

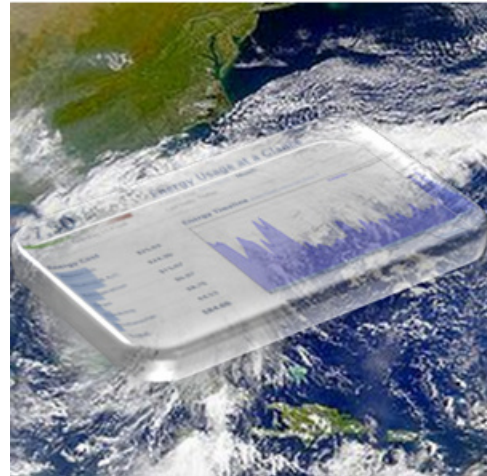
Hurricane Irene Gives Compelling Case for Energy Monitoring

When the power goes out and the generator kicks in, you need to monitor and manage your electrical loads very closely, homeowner says.

By [Julie Jacobson](#), August 30, 2011

We have [chided the use of load monitoring and management](#) in the past – people don't care about saving a few pennies per month, and there is no joy in watching bar graphs of a family's energy consumption.

But Hurricane Irene sheds light on a compelling use for load monitoring and control: managing energy consumption during a power outage when the back-up generator can only deliver power at its rated capacity and for a finite number of kilowatt hours (kWh) before you have to re-fuel with propane or gasoline.



Back-up power generators require users to skimp on energy consumption

Integrator and CE Pro contributor [Derek Flickinger](#) forwarded an email he received from a friend, Ray Gabriel of Parkesburg, Pa., who happens to have a whole-house load monitoring system from [Blue Line Innovations](#). But that's not enough. Nor is the Belkin UPS he uses with the companion Belkin Bulldog Plus Monitor (no longer available). That only provides a way to monitor input conditions (line voltage and frequency).

"The trick is to manage the loads -- and evenly balance across both 110 VAC legs -- to use power up to, but not exceeding, the generator's max power capacity," Gabriel says.

To manage loads while on back-up power, the homeowner went back into his various records to try to gauge the energy requirements of various devices ... and then monitor those loads manually. If only he had a proper load monitoring and control system!

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More than that, says Flickinger, "The real problem is in balancing loads that require 240 volts across both legs in combination with devices running on each of the 120 volt legs. It is easy to trip it if the loads are not distributed well."

He adds, "I just thought it was an interesting use-case scenario for circuit-level energy management and monitoring systems."

Gabriel writes:

"I now have a renewed interest in detailed/low-level power monitoring/control, having just spent the last 40 hours on generator power and carefully, manually monitoring each load to keep us happy while NOT exceeding 6600 Watts total (220 VAC X 30 A) AND maintaining < 30 A per 110 VAC leg.

Note the hot tub pulls 15 A on one leg and 17 A on the other because there's a 110 VAC circulation pump in addition to the 220 VAC / 4000 Watt heater. Looks like I need a full set of current transformers, custom software, and power control devices etc. to really get this right under all conditions."