

Maintaining uptime while achieving the lowest cost per MW ABB Decathlon® boosts reliability of distributed energy resources

Many corporations are looking at their environmental strategies and are seeking to become more “green.” At the same time, the data centers that support these enterprises desire to maintain uptime while achieving the lowest cost per MW. This begs the question: for organizations that are seeking to reduce their energy footprint, is it possible for a data center to employ distributed energy resources, like incorporating solar power, without giving up reliability? This is a worthy goal but there may be major issues that need to be addressed as the organization sets about working toward this goal.

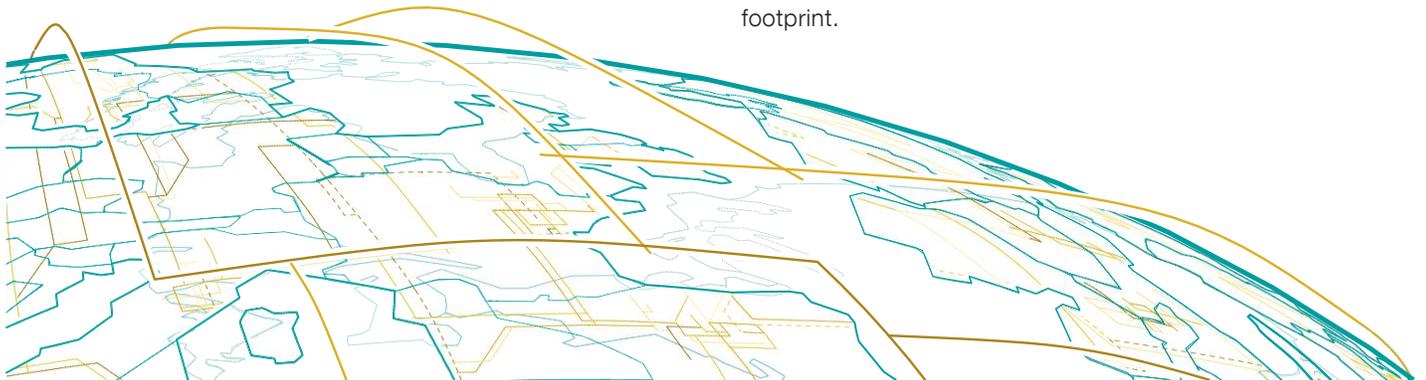
First, let's be clear. Yes, it is possible! The characteristics of distributed energy resources for the data center include distributed energy sources (that is, beyond the emergency back-up generator) and—this is key—centralized control that may operate with the main power grid, but can operate independently of it, too. Sometimes the latter is referred to as on-site generation. Another characteristic of a distributed energy resource system is energy storage, but no one really has this, yet, in the spirit of how we are discussing it.

One of the advantages of distributed energy resources is that they add resilience and sustainability to the total energy system within the data center. A distributed energy unit can achieve as high or higher level of reliability than any single resource. The challenge is to manage, utilize and optimize the unit in a dynamically changing fashion.

From what I see, as businesses recognize the competitive advantages that an agile data center enables, they begin to invest in modernizing their data center infrastructure and operations so they can keep up with business requirements—whatever it takes to deliver more web services faster, and in a sustainable way. So, at ABB, we're constantly innovating energy solutions so our customers can respond to this demand.

Consider, for example, mobile applications. Apple reported that customers downloaded over 40 billion apps, with nearly 20 billion in 2012 alone. These mobile apps, and the information and transactions collected from them, create enormous increases in data, as well as huge increases in the IT infrastructure and the energy required to support the business requirements behind those apps. At the same time, data centers are faced with the challenge of consolidating their resources. So data center operators are in dire need of finding significant ways to optimize.

If you are interested in reducing your energy footprint, then one of the most effective strategies for attaining aggressive yet sustainable growth is using a data center infrastructure management (DCIM) system, like ABB Decathlon. A DCIM system capable of managing those energy assets is vital to lowering the operating costs while maximizing availability and reliability. This approach helps extend the life of the data center by safely and reliably boosting the productivity of existing assets—getting more from less—while keeping check of the return from sustainable energy investments that also help to reduce the energy footprint.



The combination of distributed energy resources and DCIM offers significant reliability and efficiency improvements that begin with the energy source and purchase, and extends to improving energy utilization. A DCIM system like Decathlon provides the granular visibility, decision support and centralized control technologies—including the energy trading capabilities that enable data centers to exploit these new efficiencies safely and reliably.

We recognize that every data center is different, and one data center's successful approach may not work for another. Here are a few tips to keep in mind as you have these conversations about distributed energy resources and DCIM:

- To enable the near instantaneous balance of the data center infrastructure energy supply and demand, you will need two-way communications to deliver real-time information. Consider how your approach will manage multiple levels of integration and interoperability among components of your data center.
- As distributed energy technologies evolve, so will the applications and benefits. Think beyond the sources of energy. Consider, too, how your data center infrastructure will be able to manage distributed power generation, storage, process automation and demand response technology.
- Examine effective ways of integrating different forms of distributed energy resources. Depending on your data center geography, some energy sources may be more practical or offer better economies of scale.
- Finally, don't underestimate the significance of the monitoring, decision support and process automation capabilities in your DCIM system. For example, consider the extent and depth of energy management capabilities, such as alerting you to purchase energy when it's cheaper, and when to use more energy or less by scheduling compute loads during less expensive times. It won't matter how robust or technically advanced your energy delivery network is if your data center infrastructure management is inadequate for the task.

A data center perspective by:



Marina Thiry

Director of Strategic Marketing for ABB
Data Centers—Control Technologies,
Process Automation

Contact us

For more information, please visit
www.abb.com/datacenters/decathlon
to contact your local ABB Decathlon representative.

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