Cachelan®

SolarVu™ ENERGY PORTAL

APPLICATIONS

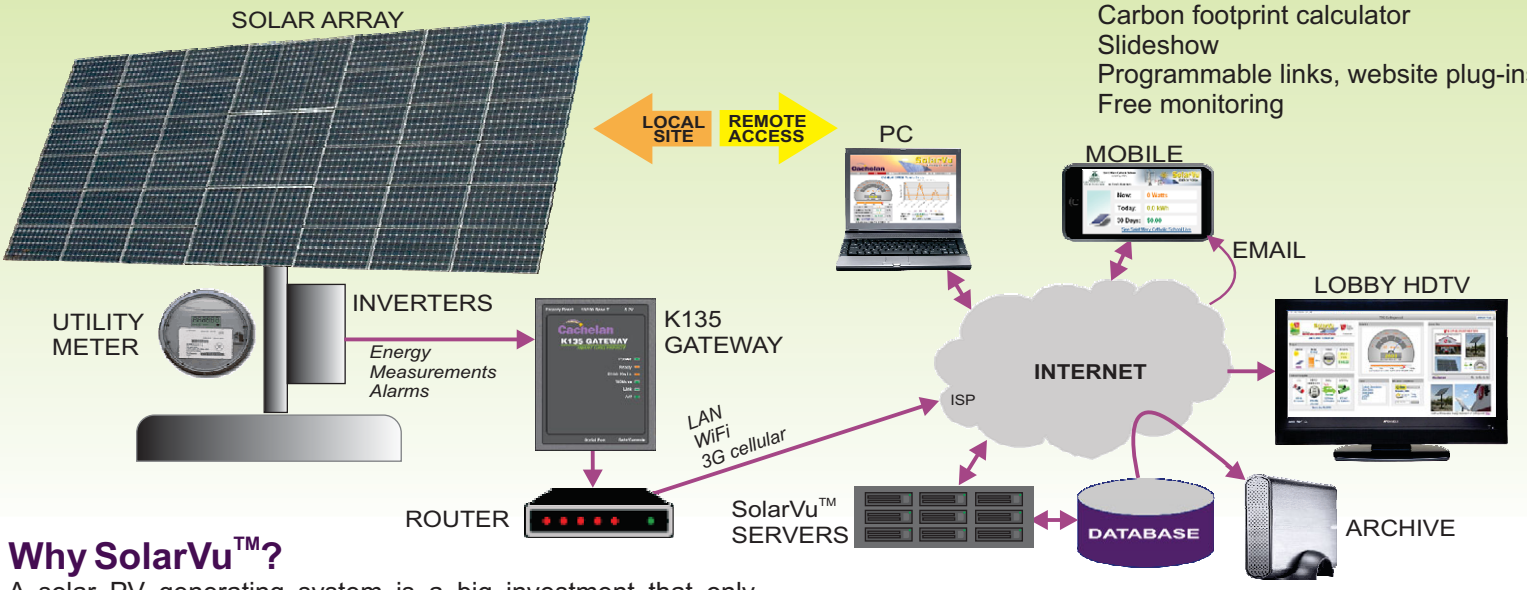
- Solar PV - rooftop, fixed ground, tracker
- Residential, microFIT, commercial
- Public relations, website & lobby displays
- Lessons, experiments for schools
- Enterprise for managing multiple sites

USES

Fault notification minimizes downtime
Power, energy, revenue, status
Performance analysis - maximize output
Check utility payments
Payback calculator for ROI

FEATURES

Daily report email
Browser access, no software to install
Download data for archiving
Carbon footprint calculator
Slideshow
Programmable links, website plug-ins
Free monitoring



Why SolarVu™?

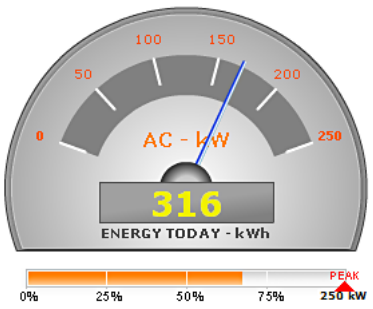
A solar PV generating system is a big investment that only provides revenue when it is generating electricity. SolarVu™ is a web energy portal that builds a lifetime database of the solar array performance then uses simple graphics to display live power, energy, status and trends on your PC or mobile device. Receive a daily email report of revenues earned from your solar generation system. Get an alarm message if problems occur. Remotely view live inverter measurements to speed up troubleshooting. Check your carbon footprint reduction and learn about energy equivalents. Calculate expected ROI with the payback calculator before installation then compare to actual results after startup.

Installing SolarVu™

A K135 gateway which connects to most popular inverters, is installed at the site. Internet connection is by wired LAN, WiFi or 3G cellular when no internet is locally available. Data is continuously sent to the remote SolarVu™ servers which build a lifetime database of the installation. A unique web address is provided for each site. Access is from a PC browser or mobile device. No software is required. Connection to the SolarVu™ web portal is free with initial purchase of the SolarVu™ energy portal.

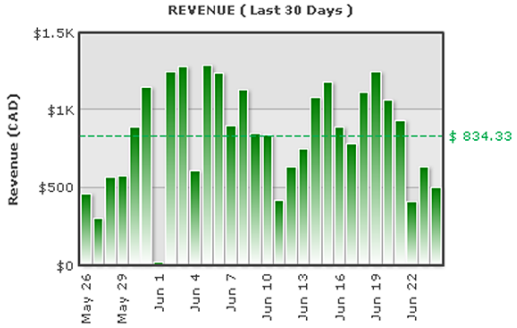
Isn't a kWh Meter Enough?

Unless you regularly read the utility energy meter and manually plot the output, it will be difficult to determine how well the system is working. If a problem occurs, the first indication of lost revenue may be a low utility payment, months later. By communicating over the internet through your computer or mobile device, you will always know how your system is performing. Get a good understanding of solar energy while ensuring maximum return on your IPP (independent power producer) investment.



Check Revenues Every Day

Receive an email of your daily, weekly and lifetime revenues each evening. Visit the energy portal any time for detailed analysis of performance or to analyze faults.

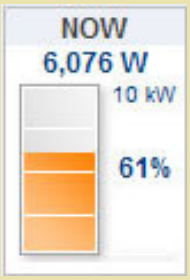


Visit live sites at www.solarvu.com

Maximize Return on Investment

Check performance and quickly identify faults that could result in lost revenues. Verify correct utility payments. A daily email summarizes performance and maintenance alarms. Track returns with the payback calculator.

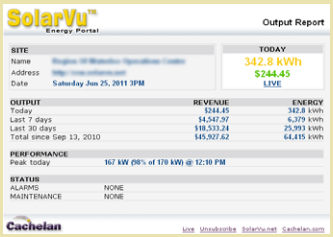
Capacity Gage



Inverter Status

Payback Calculator

Daily Email Report



Communicate Corporate Values

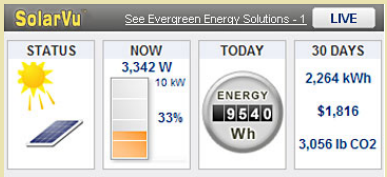
Show customers how your business uses green energy for sustainability with a lobby display. Update the slideshow using the included WebFilm® content management system. Insert a live plug-in on your company website. Program links to related content.

HDTV Display for Public Areas

Slideshow & Video

Programmable Links

Live Plugin for Owner's Website

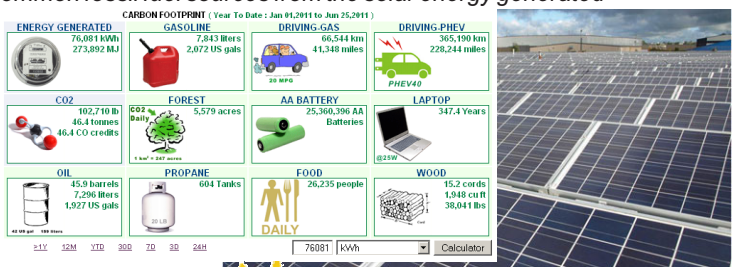


Learn about Solar Energy

Online lessons with experiments are available for teaching renewable energy in schools. SolarVu™ WebLab™ guides students in analyzing performance of their school's solar PV system for projects.

View lessons and experiments on screen, download printable PDF documents, watch videos

Use the carbon footprint calculator to determine equivalent savings of common fossil fuel sources from the solar energy generated

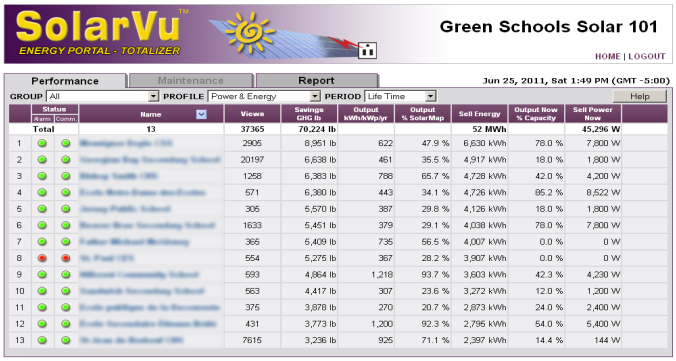


250kW SolarVu™ monitored rooftop

Manage Many Sites

Compare and manage multiple sites from a single screen with SolarVu™ Enterprise. Create and print reports for any time period. Download lifetime daily energy for spreadsheet analysis.

See alarm status and compare output of multiple sites



Watch the video

SolarVu™ is a cloud computing service using smart grid technology for lifetime monitoring of solar PV systems.

Scan the QRcode image to view a video explaining how SolarVu™ can help you maximize revenue from your solar PV equipment.

Cachelan® SMART GRID ENERGY

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Ask your system provider to install SolarVu™

Visit live sites at www.solarvu.com

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SolarVu®

PERFORMANCE OPTIONS

SMART COMBINERS

- Alarm notification of low output strings
- Quickly locate and repair bad strings
- Higher revenue from 100% uptime
- Faster commissioning, no routine checks
- Compare different panels

WeatherTrak™

- Verify actual output to specifications
- Daily insolation, peak irradiance log
- Alarm on low kW at normal irradiance
- Compare panels under same conditions
- Check maximum panel temperature

SMART Enterprise

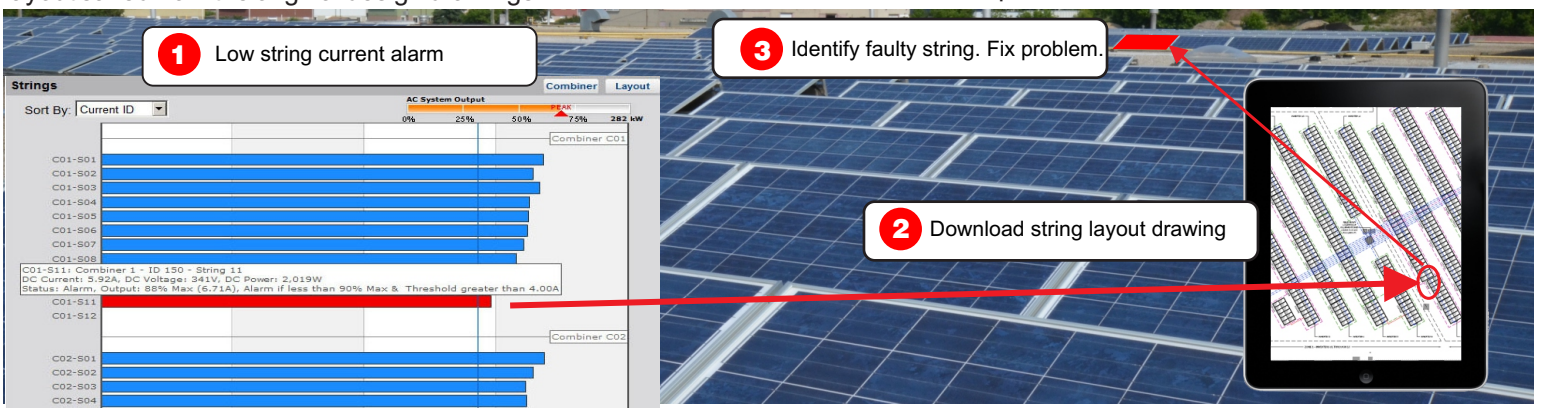
- One screen status for multiple sites
- Compare output from similar projects
- Save labour on maintenance contracts
- Remotely diagnose problems quickly
- Performance reports

Smart Combiners

Find Bad Panels

A single bad panel reduces the string output leading to lost revenue if not detected. The smart combiner option compares every string and creates an alarm if one string is significantly below the others. Maintenance staff can download a string layout saved from the original design drawings.

Locate the string location from the displayed ID and drawing orientation. Quickly identify and fix the problem cause. Verify the string returns to full normal output before leaving the site. Eliminates guesswork saving troubleshooting time on a roof with hundreds of panels.



Reduce inspection costs

Use the smart combiner option to verify that every string on a large roof is delivering the expected output current. This speeds up commissioning and customer sign off. By knowing that every string is delivering the expected output at all times, periodic manual current metering checks are not required reducing expensive on-site labour costs.

C07: Combiner 7 - ID 150 | Manual | Strings | Layout

ID	String Name	DC Current	DC Voltage	DC Power	% Rel
C07-S01	String 1	3.33 A	340 V	1,132 W	100 %
C07-S02	String 2	3.19 A	340 V	1,085 W	96 %
C07-S03	String 3	3.29 A	340 V	1,119 W	99 %
C07-S04	String 4	3.20 A	340 V	1,088 W	96 %
C07-S05	String 5	3.21 A	340 V	1,091 W	96 %
C07-S06	String 6	3.15 A	340 V	1,071 W	95 %
C07-S07	String 7	3.15 A	340 V	1,071 W	95 %
C07-S08	String 8	3.09 A	340 V	1,051 W	93 %
C07-S09	String 9	3.13 A	340 V	1,064 W	94 %
C07-S10	String 10	3.03 A	340 V	1,030 W	91 %
C07-S11	String 11	2.80 A	340 V	952 W	84 %
	Total	34.57 A		11.8 kW	
	Average	3.14 A	340 V	1,069 W	

Alarm	Threshold	> 3.00 A AVG	Trigger	< 85 % of Rel	dit
Sensors	Internal Temp.	41.4°C			
ID	Modbus Address	150	Serial Number	07332	
STATUS	1 low current alarm				

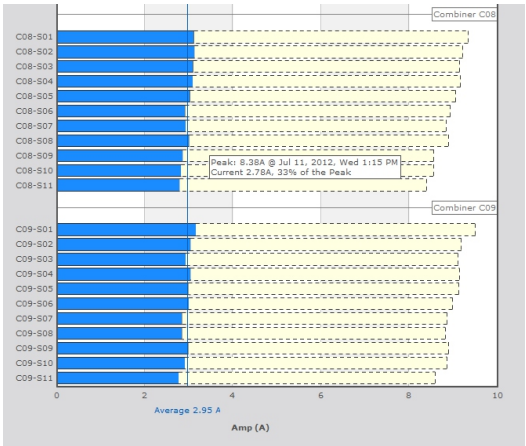
Listen — Last Data Updated: Aug 31, 2012, Fri 5:05 PM (GMT -5:00)

Listen — Last Communication: Aug 31, 2012, Fri 5:05 PM (GMT -5:00)

The highlighted red alarm shows string ID C07-S11 is 84% of the maximum string, below the user alarm trigger set at 85%. Download the layout drawing to quickly find and fix the problem.

Verify output meets specifications

It is hard to tell whether panels are meeting their published specifications under real conditions because the irradiance and temperature constantly change. The smart combiner peak recorder saves the maximum output current with a timestamp showing if panels reach their rated output. Reset the peak recorder any time to start a new measurement interval.



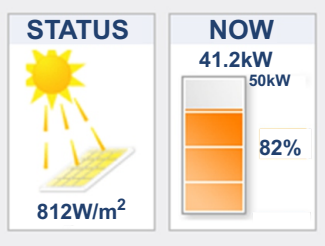
Compare output now (blue) to the peak output (yellow). Check that the peak output of every string reaches the specified rating to easily identify if any panels are not performing as expected.

Visit live sites at www.solarvu.com

WeatherTrak™

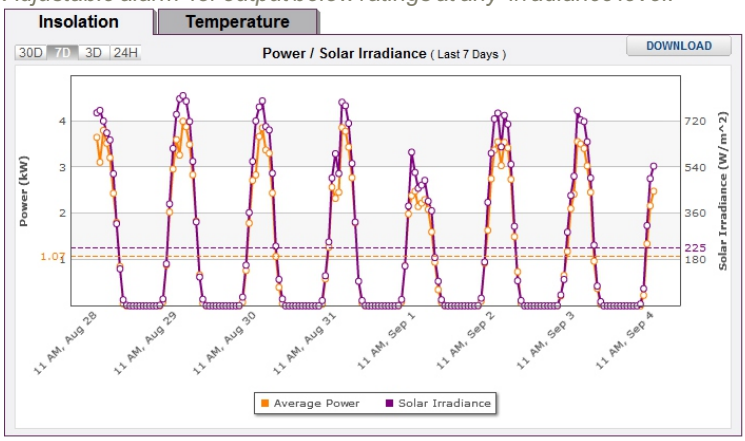
Compare output to specifications

Check that the system output meets specification under actual conditions of irradiance and temperature. Quickly determine if an inverter is shut down on multi inverter systems. Set an alarm threshold to receive automatic notification for low output.



Daily insolation, energy and peak irradiance are recorded for viewing graphically or downloading for analysis. Use panel temperature measurement under similar irradiance conditions to check actual temperature coefficient which has a significant impact on output. Evaluate panels from different vendors under real conditions.

Compare power generated to rated capacity under different conditions. Adjustable alarm for output below ratings at any irradiance level.

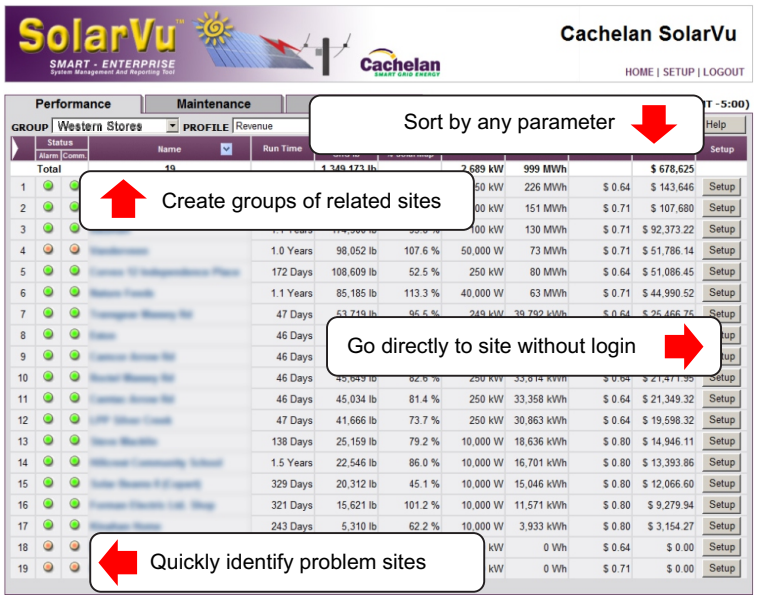


SMART Enterprise

See all sites on one screen

Efficiently manage multiple site locations from a single log-in with SMART (System Management and Reporting Tool) Enterprise. Quickly identify and fix problems to minimize revenue loss. Unlike proprietary portals from inverter vendors you can add new sites with different equipment using the same interface. Any number of locations can be included and accessed from a PC or mobile device.

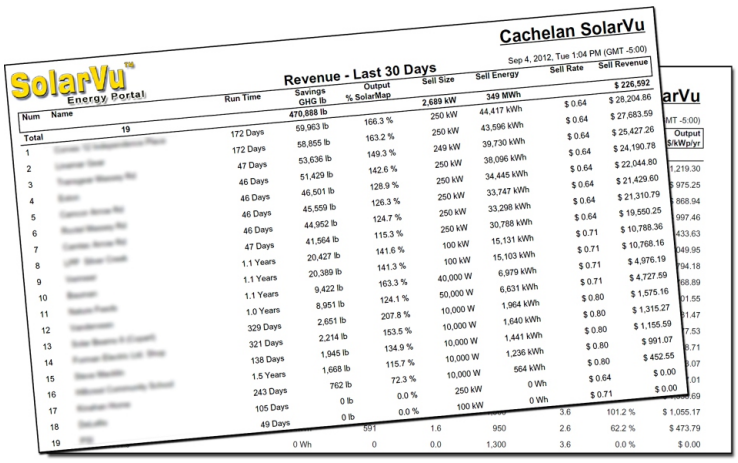
IPPs (independent power producers) can generate custom reports for any time period to evaluate performance of their power generation assets. Change settings, compare site performance, troubleshoot problems and share information for managing existing sites and implementing design improvements on new ones.



Manage maintenance contracts

Installers and project developers that want to offer maintenance contracts as an ongoing service revenue source can remotely diagnose site issues before doing a truck roll. This ensures they have the right equipment to complete a repair in the minimum time. Revenue and performance reports can be delivered to clients with minimal effort providing valuable additional services. Proactive system maintenance increases revenues and increases customer loyalty.

Create custom PDF reports for any time period grouped by parameters of interest



Scan QR code image to see how school boards are using SMART Enterprise to compare schools in their districts.

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