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Electricity Storage

Balancing the electricity load is a difficult job. Storage devices, if they can be shown to work at commercial scale, would be a huge boon to an industry -- and an economy -- trying to do everything from advance renewable power to shave peak load when the demand for electricity is at its highest. Today, storage adds value to power systems because it can create capacity. And that has the potential to allow utilities to defer investment in expensive infrastructure projects.

Power producers are infatuated with energy storage, realizing that it could be a game-changer. But they are readily acknowledging that technical and financial barriers exist and that overcoming them is paramount if the devices are to reach their potential. There are at least 20 technologies that are being developed and technologies are coming down in price. There will continue to be incremental improvements on the technology side as well as the investment side.

The industry estimates that 670 megawatts of these advanced storage devices are operating. When asked what the 'perfect' battery is, the consultants explain that it depends on the desired application as well as the frequency of use and the duration, or how long would it have to discharge to meet a certain application. An application could be anything from shaving peak load to storing and injecting wind and solar electrons onto the grid.

Basically, it boils down to efficiencies and costs. Many of today's storage devices can inject about 15-45 minutes of power into the grid. An ultimate battery may go for 3 to 5 hours, and run at 90 percent efficiency whereby little energy is lost during the production process. Batteries can go for 6-10 hours, such as NGK Sodium Sulfur Battery. That duration is able to cover 98 percent of all outages, making it ideal for back-up power.

But efficiencies are an important part of the selection process. If a battery has to cycle up and down multiple times to perform an application, then efficiency matters. In other words, the goal is to align the discharge length and the efficiency of the battery with the requirements of the application to be performed. The demand for electrical power is expected to grow. With that comes the need to be more reliable as well as cleaner. As such, storage is a method by which to shore up both traditional facilities and renewables plants. Headway has been made. But, by all accounts, more progress is necessary.

Electricity Pricing – July 30, 2013 Com Ed Average LMP Electric Price

Time Period	Average per Kwh
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
April, 2013	\$.03821
May, 2013	\$.03501
June, 2013	\$.03215
Jul 1 – Jul 30	\$.04098

Extended Temperature Forecast: Chicago Area

	Tue	Wed	Thu	Fri	Sat
High	75	81	80	82	80
Low	67	65	63	64	62

