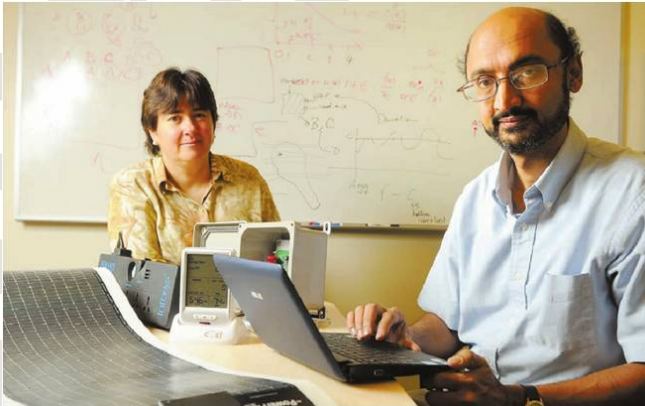




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A GREENER, SMARTER ELECTRICITY GRID - THANKS TO THE INTERNET

**Srinivasan Keshav, Catherine
Rosenberg**

The electricity grid of the future - the so-called "smart grid" - will feature more decentralized electricity generation, more storage and better matching of supply and demand. According to two University of Waterloo researchers, several concepts and technologies pioneered on the Internet can help achieve that vision.

Srinivasan Keshav and Catherine Rosenberg point to many similarities between the electrical grid of tomorrow and the Internet. Both networks involve generation, transmission and distribution. Both connect geographically dispersed suppliers with geographically dispersed consumers. Both arose from the federation of decentralized local providers along with the creation of a core infrastructure. Both involve stochastic (i.e., highly variable) demands and supplies. Therefore, the researchers suggest, certain concepts and technologies pioneered for the Internet could be used to improve how we produce, distribute and use electricity.

For example, controls mechanisms that reduce congestion on the Internet could be used to reduce peak loads on the electricity grid. Because generating plants are typically sized for peak load, this could significantly reduce the infrastructure costs. Meanwhile, Internet traffic modelling and analysis could be used to model the varying levels of electricity produced by wind turbines and photovoltaic systems, which are being added in increasing numbers to the grid.

In total, Keshav and Rosenberg identify several Internet concepts and techniques that could help to improve efficiency and reduce the carbon footprint of the grid, creating a smarter, greener grid for tomorrow.

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