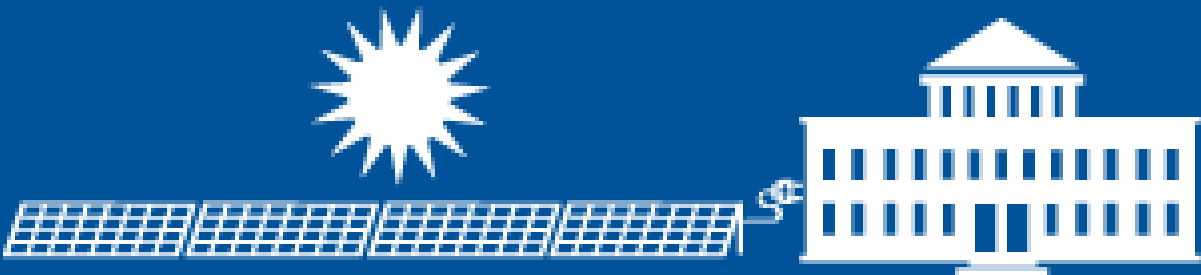


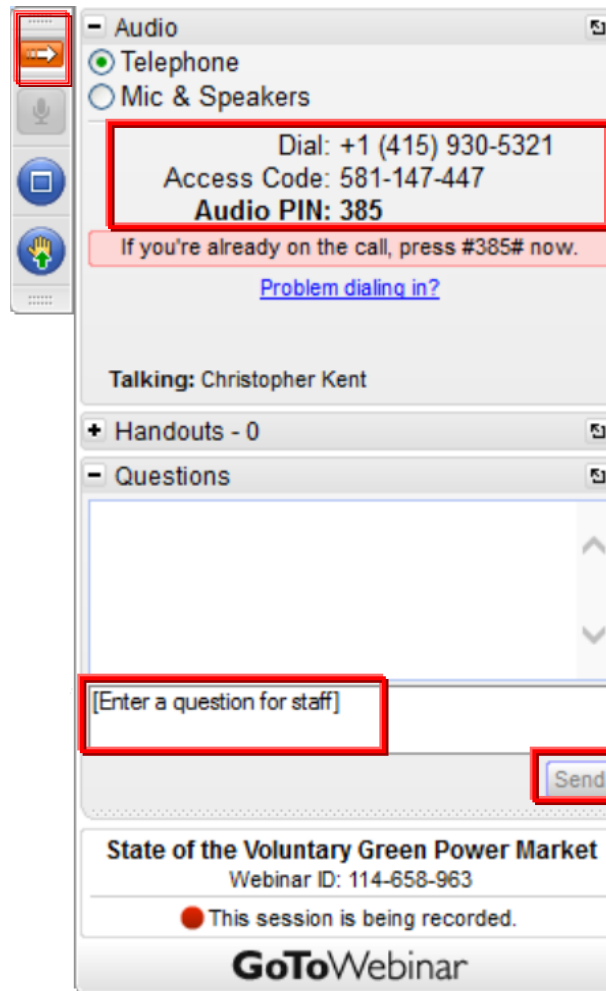
Site Assessments for Local Governments

November 28, 2018



Webinar Logistics

Open and close your control panel →



← Audio is available via your computer's microphone and speakers (VoIP) or telephone:
Dial: +1 (213) 929-4212
Access Code : 570-172-592

Type in your questions here →

← Hit "send" to submit your questions

If you experience technical difficulties, please contact Olivia Newport at: Olivia.Newport@erg.com

Speakers and Agenda

- Speakers
 - Chris Kent, U.S. EPA
 - Mandy La Brier, Director of Energy Management, City of Chicago
 - Ned Noel, Associate Planner, City of Eau Claire
 - Scott Tess, Environmental Sustainability Manager, City of Urbana
- Agenda
 - Solar Site Assessment Overview
 - Assessing Potential Solar Project Sites
 - Pre-Screening Potential Sites
 - Conducting In-Depth Site Evaluation of Key Locations
 - Case Studies
 - City of Chicago, IL
 - City of Eau Claire, WI
 - City of Urbana, IL



Quick Attendee Poll

Poll Question

Have you or your local government engaged in assessing your solar project site opportunities?

[Select One]

- a) No and no immediate plans to be doing so
- b) No but we will be soon
- c) Yes, we are currently investigating site opportunities
- d) Yes, we have in the past



Solar Project Portal Background

- EPA is collaborating with DOE and NREL to advance solar utilization among local governments
- **Objective:** To support municipalities in meeting their environmental, energy and economic goals through solar project development that serve municipal operations
- **Timing:** Over the next 2 years, EPA is engaging with local governments across the country that are considering developing solar projects
- **Value:** Recognition for developing solar projects, access to valuable tools and resources, peer exchange opportunities, webinars on key solar development issues and access to regional/state workshops



Check out EPA's video introduction to the Portal

Steps for Solar Site Assessments

- Step 1 - Create an initial list of possible project locations
- Step 2 - Pre-screen your list of sites
- Step 3 - Perform an in-depth site evaluation

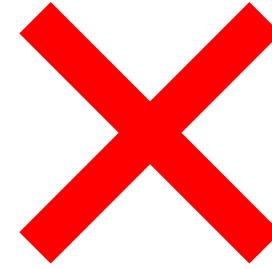
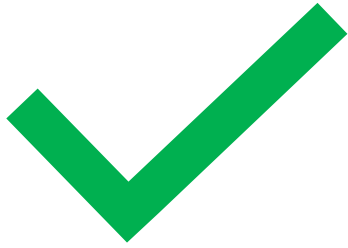


Step 1 - Create an Initial List of Possible Project Locations

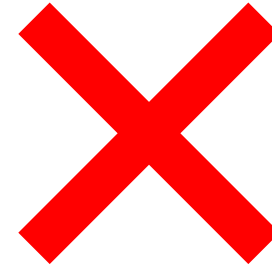
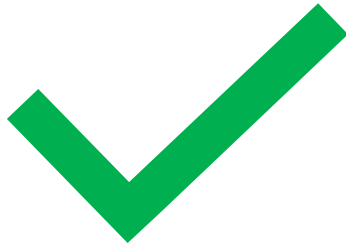
Step 1 - Create a List of Possible Project Locations

- Brainstorm locations where a solar project could go:
 - on a building with a large, flat roof;
 - on an expanse of available land near a building; or
 - over a parking lot

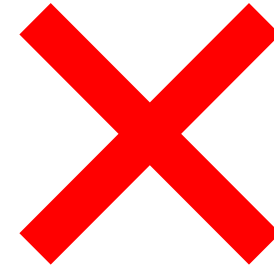




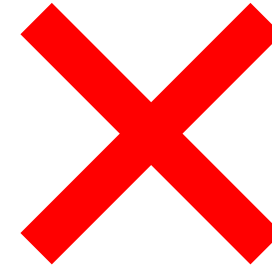
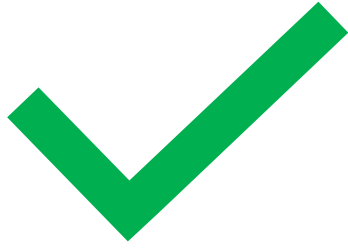
Electrical Infrastructure



Southern Exposure and Minimal Shading



Physical Access



Site Uses

Step 2 - Pre-screen Your List of Sites

Step 2 - Pre-screen Your List of Sites

- Briefly pre-screen each site on your list to estimate:
 - How much space the site has for solar equipment
 - The site's annual energy production
- Your municipality's building manager can help you find information on a site's square footage.



Get Started:

GO >>

HELP

FEEDBACK

ALL NREL SOLAR TOOLS



NREL's PVWatts® Calculator

Estimates the energy production and cost of energy of grid-connected photovoltaic (PV) energy systems throughout the world. It allows homeowners, small building owners, installers and manufacturers to easily develop estimates of the performance of potential PV installations.

What's New

Welcome to the updated PVWatts Calculator!

PVWatts now uses solar resource data from the latest **NREL National Solar Radiation Database**. The data covers the Americas including Hawaii between about 21° South latitude (about 300 km North of Sao Paulo, Brazil) to about 60° North (about 200 km south of Anchorage, Alaska), and the Indian subcontinent and parts of Central Asia. We recommend that you use the new data, but you can still use legacy data if needed.

We also changed some labels, updated a few default values, and revised the Help documentation. See **What's New** above for details.

Follow @PVWattsatNREL

f t in + 1.8K

**RESULTS**

Print Results

138,077 kWh/Year*

System output may range from 131,974 to 145,961 kWh per year near this location.

Click [HERE](#) for more information.Go to
system info

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	3.33	8,830	970
February	4.23	9,815	1,078
March	4.83	12,294	1,350
April	5.65	13,269	1,457
May	5.94	14,153	1,554
June	6.34	14,022	1,540
July	6.15	13,975	1,534
August	5.75	12,744	1,399
September	5.36	12,126	1,331
October	4.43	10,773	1,183
November	3.48	8,372	919
December	2.98	7,703	846
Annual	4.87	138,076	\$ 15,161

Step 3 - Perform an In-Depth Site Evaluation

Step 3: Perform an In-Depth Site Evaluation



**Policies & Permitting
Requirements**

Economic Analysis

Technical Feasibility

Site Evaluation: Identify Policy & Permitting

Database of State Incentives for Renewables & Efficiency®

Find Policies & Incentives Near You

Zip Code



Search

energysage

Get competing solar quotes online.

pickmysolar

Go Solar Online



The North Carolina Clean Energy Technology Center has always striven to keep DSIRE a free and open resource, providing valuable information on thousands of policies and incentives for renewable energy and energy efficiency. It takes significant effort from our team of analysts to keep the information in DSIRE up to date. After 20+ years of federal support, the funding to keep this an open and free resource has been discontinued. We will strive to keep DSIRE free and open for as long as we can, but we ask for your financial support to do so. Please consider giving a tax-deductible donation to support DSIRE today. go.ncsu.edu/givencclean

<http://www.dsireusa.org/>



Site Evaluation: Perform an Economic Analysis

REopt Lite

The REopt™ Lite web tool helps commercial building managers:

- Evaluate the economic viability of grid-connected PV, wind, and battery storage at a site
- Identify system sizes and battery dispatch strategies to minimize energy costs
- Estimate how long a system can sustain critical load during a grid outage.

REopt Lite offers a no-cost subset of features from NREL's more comprehensive REopt model. REopt Lite also offers an application programming interface (API). Send questions and tool feedback to REopt@nrel.gov.

Step 1: Choose Your Focus

Do you want to optimize for financial savings or energy resilience?

\$ Financial

🛡️ Resilience



[Watch a REopt Lite demo](#)

Step 2: Enter Your Data

Enter information about your site and adjust the default values as needed to see your results.

📍 Site and Utility (required) ⊞

* Site location ? * Required field

[🌐 Use sample site](#)

<https://reopt.nrel.gov/tool>




Results for Your Site

These results from REopt Lite summarize the economic viability of PV and battery storage at your site. You can edit your inputs to see how changes to your energy strategies affect the results.

[Edit Inputs](#)



 Your recommended solar installation size ?

320 kW
PV size

Measured in kilowatts (kW) of direct current, this recommended size minimizes the life cycle cost of energy at your site.

 Your recommended battery power and capacity ?

67 kW battery power **150 kWh** battery capacity

This system size minimizes the life cycle cost of energy at your site. The battery power and capacity are optimized for economic performance.

 Your potential life cycle savings (25 years) ?

This is the net present value of the savings (or costs if negative) realized by the project based on the difference between the life cycle energy cost of doing business as usual compared to the optimal case.

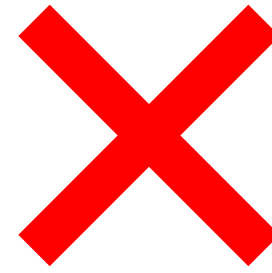
\$176,777



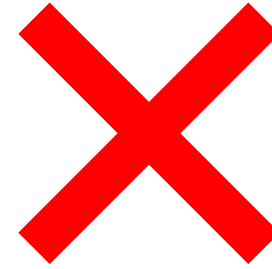
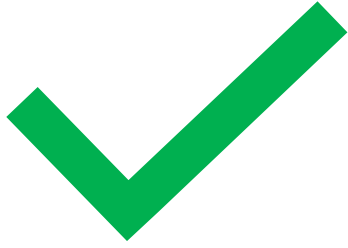
Site Evaluation: Assess Site's Technical Feasibility

- Finally, your site evaluation should assess technical feasibility of the site, including physical and electrical infrastructure.





Rooftop Projects: Roof Age & Condition



Ground-Mounted Projects: Flat & Clear Land

Local Government Solar Project Portal

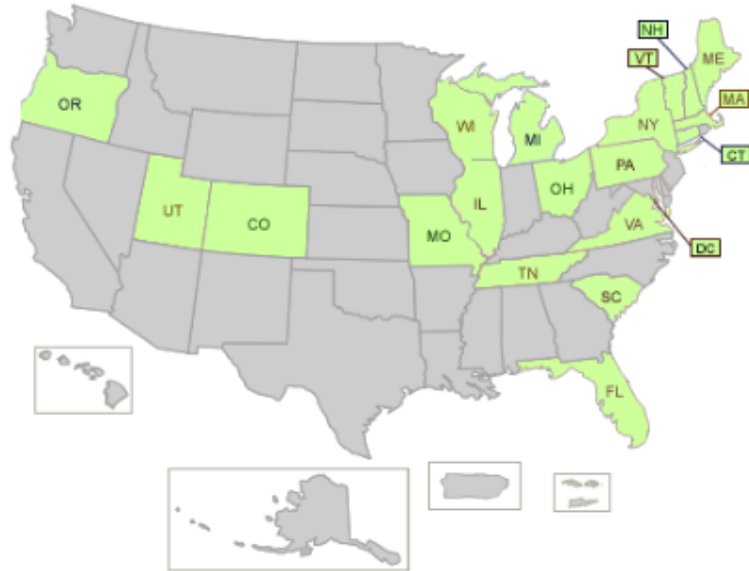
EPA invites local governments across the country to meet their environmental, energy, economic and domestic job creation goals through greater utilization of solar energy from on and off site solar projects that serve municipal operations.

Local governments will find [project development resources](#) and opportunities to [learn from industry experts](#) and their peers. To [Share Your Progress](#) and learn more about available resources and [technical support](#), see below. Click on the map to view individual local government progress.

What's New

- [Guidance for Setting a Renewable Energy Goal](#)
- [Guidance for Submitting Solar Project Progress Spreadsheet \(XLSX\)](#) (1 pg, 19 K)
- [Solar Project Development Roadmap](#)

Look for EPA's new video on site assessments coming soon!



Learn About the Local Government Solar Project Portal (4:15)

Project Development Pathway & Resources

Share Your Solar Project Experience

Frequently Asked Questions

Webinars & Events



Solar Project Development Pathway



ESTABLISH A SOLAR PROJECT DEVELOPMENT AND/OR RENEWABLE ENERGY USAGE GOAL

Establishing a publicly available solar project development and/or renewable energy usage goal helps bring clarity and focus to the process of developing solar projects. It gives your local government direction and affirms your intent to both you and your stakeholders. This is the minimum requirement to be listed on the Portal.

1

DEVELOP A PROJECT DEVELOPMENT PLAN

One of the best indicators of project development success includes use of a solar project development plan. The plan will detail your local government's specific set of circumstances and chart a pathway. A plan is optional to be listed on the Portal.

2

ASSESS YOUR SOLAR SITE OPPORTUNITIES, CATALOG SITE INFORMATION, AND COLLECT YOUR UTILITY DATA

It is important to understand your solar site opportunities, which starts with collecting site information and utility data. This information becomes critical when seeking project proposals from developers and is the basis for conducting site assessments to identify the most suitable sites.

3

BUILD AND COMMISSION YOUR PROJECT

Once your project is built and generating solar power, EPA would be excited to share your success. Send us an email and provide us a photo of your new project. Email EPASolarPortal@erg.com to provide us with an update and photo of your new project.

7

SELECT A PROJECT PROPOSAL AND SIGN A CONTRACT

You are in the home stretch! After you identify the best project opportunity, it is time to sign a contract. Once you select a project and sign a contract, be sure to let EPA know so we can share your success with your peers.

6

REVIEW AND EVALUATE YOUR PROJECT PROPOSALS

An RFP will generally result in one or more project proposals from developers. Evaluating these project proposals objectively can be challenging, yet is critical for selecting the best project that meets your goals.

5

DEVELOP AND ISSUE A SOLAR REQUEST FOR PROPOSALS (RFP)

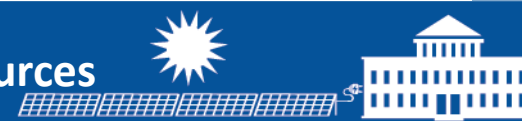
An RFP is a solicitation for products and services that outlines the general terms and conditions of request from market suppliers. For solar, this can involve a wide array of requirements. If you are interested in making claims about using renewable energy, be sure to retain the Renewable Energy Certificates (RECs) from your project.

4

Step 3: Assess your solar site opportunities; catalog site information and collect your utility data

It is critically important to understand your solar site opportunities, which starts with collecting site information and utility data. This information becomes critical when seeking project proposals from developers and is the basis for conducting site assessments to identify the most suitable sites.

Resources	Details
Guidance: Screening and Identifying Solar PV Project Sites (PDF) (27 pp, 1.2MB)	This NREL guidance explains the different factors that impact the technical and economic potential of a PV project; the steps of the PV screening process; and how to use REopt Lite to screen your site for PV project potential.
Template: Solar Site Assessment and Utility Data Spreadsheet (XLS) (1 pg, 40 K)	This template is designed to help users collect information about potential solar project sites.
Tool: Levelized Cost of Energy (LCOE) Calculator (XLS) (1 pg, 34 K)	This calculator assists in evaluating informal/unsolicited bid pricing for solar photovoltaic (PV) projects.
Tool: Distribution Grid Integration Unit Cost Database	This tool allows users to estimate and compare costs associated with the integration of solar photovoltaic (PV) systems into the standard electric grid.
Tool: Reopt Lite	REopt Lite is an online version of NREL's more comprehensive REopt model. The REopt Lite web tool helps building managers: evaluate the economic viability of grid-connected PV and battery storage at a site; identify system sizes and battery dispatch strategies to minimize energy costs; and estimate how long a system can sustain critical load during a grid outage. Watch a video on using Reopt Lite here .
Tool: PVWatts Calculator	This NREL tool estimates the energy production and cost of energy of grid-connected photovoltaic (PV) energy systems. It allows users to easily develop estimates of the performance of potential PV installations.
Tool: System Advisor Model (SAM)	This performance and financial model is designed to facilitate decision making for people involved in the renewable energy industry. SAM makes performance predictions and cost of energy estimates for grid-connected power projects based on installation and operating costs and system design parameters that users specify as inputs to the model.
Resource: Database of State Incentives for Renewables & Efficiency (DSIRE)	The Database of State Incentives for Renewables & Efficiency (DSIRE) is the most comprehensive source of information on incentives and policies that support renewables and energy efficiency in the United States. DSIRE helps users find incentive programs that can reduce installation or purchase costs of technologies like photovoltaic systems.



Q&A Session

Questions?

- Chris Kent, U.S. EPA
- Mandy La Brier, Director of Energy Management, City of Chicago
- Ned Noel, Associate Planner, City of Eau Claire
- Scott Tess, Environmental Sustainability Manager, City of Urbana

Portal: <https://www.epa.gov/repowertoolbox/local-government-solar-project-portal>

Submit your municipal goal to get listed: EPASolarPortal@erg.com

