Executive Roundtable: The Data Center Flexibility (DCFlex) Initiative

Executive Summary & Background

The world wants automation and business efficiencies. AI offers global demand and is the main driver for this incredible trend of data center growth. And with that demand comes the need for utility power to scale up to support the AI data center wave. However, this raises an important question: Is enough utility capacity coming to power the projected number of data centers?

Collaboration between data center operators and electric utilities
Schneider Electric sees the best chance for success to focus on collaboration between data center operators and the electric utilities. And that's why we've joined the Electric Power Research Institute's DCFlex initiative to explore how data centers can support the electric grid, enable better asset utilization, and support energy needs in the United States and around the world. In short, the initiative will help data center operators dramatically improve their collaboration with local utilities. DCFlex is short for "data center flexibility," a term that encompasses all the ways that data centers can reduce or shift their power use.

While utility providers are proactively increasing their normal and peak power generation, data center operators can be more flexible and do more demand-side management to ensure that peak demand does not exceed capacity. A potential shortage of utility power is only expected during peak use times. Why is this important? Because when we talk about the possibility of a looming power crunch, data centers can be part of the solution rather than part of the problem. Data centers that are adding significant backup power and sometimes prime power are not only a utility load. They can be grid assets, eventually becoming part of the grid ecosystem.

Reducing utility stress with DCFlex
Since it was launched in October, DCFlex has grown from 15 to 40 funding participants. On the data center side are: tech "hyperscalers" like Google, Meta, and Microsoft; major data center developers like Compass and QTS; and AI computing and power equipment suppliers like Nvidia, and now Schneider Electric.

On the grid side are utilities such as Duke Energy, Pacific Gas & Electric, Portland General Electric, and Southern Company; power plant owners like Constellation Energy, NRG Energy, and Vistra; and five of the continent's seven grid operators, which manage energy markets serving electricity to two-thirds of the U.S. population.

Let's go a bit deeper into the concepts behind DCFlex. It's all about the ability of data centers to reduce utility stress. By utility stress, we mean times of peak demand when the generating capacity of utilities may struggle to meet that demand – without bringing expensive and potentially polluting, additional generation online. And this only occurs during short periods of peak demand during the year – usually and unsurprisingly during the hottest and coldest days of the year due to increased demand from cooling and heating. By cooperating with electric utilities, data center operators can offload what could be a significant portion of the utility demand during the highest electric heat or cooling times – depending on the area up to 15 days per year.

A game changing approach for data center flexibility
So, what's the upshot of this potential cooperation? If data centers and other big electricity customers committed to curtailing their power use during peak hours, it could unlock tens of gigawatts of "spare" capacity on U.S. grids, according to a recent analysis from Duke University's Nicholas Institute for Energy, Environment & Sustainability.

This approach is a potential game changer because data centers can make their operations flexible a lot faster than utilities can expand power distribution and build power plants.

The DCFlex initiative will create a blueprint for data center and utility stakeholders to adopt. The initiative aims to deploy 5-to-10 large-scale flexibility hubs, each a living laboratory demonstrating innovative strategies for integrating data centers with the grid under various conditions to facilitate widespread adoption and replication. Adding utility power does not have to be a one-to-one relationship with adding data center capacity if the data center can be flexible.

Source: [Flexible data centers to the rescue of an AI-induced power crunch, Schneider Electric Blog Post by Steven Carlini](#)