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A convergence of smart grid technology, renewable energy development, and an increasing number of weather-related grid outages is sending us back to the future and a new kind of micro grid.

"Micro grids are the killer app for smart grids," says Terry Mohn, chief executive of General Micro grids, which designs and builds micro grids around the world.

Digital demand management makes it possible to juggle power generated from variable renewable sources like solar and wind, natural gas generation, stored energy and the grid to distribute power and other forms of energy through a local network.

Strategic energy objectives like developing storage capacity, increasing energy efficiency, and using new tools for demand management and prioritizing loads are all served by micro grid development, Mohn says.

The notion is beginning to take hold across the country, from a pilot project at the University of California at San Diego to a new initiative by the state of Connecticut as a way to improve power reliability and achieve greater penetration of renewable energy sources.

UC San Diego's 42-megawatt micro grid, for instance, has a master controller and optimization system and uses different generator sources - photovoltaic solar panels, fuel cells, and natural gas generators - that enable it to cover more than 90 percent of the power requirement at the 1,200-acre campus. The micro grid saves the university some $800,000 a month in energy costs, which means the project returns the $8 million in funding it received from donors every 10 months.

But the dividends could be even greater because the project is a pilot that may help the state more reliably manage peak demand as it increases the renewable component in power generation.

"A micro grid does everything a utility does, but on a much smaller scale," Mohn says.

One of the obstacles to micro grids has been regulatory, which is why Connecticut's initiative to ease development is seen as a positive sign by the industry.

Experts say that utilities have been slow to adopt micro grids because they are a disruptive technology for their current business model. Ultimately, however, it is a utility play because they can complement the grid.

"Micro grids are a tremendous opportunity for local solutions," says James Newcomb, program director at the Rocky Mountain Institute, a nonprofit that researches ways to increase renewable energy use. "It is an important frontier both for business models and emerging technologies."

By providing a single point of interconnection between local distributed resources and the macro grid, Newcomb says, micro grids will play a key role in creating the diversity of resources that will enable large-scale use of renewable energies.

Electricity Pricing – Sept 24, 2013
Com Ed Average LMP Electric Price

Time Period	Average per Kwh
Sep, 2012	$.03034
Oct, 2012	$.02829
Nov, 2012	$.03327
Dec, 2012	$.03081
Jan, 2013	$.03111
Feb, 2013	$.03219
Mar, 2013	$.03665
Apr. 2013	$.03821
May,2013	$.03501
Jun,2013	$.03215
Jul,2013	$.04067
Aug,2013	$.03112
Sep 1 – Sep 24	$.03316

Extended Temperature Forecast: Chicago Area

	Tue	Wed	Thu	Fri	Sat
High	70	69	75	78	81
Low	60	55	56	58	57