Solar Calculators

Agencies, institutions and commercial enterprises provide large variety of solar calculators online for free. These tools span a wide range of applications and require various levels of technical expertise. You should visit the Principal Solar Institute and peruse all of our free collateral. This pdf document including active links to all of these calculators is also available for download free at the Principal Solar Institute website, or contacts us by email for your copy. The pdf for this document with embedded, clickable links is available for download online at:

http://www.principalsolarinstitute.org/document/5179/solar-calculators

Or just scan this code:

Many of the calculators listed in this document require a PV module model number as a user input. Out of thousands of PV modules available, which ones will a user compare? The Principal Solar PV Module Rating, based on Lifetime Energy Production™, is a good pre-filter to reduce the options to a manageable few for the detailed calculations produced by the tools listed below.

The Principal Solar Institute provides an open forum where solar professionals share their experiences and challenges. Free membership provides access to informative live/recorded webinars, insightful whitepapers and our novel PV Module Rating.

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City of Berkeley*: Solar Calculator*

This calculator will give you an estimate of the cost or savings to go solar under the City of Berkeley's clean energy financing program, based on your current electricity use.

Tool delivery: SaaS

http://rael.berkeley.edu/berkeley/calculator#

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California Energy Commission: *Photovoltaic (CECPV) Calculator*

 The CECPV Calculator generates the estimated monthly kWh production and annual TDV (kWh) production for the specified system. It also determines the appropriate incentive amount as calculated by the Expected Performance Based Incentive approach outlined in the NSHP Guidebook.

Tool delivery: application download

Note: Appears to require periodic updates to PV modules and Inverter data.

http://www.gosolarcalifornia.ca.gov/tools/nshpcalculator/index.php

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California Energy Commission: *California Energy Performance Benchmarking*

For Energy Rating of California Commercial Buildings. Provides comparison of energy use by property type:

Office/Bank	Public Assembly
Restaurant	Grocery/Convenience
Retail	Lodging
Health Care	Warehouse
Education	Lab/Technical

http://www.gosolarcalifornia.ca.gov/tools/cepbenchmarking/cgi-bin/BuildingTypes.php?

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Go Solar California: *Solar Advantage Value Estimator (SAVE)*

A tool designed to estimate the present value of a solar photovoltaic (PV) system including the estimated value in annual energy savings.

http://www.gosolarcalifornia.org/tools/save.php

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California Solar Initiative Incentive (CSI) Calculators

A) *CSI Standard PV Incentive Calculator*

Tool delivery: SaaS

Based on CA zip code and electric utility provider, the residential user inputs a particular PV module model number and an inverter model number. Valid combinations are checked by the calculator. Result is a bar chart showing monthly energy production and annual estimates. It will also determine the EPBB Design Factor and calculate an appropriate incentive level based on a reasonable expectation of performance for an individual system.

http://www.csi-epbb.com/default.aspx

B) *Multifamily Affordable Solar Housing (MASH) Incentive Calculator*

Tool delivery: SaaS

Based on CA zip code and electric utility provider, the commercial user inputs a particular PV module model number and an inverter model number. Valid combinations are checked by the calculator. Result is a bar chart showing monthly energy production and annual estimates. It will also determine the EPBB Design Factor and calculate an appropriate incentive level based on a reasonable expectation of performance for an individual system.

http://www.csi-epbb.com/mash.aspx

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Folsom Labs: *Helioscope*

Tool delivery: SaaS

This is really a full-featured layout and design tool. Offers a free trial period.

http://www.folsomlabs.com/

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Minnesota Department of Natural Resources: *Solar Energy Payback Calculator*

Tool delivery: SaaS

This is really a pretty nice calculator that includes pricing, incentives and inflation sliders for users. It is a little outdated as the lowest power per watt available on the slider is $4.

http://www.dnr.state.mn.us/energysmart/why/calculator.html

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Mapdwell: *Solar Resource Mapping*

Tool delivery: SaaS

An amazing tool that uses LIDAR data to not only locate rooftops, but provides information about angles, orientation and shading. Not all cities are mapped.

http://en.mapdwell.com/

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National Oceanic & Atmospheric Administration (NOAA): *Solar Calculator*

This tool will calculate sunrise, sunset, solar noon and solar position for any place on earth.

Tool delivery: SaaS

http://www.esrl.noaa.gov/gmd/grad/solcalc/

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SolarEnergy.net: Solar *Energy Calculator*

Calculates energy by zip code; no module specifics.

http://solarenergy.net/solar-tools/solar-calculator/

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Weather Underground: *Solar Calculator*

Provides raw insolation and PV energy by address or location. Compare selected modules one at a time.

Tool delivery: SaaS

http://www.wunderground.com/calculators/solar.html

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Lennox: *Solar Calculator*

This calculator is different from most in that the user selects a North America region (1-6) from a map. The next screen provides detailed estimates for two different modules. It is interesting to see what regions are

http://www.lennox.com/solar-solutions/solar-calculator.asp

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National Renewable Energy Lab (NREL): *PV Watts*

Tool delivery: SaaS

For selected cities worldwide, this calculator provides annual energy production by month for a nameplate DC rating. The user supplies a de-rating factor to account for yield losses due to system efficiencies, and chooses fixed or tracking mounting type. There is also an option to output hourly energy production.

http://pvwatts.nrel.gov/

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National Renewable Energy Lab (NREL): *System Advisor Model (SAM)*

Tool delivery: application download

Full-featured, sophisticated and complex, this tool allows a user to select PV modules and inverters by model number. Energy yield and cost information are produced, along with informative graphics.

https://sam.nrel.gov/

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Wholesale Solar: *Off-Grid System Sizing Calculator*

Tool delivery: SaaS

Interesting tool that uses a regional map and allows the user to specify various appliances in order to determine the system size.

http://www.wholesalesolar.com/StartHere/OFFGRID/OFFGRIDCalculator.html

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RAYmaps: Solar Calculator

Tool delivery: application download

This solar calculator provides the 24 hour energy requirement of a household, and based upon that, calculates the number of Solar Panels and Batteries required by the Solar System.

http://download.cnet.com/Solar-Calculator/3000-20431_4-75892700.html

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Battery Stuff*: Calculator/Solar*

Tool delivery: SaaS

The user needs to have a good understanding of technical terms, but in the end can get battery storage requirements.

http://www.batterystuff.com/kb/tools/solar-calculator.html

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Rudimentary tools:

Pacific Gas and Electric Company: http://pge.cleanpowerestimator.com/sites/pge/pge.aspx

SolarEnergy.net: http://www.synsolar.com/calculator.php

LG: http://www.lg.com/us/commercial/solar-resources/solar-calculator