

CEE 4th Annual Industry Partners Meeting

Data Centers & Servers Track - Moving Towards Common, Voluntary Server Performance Specifications

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

Track Agenda

- Introduction
- Panel Presentations (1:00 - 2:30)
- Break (2:30 – 3:00 pm)
- Questions, Discussion & Brainstorming (3:00 – 4:45)
- Re-cap (4:45 – 5:00)

CEE Background

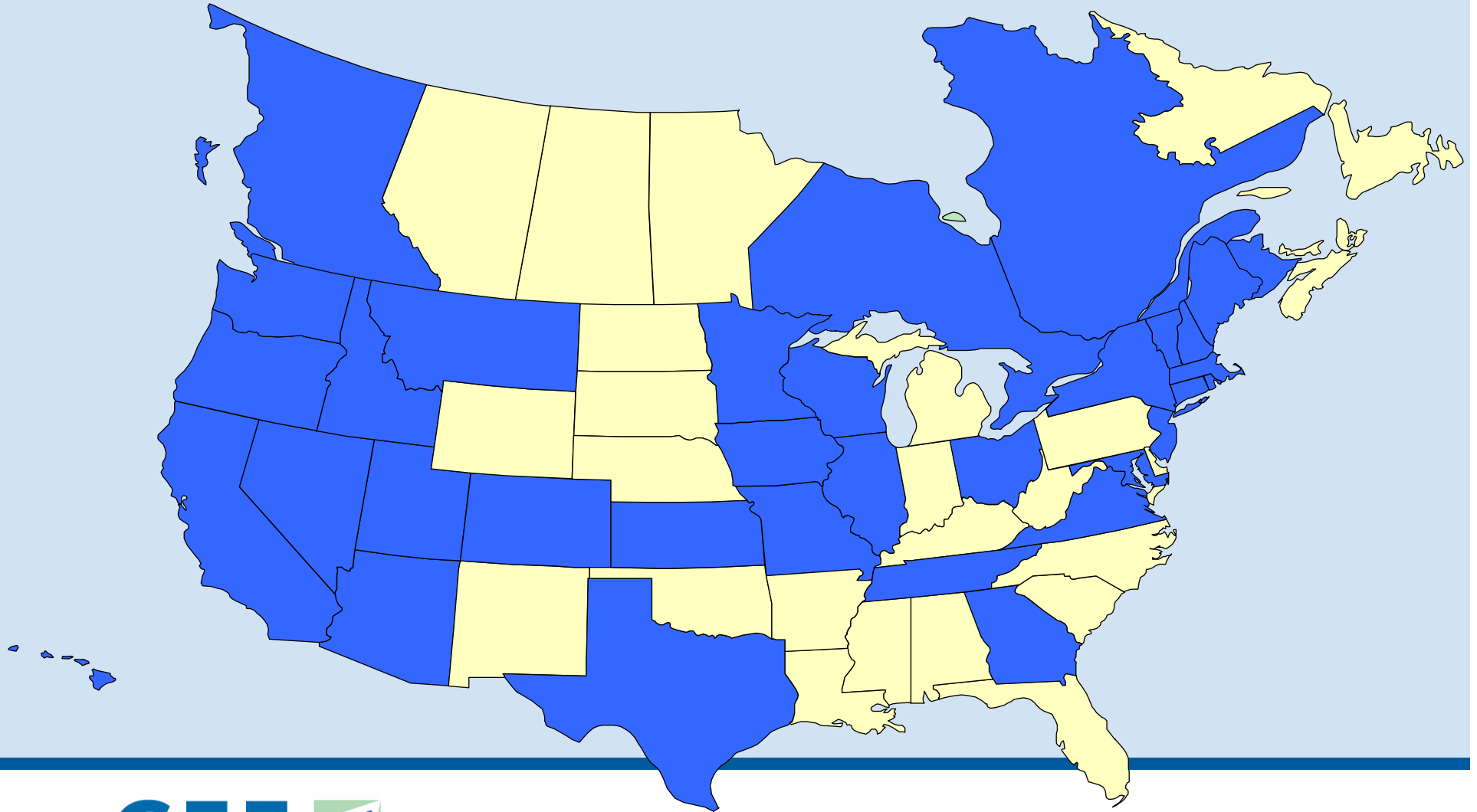
- **Founded:** 1991 as a 401c(3) nonprofit
- **Growing:** 80 + members, reaching over 50% of the U.S. population and over 1/3 of Canadians
- **Program spending:** Over \$2 billion in '06, growing
- **Sponsoring:** 14 North American initiatives, 20 + active committees
- **Pursuing:** Numerous emerging opportunities



Working Together, Advancing Efficiency

CEE Members

As of September 2007



Working Together, Advancing Efficiency

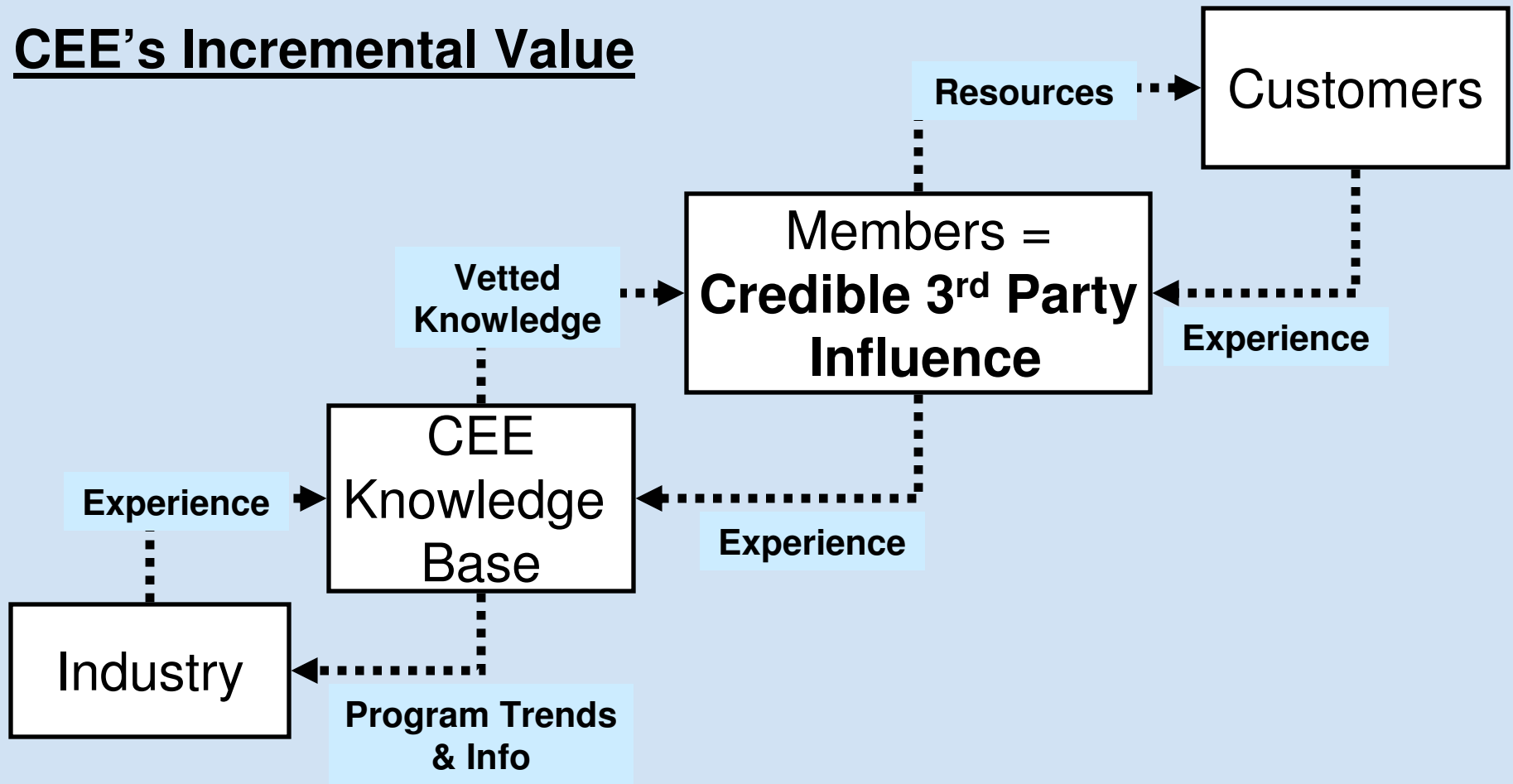
CEE Background



Working Together, Advancing Efficiency

CEE Background

CEE's Incremental Value



CEE Background

**CEE's Incremental
Value**

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Co-sponsored National Campaigns

- ✓ **Motor Decisions Matter_{SM}** with NEMA & EASA
- ✓ **NEMA Premium_{TM}** campaign for commercial lighting
- ✓ **ENERGY STAR[®]** supporter
- ✓ **CEE Directory of ARI-verified HVAC Equipment** meeting CEE Tiers
- ✓ **Supported development of BOMA Energy Efficiency Program (BEEP)**



Working Together, Advancing Efficiency

CEE Data Centers & Servers Initiative

Opportunity:

BUSINESS
RockyMountainNews.com

Tech firms get green by
trimming big energy bills



SearchDataCenter.com

SPEC forms server
efficiency committee

statesman.com

A new push for energy efficiency in the computer industry is sparking a bare-knuckles brawl, with companies competing to add performance and save power.



Working Together, Advancing Efficiency

CEE Data Centers & Servers Initiative

Objectives:

- ✓ Facilitating our industry's collective understanding of the market players and industry motivations
- ✓ Developing & supporting consensus-based definitions and performance specifications
- ✓ Identifying recommended program strategies to help move more of the market to a preferred outcome



CEE Data Centers & Servers Initiative

Scope:

	Technology Lens	
	System/ End Use	% DC Energy Consumption
IT Systems	Servers	40%
	Storage & network equipment	10%
Facilities Support Systems	Cooling	25%
	Power distribution	11%
	Other infrastructure	14%

Energy Management Lens
✓ Data center benchmarking
✓ Design support
✓ Operations & maintenance
✓ Energy Awareness
✓ Procurement support
✓ Power (demand) management and planning

CEE Data Centers & Servers Initiative

Work Area	Description
Improve Server Efficiency & Utilization	Promote high efficiency server equipment (support development of voluntary server performance specifications) Server consolidation--virtualization (understand energy savings opportunities of server utilization and potential program strategies)
Improve other IT Systems	Data storage system improvements – massive array of idle disks (MAID)

Session Objectives

- Inform us of EPA's recent report findings, and ENERGY STAR's plans, roles and timing in moving forward with a server performance specification
- Obtain corporate perspectives on promoting better data center and server energy performance
- Open a dialogue with members and industry representatives to help define possible CEE roles and energy efficiency program strategies to promote server efficiency
- Identify information gaps, action items and next steps

Panel Presentations

- **Andrew Fanara, EPA ENERGY STAR & Richard Brown, LBNL** - Overview of Efficiency Opportunities in Data Centers and ENERGY STAR's Server Specification Efforts
- **Jay Dietrich, IBM & David Jenkins, Intel** - Corporate Perspectives on Improving Data Center and Server Performance
- **Klaus Lange, SPEC Power and Performance Committee** - Industry Setting the Stage for Server Energy Performance Specifications

Discussion Questions

- On what basis can a server energy performance specification be organized?
 - Agreed-upon industry definitions, categories and applications
 - Standard means of comparison, test procedures
 - Critical elements to incorporate into a specification
- Keeping in mind usefulness to energy efficiency programs
 - Easily understood, clarity in the market, simplicity, actual and real energy savings
- What foundational elements are already in place?
What is missing?