inspection process. The contractor or property owner should contact the inspector to set up an inspection, giving a 24-hour minimum notice. The inspector's name and telephone number appears on the upper left area of the permit. The inspector must respond within three days and will usually give a full day window of when an inspection will occur.

For roof-mounted systems, the mandatory inspection sequence is listed in the chart at right.

Ground-mounted systems focus more on clearances and electrical.

Electrical Rough-In:

1. No electrical wiring can be covered or concealed without authorization.
2. Wiring shall be inspected and approved before devices, appliances, or equipment are installed or connected.

Electrical Final:

3. All electrical wiring and equipment shall be in accordance with the provisions of NFPA 70 entitled "National Electrical Code," as listed in OAC Chapter 4101:2-46.

Mandatory Inspection Checklist
<input type="checkbox"/> Roof Penetrations (pre-install)
<input type="checkbox"/> Electrical Rough-In
<input type="checkbox"/> Electrical Final
<input type="checkbox"/> Structural/Building Final
<input type="checkbox"/> Utility Inspection

## Utility Interconnection

Following the completed installation of the solar system, the last step is to submit final interconnection documents to your utility, either Cleveland Public Power or First Energy. The utility will perform a final inspection of the installation and review documentation for compliance. If the system complies with the guidelines, the utility will authorize system operation and notify the customer. Net-metering will also be authorized at this time.

Final Interconnection Checklist
<input type="checkbox"/> Agreement Form
<input type="checkbox"/> Evidence of Electrical Inspection
<input type="checkbox"/> As-Built Drawings

Cleveland Public Power's Interconnection Application, Part 2, can be found [here](#). Evidence of electrical inspection from CPP's perspective has been a copy of the permit with the electrical inspector's notes, and a copy or a picture of the green approval sticker, if the City's inspector does not sign off on CPP's forms.

First Energy's Interconnection Guidelines can be found [here](#).

## Additional Solar Resources

### *Guidance for Property Owners Considering Solar PV*

[NREL's PVWatts Calculator](#): This tool allows homeowners, small building owners, installers and manufacturers to develop estimates of the performance of potential PV installations.

[Powering Northeast Ohio \(video\)](#): This video, which premiered at Sustainable Cleveland's 2013 Annual Summit, illustrates that Advanced and Renewable Energy works in Northeast Ohio.

[Solar Energy Resources for Homeowners](#): This site provides a compilation of resources for homeowners interested in pursuing solar.

[Financing Your Solar Panel System](#): There are affordable solar financing options for every budget. Whether you want to maximize your financial returns or find an easy solar solution to save money and help the environment, there is a financing option that works for you.

[Solar Incentives and Policies in Northeast Ohio](#): The Database of State Incentives for Renewables & Efficiency (DSIRE) is a comprehensive source of information on incentives and policies that support renewable energy and energy efficiency in the U.S.

[Green Energy Ohio](#): Green Energy Ohio provides a number of solar resources, including training programs, an Ohio installer list, and information on its annual tour.

[Cuyahoga County Solar Co-op](#): The countywide solar co-op makes it easier for homeowners to go solar while reducing the cost of solar installations through a bulk purchase.

### *State and Local Policies*

[Cleveland Green Building Standard](#): To qualify for residential tax abatement in Cleveland, new construction and rehab projects must meet the Cleveland Green Building Standard. Solar installations help homeowners meet the Cleveland Green Building Standard.

[Ohio Building Code Section 1401 - Solar Systems](#): This chapter governs the design, construction, installation, alteration and repair of systems, equipment and appliances intended to utilize solar energy for space heating or cooling, domestic hot water heating, swimming pool heating or process heating.

[Advanced Energy Portfolio Standard \(AEPS\)](#): The standard ensures that 15% of Cleveland Public Power's energy comes from advanced or renewable sources by 2015, 20% by 2020, and 25% by 2025.

[City of Cleveland, Mayor's Office of Sustainability](#): This page summarizes key City policies, programs, and projects related to advanced and renewable energy.

[Cleveland's Solar Roadmap](#): This roadmap includes solar market indicators and resources for residents, businesses, solar industry and officials interested in Cleveland's solar market.

[Cleveland's SolSmart Designation](#): Cleveland's is nationally recognized as being a solar friendly community.