



# Data Centers and Servers

Air Flow Management Program Opportunities,  
Approaches & Results

Jason Erwin, Sr. Program Manager  
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# Today's Agenda

- ▶ Introductions
- ▶ Background
- ▶ Presentations
  - Air flow management basics
  - Air flow management program approach
- ▶ Discussion

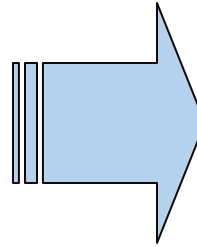
# Session Objectives

- ▶ To learn about air flow management and how it impacts data center energy performance
- ▶ To identify current program approaches and strategies to manage air flow
  - Program energy baseline, measurement and verification (M&V) methods
  - Program results to date
- ▶ To identify any common program needs for guidance, tools, or resources that would enable or accelerate data center program development

# CEE Data Centers Initiative

## Challenges

- ▶ Need for definitions, performance metrics and test procedures
- ▶ Many, sometimes competing messages to end users
- ▶ Split incentives between IT & facility managers
- ▶ Balancing risk and business considerations – reliability, uptime, performance, etc.
- ▶ Dynamic nature of market and software and hardware operations

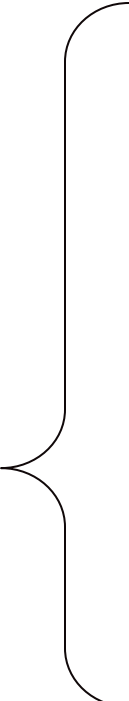


## CEE Objectives

- ▶ Develop & support consensus-based definitions and performance specs
- ▶ Facilitate EE program industry's collective understanding of opportunity, market players & industry motivations
- ▶ Identify recommended program strategies to help move more of the market to a preferred outcome

# Committee Work Progress

Data center program guidance: Support Efficiency Program Administrators to identify e-savings opportunities, inform program approaches and be a central resource for program methods, results, considerations and lessons learned.

- ▶ Definitions
  - ▶ General
    - National e-trends, market and savings potential, metrics
  - ▶ Data Center EE Approaches
    - Air flow management
- 
- ▶ E-savings principles, potential
  - ▶ Program approaches
    - Objectives, strategies, applicability, approach, e-baseline and EM&V methods
  - ▶ Program considerations, lessons learned
  - ▶ Program results

# Presenters

- ▶ Bill Tschudi, Lawrence Berkeley National Laboratory
  - Fundamentals of data center air flow management
- ▶ Francois Rongere, Pacific Gas & Electric
  - PG&E program approach, results, methodology

# Discussion

- ▶ What is the potential for replicating this type of program in your service territory?
- ▶ In considering a program or pilot in your service territory, what observations or questions do you have about the approach, energy baseline or M&V methodology?
- ▶ What questions, challenges or considerations come to mind were you to pursue a similar type of program?
- ▶ Are there particular committee areas of focus, resources or tools that would help support or accelerate program development in your service territory?

# Contacts

Jason Erwin  
Commercial Sector Lead  
617-337-9269  
jerwin@cee1.org