

The New York Times

December 14, 2008

8TH ANNUAL YEAR IN IDEAS

by *Clay Risen*

Smart Grids

In March, Xcel Energy, a Minneapolis-based power utility, announced plans to build the country's first city-scale "smart grid" in Boulder, Colo. It's a response to what economists would call a tragedy of the commons: people use as much energy as they are willing to pay for, without giving any thought to how their use affects the overall amount of energy available. And because traditional power grids are "dumb" — that is, there's no way to monitor power use once it leaves the station — utilities err on the side of oversupply, which wastes energy and harms the environment.

Enter Xcel's \$100 million initiative, called SmartGridCity, a set of technologies that give both energy providers and their customers more control over power consumption. It relies on a network of fiber-optic cables, high-tech meters and sensor-laden transformers to provide power stations with real-time data on demand all along the grid, allowing them to fine-tune the electrical supply, detect failing equipment and predict overloads. Consumers, through a Web-enabled control panel in their homes, are able to regulate their energy consumption more closely — for example, setting their A.C. system to automatically reduce power use during peak hours.

Ontario, meanwhile, has committed itself to a 20-year energy plan that includes smart grids, while a consortium of technology and energy companies has pilot programs under way in Dallas and Houston. Even the federal government is getting in the game: the Energy Independence and Security Act of 2007 provides an annual \$100 million to encourage utilities to implement smart-grid technologies.

The next step, which Xcel plans to introduce in a year or two, is "dynamic energy pricing," in which the cost per watt would vary during the day depending on systemwide usage. Homeowners would be able to preset or manually control the electrical consumption of their home appliances, lighting and A.C. systems to achieve a desired price point. Eventually, smart grids could allow utilities to buy energy from independent sources — say, homes with roof-mounted solar panels — in effect turning homeowners into miniature power companies themselves.