The Power of On-Site Generation

by David Geer

The bottom line when it comes to generating power is that data center managers need to consider doing so on-site simply because they may not be able to get enough otherwise.

"The US public power utilities will not be able to build out power for data centers fast enough," says Lex Coors, vice president of the data center technology and engineering group, Interxion and member of the Green Grid Technical Committee.

Advantages
On-site generation eliminates the need for long power lines and positions the power closer to the data center so there are virtually no losses via transmission cables. No more worries about squirrels nibbling on power lines and transformers, and it gives the data center control over generation.

On-site generators using green energy sources such as solar cells and windmills help curtail the data center's carbon footprint. The Emerson Global Data Center in St. Louis uses a 7,800 square-foot solar array consisting of 5,000 solar cells for its alternative power. "The array feeds 100 kilowatts of power directly into a grid within the data center facility, avoiding some reliance on the public grid in St. Louis," says Todd Finders, data center manager, Emerson Network Power.

The data center saves one-sixth of its power bill each month by supplementing needs with the solar array. The setup avoids green house gases equivalent to that of 20 cars for a full operating year, he says.

Thorium Alternative
Another green energy alternative for on-site data center power is thorium-based nuclear plants. "China is investigating thorium nuclear power plants," Coors says. The plants create only one percent as much waste as traditional uranium nuclear reactors while producing significantly more power. "There is no risk of a meltdown because the plants are low-pressure. And the toxicity lasts only 200 years rather than 10,000." It's possible for data centers to use small on-site containers such as two or three 40-foot containers for thorium nuclear plants. And thorium would abate concerns from the world community because, on top of all the technology's other incentives, no one can make a bomb out of materials used in these types of nuclear plants.

It's in a data center manager's best interest to investigate drivers for on-site power generation to determine if it is the right solution for their facility.