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### *New technology said to deliver smaller, more powerful batteries*

U.S. researchers say a new class of powerful, quick-charging "micro batteries" could change the way we power consumer electronics and vehicles. Scientists at the University of Illinois at Urbana-Champaign said they've developed technology that could shrink battery sizes by a factor of ten while still delivering the same power levels. "This is a whole new way to think about batteries," mechanical science and engineering Professor William P. King said. "A battery can deliver far more power than anybody ever thought.

"In recent decades, electronics have gotten small. The thinking parts of computers have gotten small. And the battery has lagged far behind. This is a micro technology that could change all of that. Now the power source is as high-performance as the rest of it," he said in a university release Wednesday.

With current power sources there is a tradeoff between power and energy, the researchers said. For applications requiring a lot of power, like broadcasting a radio signal over a long distance, capacitors can release energy very quickly but can only store a limited amount. For applications that need a lot of energy, like playing a radio for a long time, fuel cells and batteries can hold a lot of energy but can only release it or recharge slowly. "If you want high energy you can't get high power; if you want high power it's very difficult to get high energy," researcher James Pikul said. "But for very interesting applications, especially modern applications, you really need both. We're really pushing into an area in the energy storage design space that is not currently available with technologies today."

The researchers said their technology involves finding a new way to integrate the anode and cathode -- the battery's electrodes that create power by transferring electrons between them.

"[Our] battery electrodes have small intertwined fingers that reach into each other," King told the BBC. "That does a couple of things. It allows us to make the battery have a very high surface area even though the overall battery volume is extremely small.

"And it gets the two halves of the battery very close together so the ions and electrons do not have far to flow," he said. "Because we're reduced the flowing distance of the ions and electrons we can get the energy out much faster."

### Electricity Pricing – Apr 23, 2013

Com Ed	On-Peak	Off-Peak
2013	\$.04443	\$.02787
2014	\$.04270	\$.02835
2015	\$.04381	\$.02884

PECO	On-Peak	Off-Peak
2013	\$.05482	\$.03486
2014	\$.05190	\$.03496
2015	\$.05304	\$.03539

### LMP Electric Price

Time Period	Average per Kwh
April, 2012	\$.02659
May, 2012	\$.02816
June, 2012	\$.03089
July, 2012	\$.04303
Aug, 2012	\$.03112
Sep, 2012	\$.03034
Oct, 2012	\$.02829
Nov, 2012	\$.03327
Dec, 2012	\$.03081
Jan, 2013	\$.03111
Feb, 2013	\$.03219
Mar, 2013	\$.03665
Apr 1-Apr 22, 2013	\$.03455

### Extended Temperature Forecast:

#### Chicago Area

	Tue	Wed	Thu	Fri	Sat
High	58	52	53	62	61
Low	35	37	37	44	45

