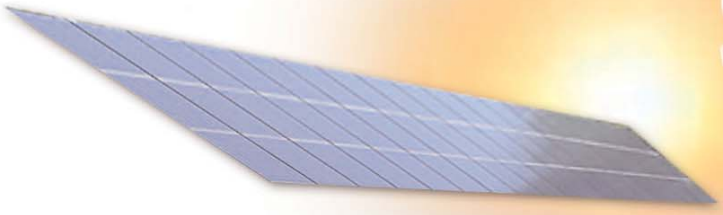
Cachelan

SolarVu™

Solar PV Web Monitor

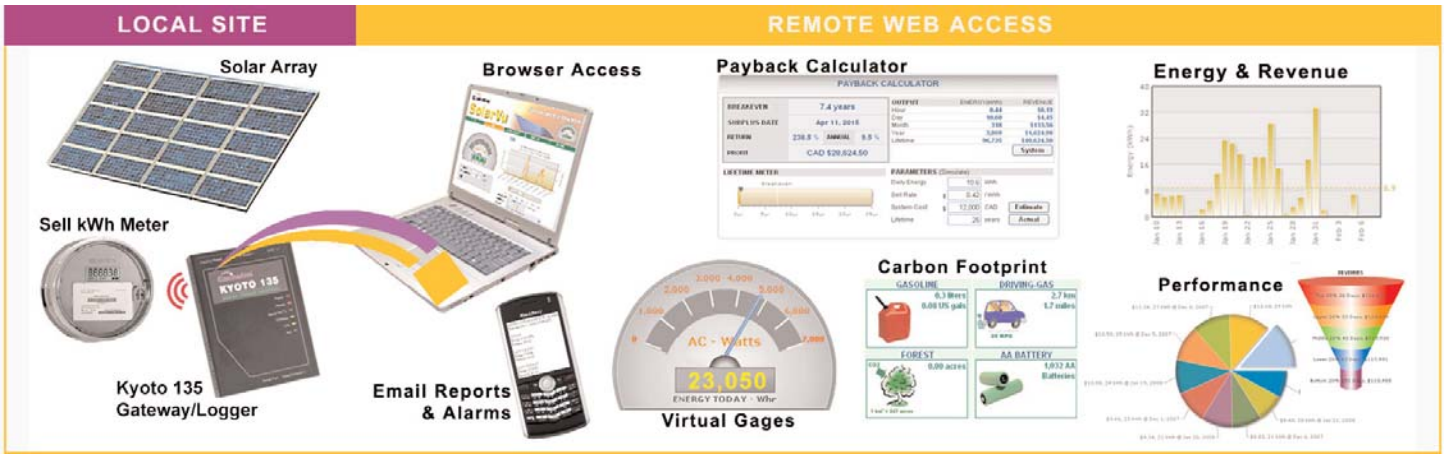


USES

- Monitor power, energy, status
- Verify revenue payments, calculate payback
- Receive maintenance alarms & status by email
- See energy equivalents, trends, site photos
- Learn about solar energy, share results
- Web access, no software to install

APPLICATIONS

- Manage solar PV distributed generation sites
- Conservation - reduce carbon footprint
- Billing for PPA (power purchase agreements)
- ROI analysis with payback calculator
- Public relations, website & lobby displays
- Performance analysis - maximize output



Why SolarVu

Add the SolarVu web monitoring system to your solar PV installation and get detailed information that a simple kWh meter cannot provide. SolarVu builds a lifetime database of the solar array performance then uses simple graphics to display live power, energy, status and trends. Receive a daily email report of revenues earned from your solar generation system. Check your carbon footprint reduction and learn about energy equivalents. Get an alarm message if problems occur to speed up troubleshooting using detailed inverter measurements. Calculate expected ROI with the payback calculator before installation then compare to actual results after startup.

Isn't a kWh Meter Enough?

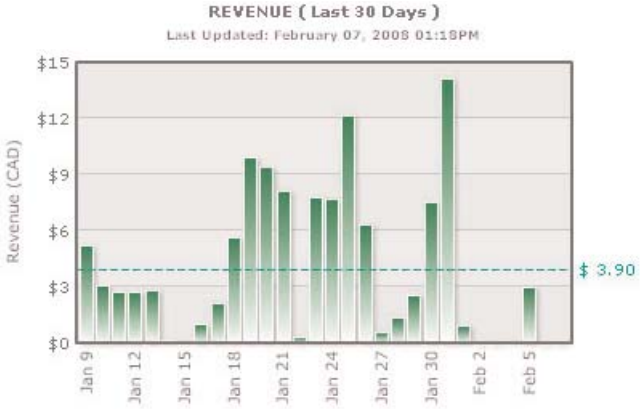
A solar PV generating system is a big investment with a typical 25 year life. Unless you regularly read the energy meter and manually plot the output, it will be difficult to determine how well the system is working. If a problem occurs, the first indication may be a low utility payment, months later. By communicating daily 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.

Installing SolarVu

A Kyoto 135 data logger which connects to the kWh sell meter, inverter and the internet is installed at the site. 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. Lifetime connection to the SolarVu web portal is free with initial purchase of the K135 data logger.

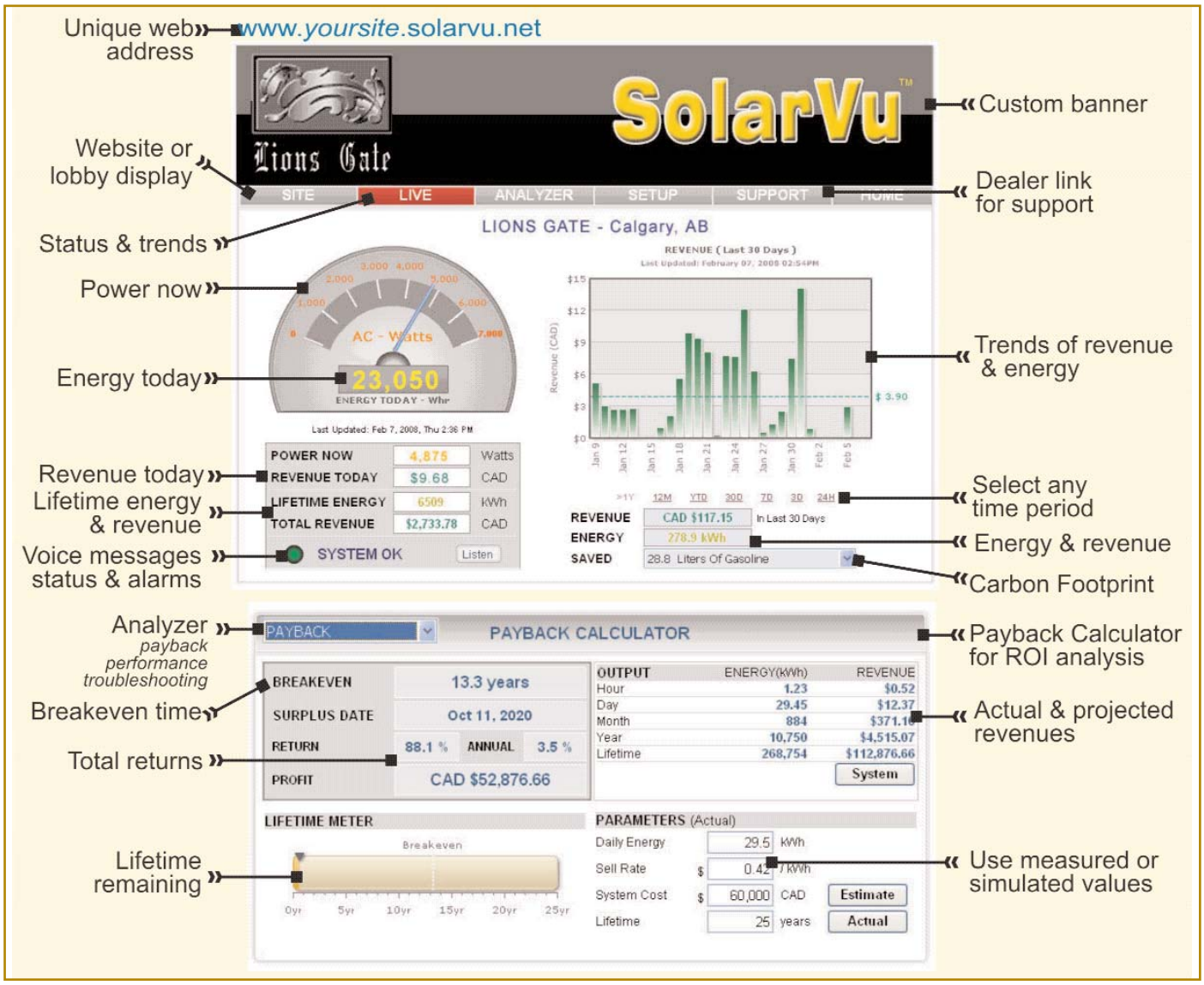
Check Revenues Every Day

Receive an email of your daily, weekly and lifetime revenues each evening. Visit the website any time for detailed analysis of performance or if something does not appear right.



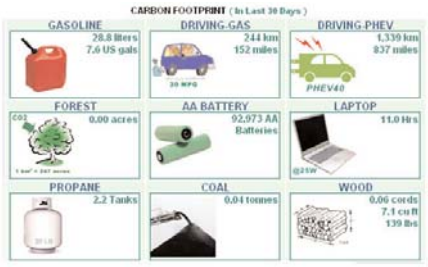
Easy to Use

Access your solar PV distributed generation system from a desktop computer using dynamic graphs and gages to view current status or trends over any time period. See live outputs, analyze performance, verify utility payments, troubleshoot problems and calculate return on investment.



Communicate corporate values with a lobby slideshow in site view

See the carbon footprint savings in energy equivalents



Monitor inverter readings on mobile devices for troubleshooting

Ask your dealer to install SolarVu
See SolarVu live at cachelan.com

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Cachelan®

WindVu™

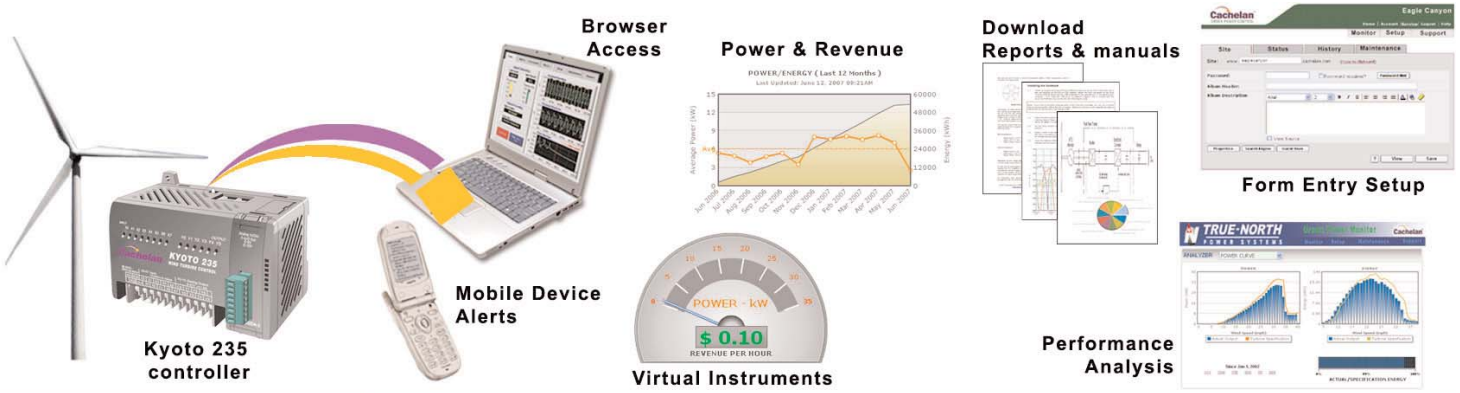
WINDFARM WEB MONITOR

MONITOR & MANAGE

- Monitor status, power, site conditions
- Calculate energy, revenue
- Reports for billing, carbon credits, efficiency
- Performance over any time period
- Diagnose problems - alarms by email
- Retrieve manuals, documentation

APPLICATIONS

Continuous monitoring - output, revenues
Maintenance - email/mobile device alerts
Reporting, invoicing
Public relations, browser accessible views
Pre-build site analysis, energy/revenue simulation
Web based, no servers or software to install



Why WindVu

WindVu is a web based monitoring system that builds a lifetime database of each turbine on a windfarm for analysis to maximize output. Powerful web graphics enable viewing status, output, revenues and performance over any time period. Use it for creating invoices and reports like carbon credits. Team members can login to access different information according to their needs. Non confidential views such as the carbon footprint or an updatable slideshow can be made accessible for public relations to build local goodwill and attract investors.

How it Works

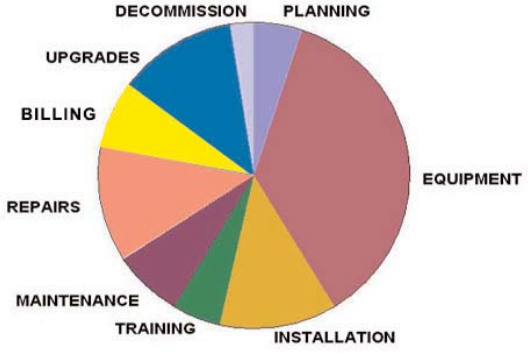
Either an interface into the system SCADA or a separate Kyoto 235 data collection module is installed at the wind farm substation and connected to the internet. Remote servers continuously collect power and site condition information and build a database. Using a password to login, these powerful servers process the data to present easy to understand graphics. The system can be set up to generate custom invoices and reports on demand. Being a browser accessed web service, there are no servers to maintain or software to install. Multiple sites with different proprietary SCADA systems can be viewed from a single account and new turbines are easily added. Receive emails about faults or regular status updates according to your preferences.

Installing WindVu

Either a connection to the system SCADA or a Kyoto 235 controller is installed at the grid connection point and connected to a shared internet connection. Remote WindVu servers automatically collect and build a lifetime database of the installation. Access is from a PC browser or mobile device. No software is required. For initial site analysis, files of wind samples can be uploaded with turbine power curves for realistic power/revenue simulations using actual conditions.

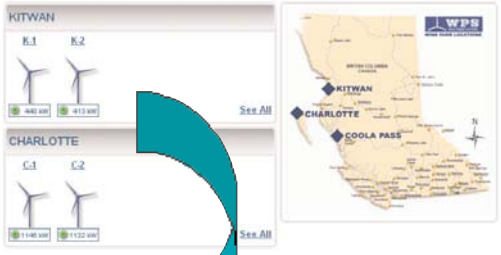
Reduce TCO - Total Cost of Ownership

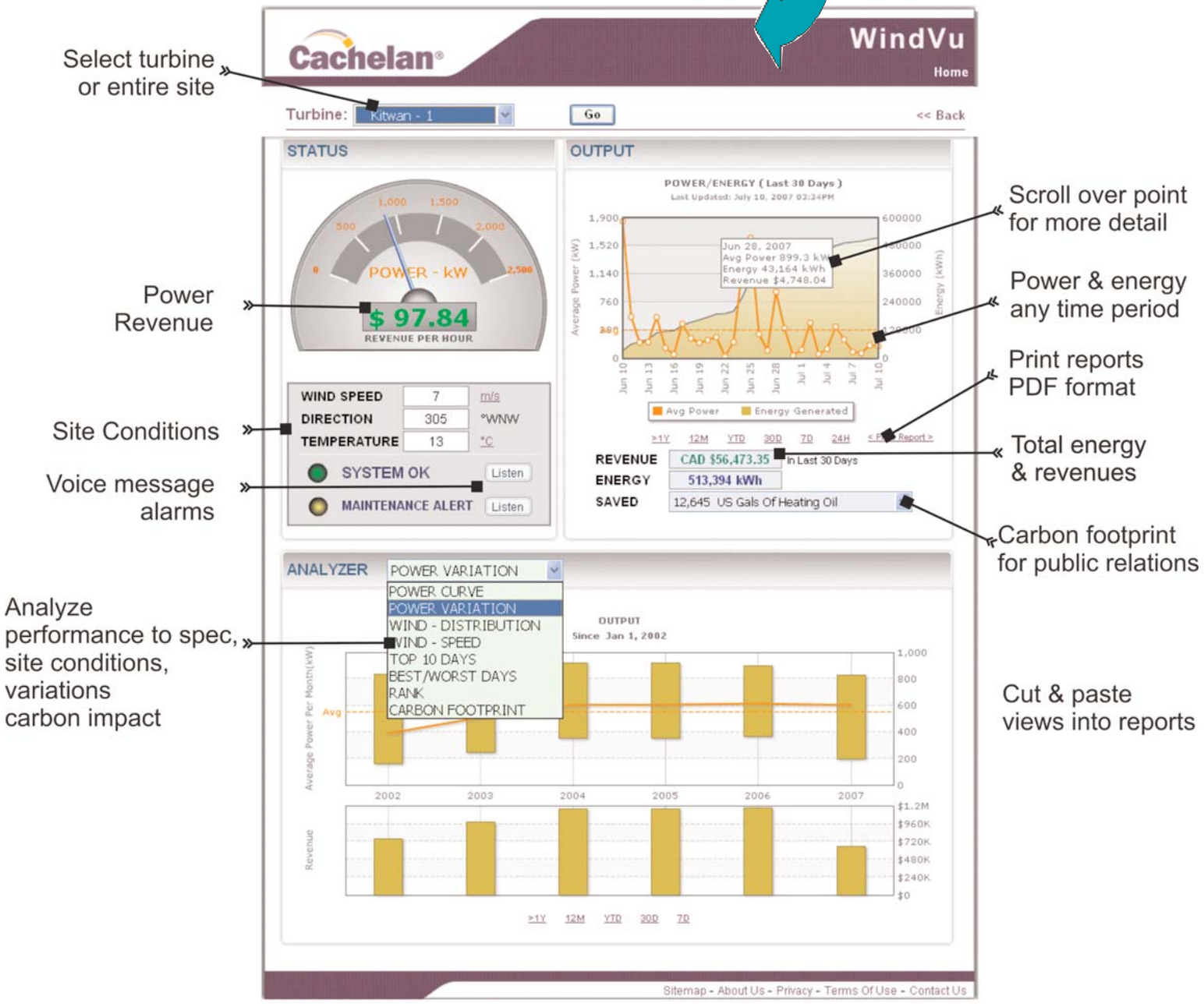
Ensure maximum output from wind farm installations by minimizing downtime, evaluating performance and producing timely reports.



Easy to Understand

View a single wind turbine or an entire windfarm. Dynamic screen graphs and instruments provide current status or analysis over any time period. Check performance against manufacturer's specifications, receive voice messages about abnormal conditions or look for trends. Powerful servers process and present information in easy to understand formats with separate public and password protected views.





See WindVu live at cachelan.com

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TopUp™

PHEV Charging System

BENEFITS

- Time of Use (TOU) electricity control
- 65% cost savings with Powermiser
- Flexable charge preferences
- Manual over ride for quick recharging
- Free TopUp web portal for easy access
- Easy installation with standard outlets

PHEV Solution

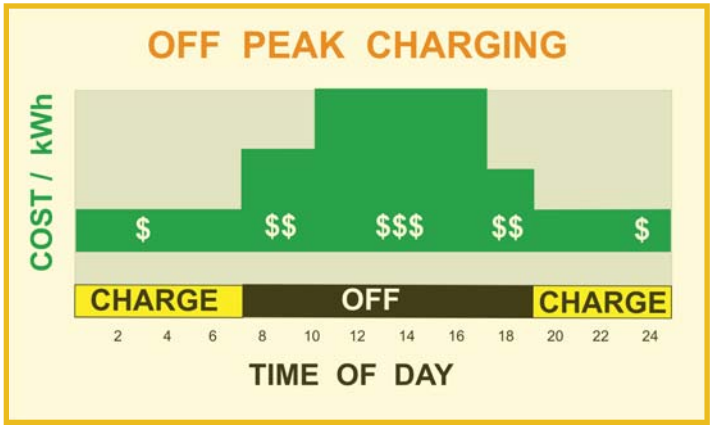
Rising gasoline costs, insecure fuel suppies, global warming from GHG and smog from traffic conjestion are factors driving demand for PHEVs. Under normal driving patterns, a PHEV40 will displace more than half of gas consumption with electricity. Smart chargers are needed for cost savings through time of use (TOU) charging at off low peak rates. Condominiums/apartments need to bill each tenant separately for their power use at their parking outlet. Fleet owners want detailed operating analysis to determine optimimum equipment purchases. With a large installed base of PHEVs, utilities can implement load shedding, V2G control for obtaining surplus power at peak loads and ancilliary services to reduce costs. TopUp is a flexable system for achieving these benefits.

What is TopUp

TopUp is a family of PHEV smart chargers that can be controlled locally or over the internet for minimizing electricity costs while providing detailed analysis for maximizing PHEV battery life. Control circuitry is packaged in enclosures suitable for outdoor installation that can be wired to conventional exectrical outlets to suit different connection needs and power levels.

APPLICATIONS

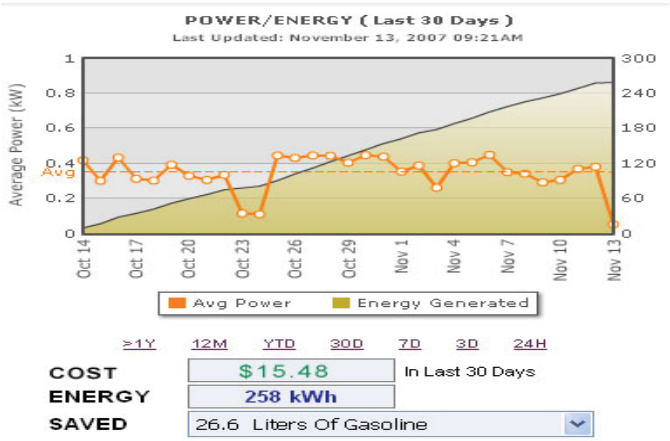
Residential select lowest cost electricity
Fleet monitoring & analysis
Condominium tenant billing
Business parking charger control
Solar kiosk green energy delivery
Utility peak load shedding, V2G, ancilliary



Flexable Control

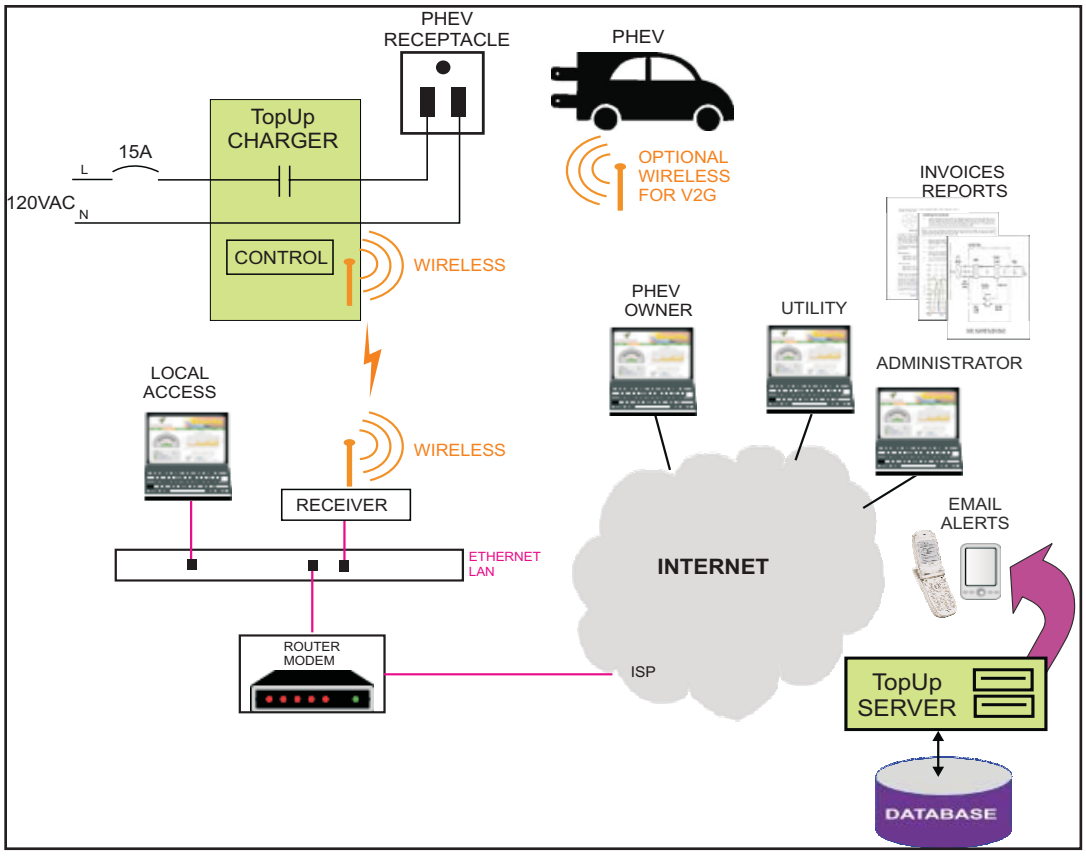
Wireless communication to a local computer, the internet and the PHEV if installed in the vehicle is available for setting up and monitoring charging control. Preferences can be selected for standalone operation or accessed remotely with a browser using the free TopUp portal. Utilities and sites with multiple parking spots can control groups of outlets from a single private account.

Connect to the free TopUp portal to analyze power useage and set up charging preferences.

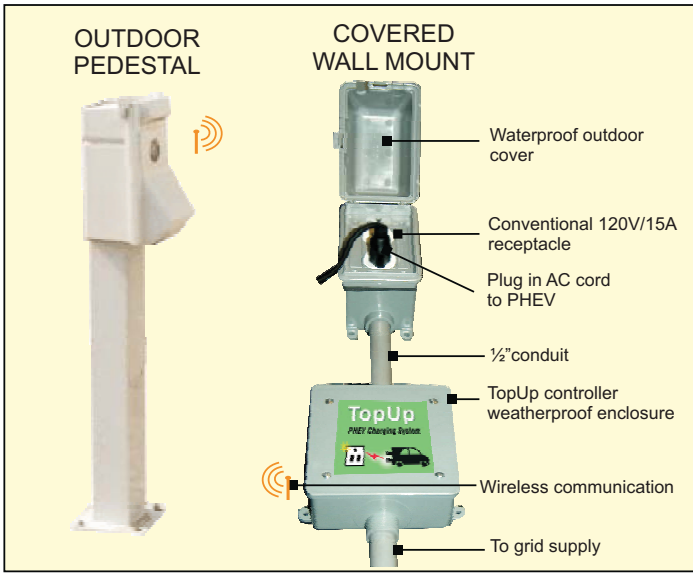


Connections

Standard receptacles are wired to the TopUp charger which is remotely controlled via wireless interface to the internet. If no interent connection is available, the TopUp charger can be configured locally to optimize time of use charging. With an internet connection, monitoring and settings can be accessed from a browser using the free TopUp portal. Future PHEVs suitably equipped can provide V2G power for utility load balancing and remote demand management. Monitor electricity costs and consumption graphs to understand usage patterns. Fleet owners can create reports to assist in cost analysis for managing operations costs.



TopUp controller can be wired to conventional receptacles for flexable configurations. Wireless communications with free TopUp web portal for browser setup and control



Simple screens allow easy setup and monitoring of electricity usage

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