'Smart DC' cuts electricity costs by using direct current electricity (w/ video)

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In Moixa Technology's Smart DC network, solar panels and off-peak electricity from the grid are managed by a hub, which provides power for computers and other low-power DC devices without the need for an AC/DC adaptor. Image credit: Moixa Technology

(PhysOrg.com) -- As the use of computers and mobile electronics continues to rise, so does the energy wasted by the devices' AC/DC adaptors when converting AC from wall sockets to DC for the devices. The London-based company Moixa Technology estimates that more than 1 trillion kwh of global energy is currently wasted every year due to inefficient inverters and AC/DC adaptors. Moixa's solution is a Smart DC network that uses electricity from window- and wall-based solar

panels or off-peak grid electricity stored in batteries to power low-power devices and lights at any time. By minimizing the need for AC/DC conversion, the company predicts that the Smart DC system could decrease users' overall electricity costs by up to 30%.

Moixa unveiled the Smart DC network earlier this week at INNOVATE 11, the annual Technology Strategy Board innovation R&D showcase in London. In addition to the solar panels and batteries, the network also consists of a hub that communicates with a smart meter to manage the flow of electricity. The hub predicts how much energy the low-power DC devices will need in the near future, how much electricity is available as stored energy from the solar panels and battery, and whether it is currently a peak or off-peak period. It can even use the weather forecast to predict how much solar power will be generated the following day, and use the information to decide how much electricity from the grid to store in the battery.

To use the electricity, devices such as computers, printers, and phone chargers can be connected directly to the hub. To power ceiling lights, Smart DC light switch sockets can be installed in place of existing light switches. The Smart DC sockets can also be configured to act as DC inlets to plug in the window- and wall-based solar panels.

The Smart DC network is intended to power only low-power DC devices, not high-power appliances such as washing machines, dishwashers, and stoves. These appliances are best powered directly by the grid, and the best way to cut their operating costs is by choosing energy-efficient models, according to Moixa. The company estimates that about 40% of a home's electricity goes toward powering low-power DC devices, which could result in significant savings.

The company notes that one advantage of the system is that it's less expensive to install than large-scale solar systems, making it more

suitable for mass use. Moixa plans to sell the system for between £1,000 ($1500) and £3,000 ($4700) per home, and estimates that the cost could be recouped in three to five years through savings on energy bills. In addition to saving money for those who purchase the system, the technology could also reduce grid peak demand since it powers devices from off-grid or off-peak resources using smart control.

“Surprisingly, even small scale household systems, say 1-2 solar panels, or 0.5-1kwh of battery packs, together with efficient LED lighting, monitors and smart control can be effective at powering the DC power requirements of households,” according to the company’s website. “This means that flats and houses not having access to large scale solar PV roofs, can use such systems to reduce energy bills.”

On its website, users can customize their own system with different options, including Smart DC hubs, light switches, batteries, solar panels, and more. The system can also be remotely controlled and monitored from a smartphone or computer.

More information: www.moixatechnology.com
via: The Engineer