

# CEE Data Centers Committee Breakout Session:

## Tools & Resources to Support Data Center Program Development

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CEE Program Meeting  
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Figure 1 The National Energy Research Scientific Computing Center (NERSC) operated by LBNL

# Today's Agenda

- Introduction
- 3:45 – 4:35 Presentations
  - Dale Sartor, LBL – Overview of DOE's DC Program, Work to Date, 2009 Direction
  - Paul Mathew, LBL, DOE's DC Pro Tool Suite
- 4:35 – 5:00 Discussion, Q&A

# Data Center Energy Picture

- Data centers are energy intensive facilities
  - Server racks now designed to carry 25 kW load
  - Typical facility ~ 1MW, can be > 20 MW
  - Nationally 1.5% of U.S. Electricity consumption in 2006, growing
- Recent research shows DC energy consumption growing 20-30% annually in 2006 and 2007
  - Exceeds EPA's prediction of 9% growth from 2006 to 2010
  - Surging demand for data storage

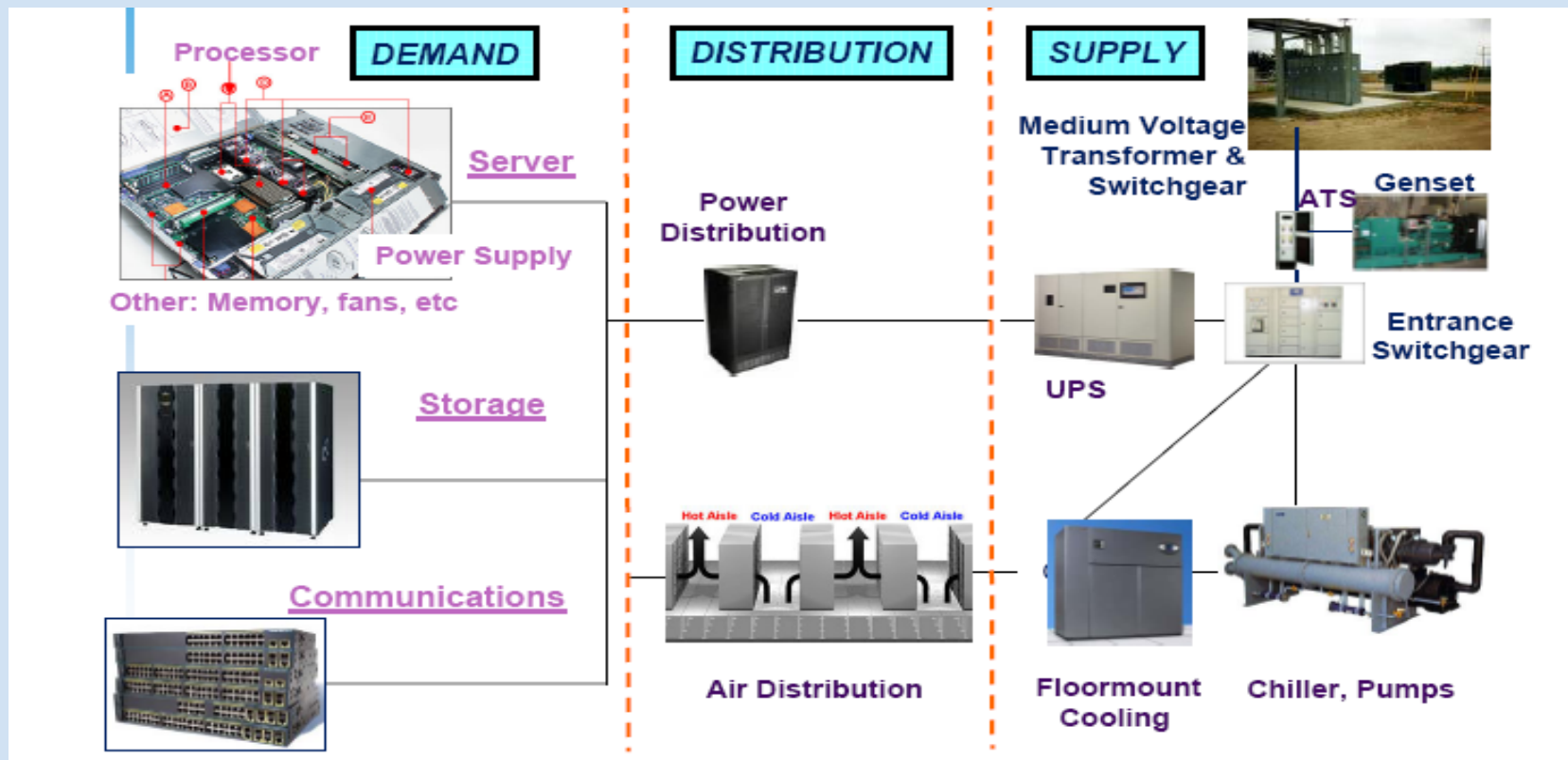
*Sources: EPA Report to Congress (2007); Uptime Institute growth estimate (2008)*

# Data Center – Where Energy Goes

IT: 30-50%

Cooling: 25-30%

E. Distribution: 25-30%



Source: Emerson Network Power, Data Center Users Group 2007

# CEE Data Centers – Progress

<b>1. Consensus-based definitions, performance specs</b>	<b>Server def'n, metric, spec (EPA, SPEC); DC benchmarks (EPA, DOE, TGG)</b>
<b>2. Collective understanding of opportunity, players, industry motivations</b>	<b>Program info sharing; Industry, government agency engagement (DOE, EPA, TGG)</b>
<b>3. Recommended common program strategies</b>	<b>8 CEE members running DC programs/pilots; Draft program “model”; Tools becoming available</b>

# Session Objectives

- To understand the capability and functionality of the U.S. DOE data center profiling tools and other available (or soon to be available) resources
- To identify and discuss the potential benefits for local efficiency programs and opportunities for integration into program offerings
- To identify and discuss common program challenges or potential improvements that would enhance the value of these resources for local administrators

# Discussion Questions

- Based on the existing and anticipated functionality of the DOE tools/resources, what are the program opportunities?
- Are there common challenges or hurdles that program administrators anticipate in using or supporting these tools?
- What are some steps that we can take collectively to maximize the benefits of the resources for efficiency programs?