

This document has been prepared as part of the implementation project of Legal Pathways to Deep Decarbonization (Michael B. Gerrard and John C. Dernbach, eds. Environmental Law Institute [2019]) (LPDD). For background information on the project, see <https://lpdd.org>

Encouraging Residential Solar Development Through State Legislative Action*

Residential solar (i.e. a set of panels on a residential property providing local power), as opposed to utility-scale solar power generation (e.g. a large solar park in a desert providing power to customers hundreds of miles away), is growing in popularity across the United States. Improved efficiency of panels has made residential solar a viable source of power, rather than a hobby or a secondary source of power generation. However, there are a variety of “soft costs” associated with the installation of residential solar facilities, such as the expenses associated with obtaining permits, inspections, and interconnection with the local utility. These challenges are compounded by the fragmented nature of the US energy marketplace, tensions between state and local governance of permitting and installation, and resistance of local homeowners associations (HOAs) to new solar installations.

Our model statute addresses certain soft costs of residential solar facilities by laying out a framework by which states can simplify and standardize the permitting processes and installation requirements for residential photovoltaic (PV) systems and energy storage.¹ Our template is based on legislation in California² and Massachusetts,³ and on recommendations provided by the National Association of State Energy Officials (NASEO).⁴ In the summary below, we reference these (and other) sources to expand on the key issues we seek to address.

Summary and Key Policy Issues

The following summarizes the model legislation and highlights the policy issues that each section intends to address.

Section 1. Findings and Purposes. This section contains the factual and policy basis for the legislation. Each state legislature should fashion the statement of findings and purposes to align with its own factual circumstances, policy goals, and political considerations.

Section 2. Definitions. Some key definitions in this section are:

“Residential Solar System” is defined in the model statute as a device or structural design feature installed on a residential property, a substantial purpose of which is to provide for the collection, storage and distribution of solar energy for space heating or cooling, electricity generation, or water heating. Whereas some jurisdictions impose a specific kW output limitation,⁵ this model statute limits a Residential Solar System’s size to the expected electricity consumption

* This model law was drafted by Goodwin Procter attorneys Kevin Walsh, Jacqueline Klosek, and Eric Robinson. Peer reviewing was provided by Davis Wright Tremaine attorneys Craig Gannett and Anna Fero.

¹ Our model statute does not, however, address the process of connecting residential systems to the local utility.

² CA CIV. CODE § 714 *et seq.*

³ Mass. Gen. L. c. 40A *et seq.*

⁴ *Here Comes the Sun: A State Policy Handbook for Distributed Solar Energy*, NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS AND NATIONAL CONFERENCE OF STATE LEGISLATURES, July 2017, available at <https://www.naseo.org/data/sites/1/documents/publications/Here%20Comes%20the%20Sun%20Handbook%20July%202017.pdf>.

⁵ Mass. DPU 11-75-A, §II.B.5.a (limiting systems to 15 kW for its “Simplified Track” permitting process); CA GOV’T CODE § 65850.5(j)(3) (defining “small” systems as those 10kW or less).

of the residential property. The Definition of Residential Solar System also explicitly aligns with state building codes.

“SolarApp+” is a program developed by the National Renewable Energy Laboratory, a division of the U.S. Department of Energy (DOE).⁶ Additional detail is provided below.

“Solar Access” is defined broadly as “the ability of a solar energy system to receive direct sunlight without obstruction from another property or object.”

Section 3. Permitting Process. This section is the crux of the model law and is intended to provide a general framework for simplifying and speeding up the permitting process for Residential Solar Systems. We’ve sought to address three key issues: time for approval, cost of approval, and efficiency of inspection processes.

Subsection (a)(i) requires Permitting Authorities to develop an online application form and checklist, which should contain all information required for the permit. The goal of this section is to require Permitting Authorities to implement a more efficient online system that, coupled with the adoption of SolarApp+, will allow for more efficient submissions and approvals.

Subsection (a)(ii) requires Permitting Authorities to adopt a 10-business day deadline for issuing permits after a completed application is filed. According to a 2020 study, the typical solar customer will wait between 0 to 9 days to receive a permit.⁷ Our proposed rule would essentially set that typical range as the maximum wait time for permit approval.

Subsection (a)(iii) sets a cap on the fees for permit applications of \$400 for residential systems. Permit fees vary widely depending on the specific jurisdiction and can include fees based on the value of the system or a flat fee. The Interstate Renewable Energy Council (IREC) has determined that a flat permit fee of \$400 for a residential system is reasonable,⁸ and we have adopted that recommendation as the maximum fee but have also provided for the possibility of lower fees.

Subsection (a)(iv) requires jurisdictions to conduct one virtual inspection, unless there are significant factors requiring onsite inspections. Rather than allowing pre-installation or in-process inspections that can slow down work, IREC recommends conducting only one inspection once installation is complete.⁹ Furthermore, one study determined that timelines from permit application to passing an inspection are significantly longer in jurisdictions that require onsite inspections (22 days) than in those employing virtual inspections (8 days).¹⁰ Virtual inspections can generally be

⁶ SolarApp+, SOLARAPP+, <https://solarapp.nrel.gov/> (last visited Apr. 5, 2024).

⁷ O’Shaughnessey, Eric et. al, “Patience is a virtue: A data-driven analysis of rooftop solar PV permitting timelines in the United States,” 144 ENERGY POLICY 111615 (Sept. 2020), available at <https://www.sciencedirect.com/science/article/pii/S0301421520303517?via%3DiDihub#sec4>

⁸ *Simplifying the Solar Permitting Process: Residential Solar Permitting Best Practices Explained*, INTERSTATE RENEWABLE ENERGY COUNCIL, INC., 4, July 2021, available at <https://irecusa.org/wp-content/uploads/2021/07/expanded-best-practices.pdf>

⁹ *Id.* at 5-6.

¹⁰ O’Shaughnessey et al. at [6].

accomplished via a combination of live streams, pictures, and recorded videos, which are shared with a local inspector.¹¹

Subsection (a)(v) requires the Permitting Authority to issue its final approval within 5 business days of inspection. While the available data on the time between inspection and final approval is limited, we propose a fixed timeline to ensure prompt compliance.

Subsection (b) is meant to give Permitting Authorities latitude to further streamline their processes beyond the baselines provided above. Furthermore, Subsection (c) provides methods by which a Permitting Authority can create permitting exemptions for pre-approved designs, installed by certified contractors.

Section 4. Adoption of Online, Automated Permitting Platform. Our objective in this section is to require adoption of a platform that will assist Permitting Authorities in processing applications more efficiently. While we leave open the possibility of alternative platforms, we make specific reference to the SolarApp+ program provided by the US DOE free of charge to local permitting authorities. SolarApp+ is designed to accelerate the process for approval of Residential Solar System permits by allowing officials to, among other functions, quickly check permit applications for compliance with relevant building codes, verify license information for installers, and instantly approve applications meeting basic eligibility requirements.¹² Initial reports on the pilot programs for SolarApp+ suggest that it is highly successful in reducing permit review times substantially – in the five initial test markets, the average review period was *same-day* approval.¹³

The definition of SolarApp+ is based on California law, and also incorporates California's exemption for smaller permitting authorities, based on the assumption that less populous jurisdictions will have lower overall permit volume.¹⁴ However, given that adoption of SolarApp+ is understood to be fairly simple, an alternative version of the statute could do away with these exceptions.

Section 5. Solar Rights Protection. While the primary objective of the model statute is to promote permitting and installation of new systems, preserving solar rights is essential to the growth of Residential Solar. California prohibits restrictions in real property agreements and local ordinances that would increase the cost of a Residential Solar System by more than \$1,000, or that

¹¹ See *Remote Virtual Inspection Rooftop Solar Photovoltaic System*, PUBLIC WORKS OF LOS ANGELES COUNTY, <https://dpw.lacounty.gov/building-and-safety/docs/RVI%20Rooftop%20Solar%20PV.pdf> (last visited Apr. 5, 2024); *Remote Video Inspections*, CITY OF PHOENIX, <https://www.phoenix.gov/pdd/remote-video-inspections> (last visited Apr. 5, 2024).

¹² *Permitting authorities use SolarAPP+™'s standardized plan review software to work more efficiently*, SOLARAPP+, https://solarapp.nrel.gov/jurisdictions/learn_more. Eligibility requirements are provided on the SolarApp+ site. *Eligibility and FAQ*, SOLARAPP+, https://solarapp-stage.nrel.gov/docs/Eligibility_v2_4_21_2020.pdf.

¹³ Williams, Juliana et al., *SolarAPP+ Pilot Analysis: Performance and Impact of Instant, Online Solar Permitting*, NATIONAL RENEWABLE ENERGY LABORATORY, 21, available at <https://www.nrel.gov/docs/fy22osti/81603.pdf>.

¹⁴ CA GOV'T CODE § 65850.52

would decrease the overall output of the system by more than 10%.¹⁵ Many states have codified similar prohibitions, often focusing on restrictions in HOA agreements.¹⁶

Our model provisions regarding Solar Rights Protection are intended to prohibit restrictions on Residential Solar Systems in real property arrangements. The provisions are based on similar statutes in Massachusetts¹⁷ and California.¹⁸

Section 6. Solar Access Easements. In addition to preventing deed restrictions that would restrict Residential Solar installations, we have included in Section 6 some affirmative protections for systems in the form of Solar Access Easements. This draft is largely derived from the Massachusetts statute¹⁹ that establishes procedures for easements that ensure solar systems are able to maintain consistent access to direct sunlight.

¹⁵ CA CIV. CODE § 714(d)(1).

¹⁶ See COLO. REV. STAT. § 38-30-168

¹⁷ MASS. GEN. L. c. 40A, § 3, and MASS. GEN. L. C. 184 § 23C.

¹⁸ CA CIV. CODE § 714(d)(1)

¹⁹ Mass. Gen. L. c. 40A, § 9B

EXHIBIT A

MODEL ACT TO SIMPLIFY PERMIT REQUIREMENTS FOR RESIDENTIAL SOLAR

1. **Purpose and Intent.** The Legislature hereby finds and declares that [State] should:
 - a. Promote the development of Residential Solar as a clean, renewable, and cost-effective energy source;
 - b. Encourage the use of Residential Solar to reduce greenhouse gas emissions, enhance energy security, and create local jobs;
 - c. Streamline the permitting processes and installation requirements for Residential Solar Systems across jurisdictions; and
 - d. Reduce the barriers and costs for homeowners, businesses, and contractors to install Residential Solar Systems
2. **Definitions.** As used in this Act, the following terms have the following meanings:
 - a. “Residential Solar System” means a device or structural design feature, a substantial purpose of which is to provide for the collection, storage and distribution of solar energy for space heating or cooling, electricity generation, or water heating, and meets all of the following criteria:
 - i. is installed on a residential property;
 - ii. is no larger than necessary for the expected energy requirements for the residential property at which it is installed;
 - iii. conforms to all applicable state fire, structural, electrical, and other building codes as adopted or amended by the city, county, or city and county; and
 - iv. does not exceed the maximum legal building height as defined by the Permitting Authority.
 - b. “Permitting Authority” means a city, county, town, or other local government entity that has authority over the permitting and inspection of Residential Solar Systems within its boundaries.
 - c. “PV System” means an active solar energy system that converts solar energy directly into electricity using photovoltaic cells.
 - d. “SolarApp+” means the most recent version of a web-based portal, developed by the National Renewable Energy Laboratory, that automates plan review, produces code-compliant approvals, and issues permits for residential solar energy systems

and residential energy Storage Systems paired with residential solar energy systems.

- e. “Solar Access” means the ability of a solar energy system to receive direct sunlight without obstruction from another structure or vegetation.
- f. “Solar Access Easement” means a right, expressed or implied, that grants the owner of a Residential Solar System the right to prevent any interference with Solar Access by any person or entity.
- g. “Storage System” means a system that stores electricity generated by a PV system or another source for later use.

3. Permitting Process.

- a. On or before [DATE], each Permitting Authority in [State] shall establish a streamlined permitting process for Residential Solar Systems that meets the following requirements:
 - i. The Permitting Authority shall provide an online application form and checklist for Residential Solar Systems that includes all the information and documentation required for obtaining a permit.
 - ii. The Permitting Authority shall issue a permit for a Residential Solar System within 10 business days of receiving a complete application, unless there are substantial safety or code compliance issues that require further review.
 - iii. The Permitting Authority shall charge a reasonable fee for issuing a permit for a Residential Solar System that reflects the actual cost of processing the application and conducting the inspection. The fee shall not exceed \$400.
 - iv. The Permitting Authority shall conduct only one virtual inspection for a Residential Solar System after its installation, unless (a) there are significant changes or modifications to the system that require an onsite inspection or (b) a Residential Solar System fails such virtual inspection. If a Residential Solar System fails a virtual inspection the Permitting Authority shall conduct another virtual inspection upon request of the Residential Solar System property owner.
 - v. The Permitting Authority shall issue a final approval for a Residential Solar System within 5 business days of conducting the inspection, unless there are serious safety or code compliance issues that require further correction.
- b. A Permitting Authority may exempt Residential Solar Systems from its permitting process if they use pre-approved equipment and designs from the permitting

process, provided that they are installed by certified contractors and inspected by qualified third parties,

4. Adoption of Online, Automated Permitting Platform.

- a. Pursuant to the compliance schedule in subdivision (c), a Permitting Authority, in consultation with the local fire department, district, or authority, shall implement an online, automated permitting platform, such as SolarAPP+, that meets both of the following requirements:
 - i. The platform verifies code compliance and issues permits in real time or allows the Permitting Authority to issue permits in real time to a licensed contractor for a residential solar energy system and a residential energy Storage System paired with a residential solar energy system.
 - ii. The platform issues permits or allows the Permitting Authority to issue permits for residential solar energy systems and residential energy Storage Systems paired with residential solar energy systems that SolarAPP+ is capable of processing.
- b. A Permitting Authority may reject an application for a residential solar energy system or a residential energy Storage System paired with a residential solar energy system through the online automated permitting platform pursuant to this section if the system configuration is not eligible for SolarAPP+ at the time the application is submitted to the Permitting Authority.
- c. Compliance schedule.
 - i. A city with a population of fewer than 5,000 and a county with a population of fewer than 150,000, including each city within that county, is exempt from subsection (a) of this section.
 - ii. A city with a population of 50,000 or fewer that is not exempt pursuant to paragraph (i) shall satisfy the requirements of subsection (a) of this section by [DATE].
 - iii. A city, county, or city and county with a population of greater than 50,000 shall satisfy the requirements of subsection (a) of this section by [DATE].

5. Solar Rights Protection

- a. No covenant, condition, restriction, bylaw, declaration, ordinance, or other legal instrument that affects the use or development of property shall prohibit or unreasonably restrict the installation or use of Residential Solar Systems on any property, unless such prohibition or restriction is necessary to protect public health, safety, or welfare.

- b. Any covenant, condition, restriction, bylaw, declaration, ordinance, or other legal instrument that unreasonably restricts the installation and use of Residential Solar Systems shall be deemed to be amended to the extent necessary to permit the installation and use of Residential Solar Systems.
- c. For the purposes of this Section, a restriction on the installation or use of Residential Solar Systems shall be considered to unreasonably restrict the installation or use of Residential Solar System if such restriction results in an increase of one thousand dollars (\$1,000) over the Residential Solar System cost as originally specified and proposed, or a decrease in system efficiency exceeding 10 percent as originally specified and proposed.

6. **Solar Access Easements**

- a. The Permitting Authority shall establish procedures for the granting of Solar Access Easements.
- b. All Solar Access Easements shall specify what constitutes an impermissible interference with Solar Access, and how to regulate vegetation, structures, or other materials that may interfere with such Solar Access.
- c. The Permitting Authority shall establish standards for the issuance of Solar Access Easements, balancing the development of Residential Solar Systems with the right of neighboring property owners to the reasonable use of their property.
- d. Within ninety (90) days of the effective date of this Act, each Permitting Authority shall establish a process for issuance of Solar Access Easements which shall include:
 - i. notification of affected neighboring property owners;
 - ii. opportunity for a hearing before the Permitting Authority prior to issuance of a Solar Access Easement;
 - iii. appeal processes pursuant to the [state administrative procedure act] and the [state trial court];
 - iv. recording of such Solar Access Easement on burdened and benefited property deeds; and
 - v. maintenance of publicly-available maps of all local properties burdened or benefited by Solar Access Easements.

- 7. **Severability.** If any provision of this Act or its application to any person or circumstance is held invalid, the remainder of the Act or the application of the provision to other persons or circumstances is not affected.