



## **National Capital Region Recommendations for Residential Solar PV Systems**

### Fees

1. Create a flat residential solar PV permit fee based on the actual cost to administer

### Permitting

1. Require only one permit application submittal
2. Use a standard permit application form specific to solar PV systems
3. Adopt a permit submittal checklist (see template below)
4. Allow electronic permit application submittal
5. Enable online approval of application form<sup>1</sup>
6. One-day walkthrough for permit review and approval<sup>2</sup>
7. Streamline and expedite process for qualifying projects (see sample process below)

### Inspections

1. Offer a specific inspection appointment time or small window
2. Require only one inspection visit
3. Adopt an inspection checklist (see template below)
4. Master electrician is not required to be on site for inspection but on call by phone to answer inspector questions

### Website Enhancements

1. Post permit and inspection process information online, including applicable fee schedules
2. Make permit application form available online

These recommendations were developed with assistance from MWCOG's partners on the US Department of Energy SunShot Initiative Rooftop Solar Challenge II: Optony, Inc., The National Association of Regional Councils, The Mid-America Regional Council, and Meister Consultants Group, Inc.



---

<sup>1</sup> For jobs where permit reviewers have concerns that cannot be handled with the applicant by email or phone, specific permit reviews can be moved to a face-to-face interaction to resolve concerns on an as-needed basis.

<sup>2</sup> When online processing is not available, we recommend a one-day walkthrough permit review and approval process for residential solar PV systems.



### **Template: Residential Solar PV Permit Checklist**

#### Required Documents:

- Permit application and fee
- Permit drawings (see “Permit Drawing Checklist” below for details)
- Solar module specification sheet
- Inverter specification sheet
- Number of panels and capacity in kW of the system

#### Permit Drawing Checklist:

- Legend for symbols, abbreviations and notations used in the drawings
- Site Plan
  - General outline of the property showing boundaries
  - Proposed location of the solar array - roof or ground mount
  - Approximate location of existing electrical service entrance
  - Proposed path for the electrical connection and disconnects between the array and the existing electrical service
  - Proper setbacks from the roof boundaries as required by applicable fire code
- Structural
  - Roof composition or covering
  - Pitch of the roof
  - Roof support structure design (truss, rafter, spacing, webbing, etc.)
  - Proposed spans for roof attachments
  - Racking manufacturer’s minimum guidelines for installation
  - Attachment detail
  - If structural engineer review/stamp required these should be present:
    - Design wind speed
    - Ground snow load
    - Exposure category
    - Seismic design category
    - Lbs./ft<sup>2</sup> of all equipment on the roof
    - Lbs. per attachment point
- Electrical (Single line drawing)
  - Interconnection of all system components
  - Fusing (OCPD) that is consistent with system design and anticipated loads
  - The type, size and rating of all proposed conductors
  - Conductor sizing and conduit fill calculations from the roof to the inverter DC disconnect
  - A grounding plan for all components that complies with local and NEC requirements
  - The type and sizing of all proposed disconnects
  - A description of the existing electrical service and its ability to accept additional load from the PV array (NEC “120% rule”)



## **Template: Residential Solar PV Inspection Checklist**

### Onsite Structural Inspection Process

- Module type and count match approved plans and spec sheets
- Array attachment method to roof structure
- Other AHJ-specific requirements

### Onsite Electrical Inspection Process

- Proper wire management
- Proper module and array equipment grounding
- Proper installation and labeling of electrical boxes and conduit
- Conductor ratings and size match approved plans
- Proper installation of DC disconnect
- Proper labeling in accordance with NEC and local requirements
- Inverter specifications match max voltage of system
- OCPD rated to max voltage of system
- OCPD installation in accordance with manufacturer specifications
- OCPD at point of interconnect is adequately sized
- Main AC panel complies with 120% rule for bus bar rating
- Other AHJ-specific requirements

### Supporting Material:

1. Interstate Renewable Energy Council (IREC), “[Field Inspection Guidelines for PV Systems \(2010\)](#)”
2. Interstate Renewable Energy Council (IREC), “[Model Inspection Checklist for Rooftop PV Systems \(2013\)](#)”



### Simplified Permit for Qualifying Systems

The Solar America Board for Codes and Standards (Solar ABCs) framework is widely regarded as a model for standardized and expedited permitting for qualifying solar PV systems. The U.S. Department of Energy funds Solar ABCs as part of its commitment to facilitate widespread adoption of safe, reliable, and cost-effective solar technologies. The Solar ABCs framework outlines criteria for residential solar PV projects to qualify for a standard, simplified permit process. The framework represents the culmination of work done by code enforcement officials, the Department of Energy, the Florida Solar Energy Center, and industry organizations across the country since 1999. It also provides templates to help ensure that plans submitted with permit applications always contain the same information in the same location for easier review.<sup>3</sup>

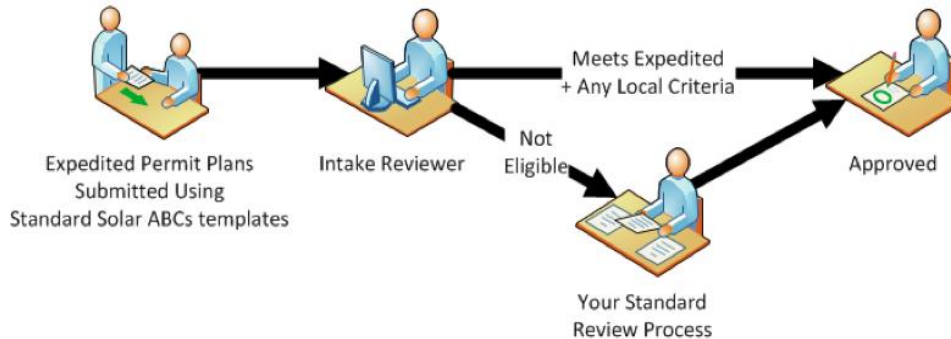
Under the Solar ABCs framework, projects must meet the following criteria:

- Structural Characteristics
  - The PV array is mounted on code-compliant structure
  - An engineered mounting system is used to attach array to structure
  - The PV Array has a distributed weight of less than 5 lbs./ft<sup>2</sup> and less than 45lbs./attachment
- Electrical Characteristics
  - The proposed system’s DC nameplate size must be under 10kW
  - All products used are listed and identified for the application (i.e. modules, inverters, source combiners, etc.)

Projects meeting the above criteria would submit a permit package that includes:

- Completed permit application per jurisdiction requirements
- Site diagram showing the relative location of major components and any setbacks from roof boundaries as required by applicable fire and zoning codes
- Proposed standard electrical diagram (using one of several provided templates)
- Specification sheets for major components

Project approval would be expedited after a simple review of the provided materials.



<sup>3</sup> “Expedited Permit Process For PV Systems: A Standardized Process for the Review of Small-Scale PV Systems”, Bill Brooks, P.E., Brooks Engineering, Revision 2, July 2012. Solar America Board for Codes and Standards ([www.solarabc.org](http://www.solarabc.org)). pp. 6, 8



Martin O'Malley, *Governor*  
Anthony G. Brown, *Lt. Governor*  
Abigail Ross Hopper, Esq., *Director*

[Date]

Mr. Chuck Bean, Executive Director  
Metropolitan Washington Council of Governments (MWCOG)  
777 North Capitol St NE, Suite 300  
Washington, DC 20002

Re: Reducing administrative burdens for Maryland's jurisdictions

Dear Mr. Bean:

The Maryland Energy Administration (MEA) strongly supports the efforts of the Metropolitan Washington Council of Governments (MWCOG) and the Maryland/DC/Virginia Solar Energy Industries Association (MDV-SEIA) to promote expedited solar permitting and inspections best practices throughout Maryland. The recommendations provided in the letter from MWCOG and MDV-SEIA were developed by the Solar America Board for Codes and Standards, whose *Expedited Permit Process Report* is recognized as a definitive reference for authorities having jurisdiction (AHJs) pursuing this goal. For this reason, MEA relies on this same report as a comprehensive approach to implementing an expedited permitting and inspections process that promotes efficiency while enhancing safety.

MEA is currently engaged in a parallel and complementary initiative to reduce the non-hardware ("soft") costs of installing solar (e.g., permitting/inspections, interconnection, MEA's Clean Energy Grant). The object of the initiative is to reduce the soft costs of installing solar for Maryland consumers; however, it is also meant to reduce the administrative burden falling on AHJs as they permit and inspect increasing numbers of solar projects. MEA will act as a coordinator and facilitator across jurisdictions who may ultimately take advantage of a State developed Comprehensive Online Application Portal (COAP). Please contact Emilee van Norden or Marta Tomic if you would like to find out how any Maryland jurisdiction can participate.

Marta Tomic: [marta.tomic@maryland.gov](mailto:marta.tomic@maryland.gov)  
Emilee van Norden: [emilee.vannorden@maryland.gov](mailto:emilee.vannorden@maryland.gov)

Sincerely,

Frederick H. Hoover  
Division Director of Energy Programs, MEA



October 21, 2014

Mr. Chuck Bean, Executive Director  
Metropolitan Washington Council of Governments (MWCOG)  
777 North Capitol St NE, Suite 300  
Washington, DC 20002

RE: Support for a Consistent Regional Permitting and Inspections Process for Solar PV

Dear Mr. Bean:

The Northern Virginia Regional Commission (NVRC) supports the joint effort of the Metropolitan Washington Council of Governments (MWCOG) and the Maryland, DC, Virginia Solar Energy Industries Association (MDV-SEIA) to promote the consistent application of solar photovoltaic (PV) permitting and inspection best practices in Maryland, Virginia and Washington, D.C.

Consumer demand for solar power is growing at an increasing pace in jurisdictions across the region – more than doubling in the last year. As this trend continues, the local permitting and inspections process will become increasingly important to promote the local clean energy economy and to prevent backlog in permitting offices.

The Department of Energy, the National Renewable Energy Lab, and others, estimate that inconsistent local permitting and inspections processes add approximately \$2,500 to the cost of an average residential solar system. Adopting and implementing best practices for solar PV will ensure that systems are installed and operated safely, reliably and efficiently, and will reduce the paperwork burden for permitting & inspections staff.

Moreover, regional consistency in the permitting and inspections process will significantly reduce costs that homeowners and solar companies incur when dealing with irregular requirements across municipalities, helping to keep electricity affordable and fostering local economic development.

NVRC is pleased to join with MWCOG, MDV-SEIA and other regional stakeholders in promoting a consistent regional approach to solar permitting and inspections, a key component of building a strong, long-lasting solar market in the region.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Lazaro, Jr.", is written over a large, stylized blue circular scribble.

Robert W. Lazaro, Jr.  
Director, Regional Energy Planning

RWL