



Commercial HVAC Breakout Session:

Evaluating Opportunities in Promoting Part- Load Efficiency

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Boston, MA



Today's Agenda (3-5:20pm)

- ▶ Intros
- ▶ Background and Purpose
- ▶ New Part Load Metric Review (20 minutes)
- ▶ Program Approaches (20 minutes)
- ▶ Brainstorm Activity – Identifying relevant tools and resources (20 minutes)
- ▶ Wrap Up and Next Steps

Introductions

Please share:

- ▶ Your name, position and organization
- ▶ Is this your first CEE Meeting?

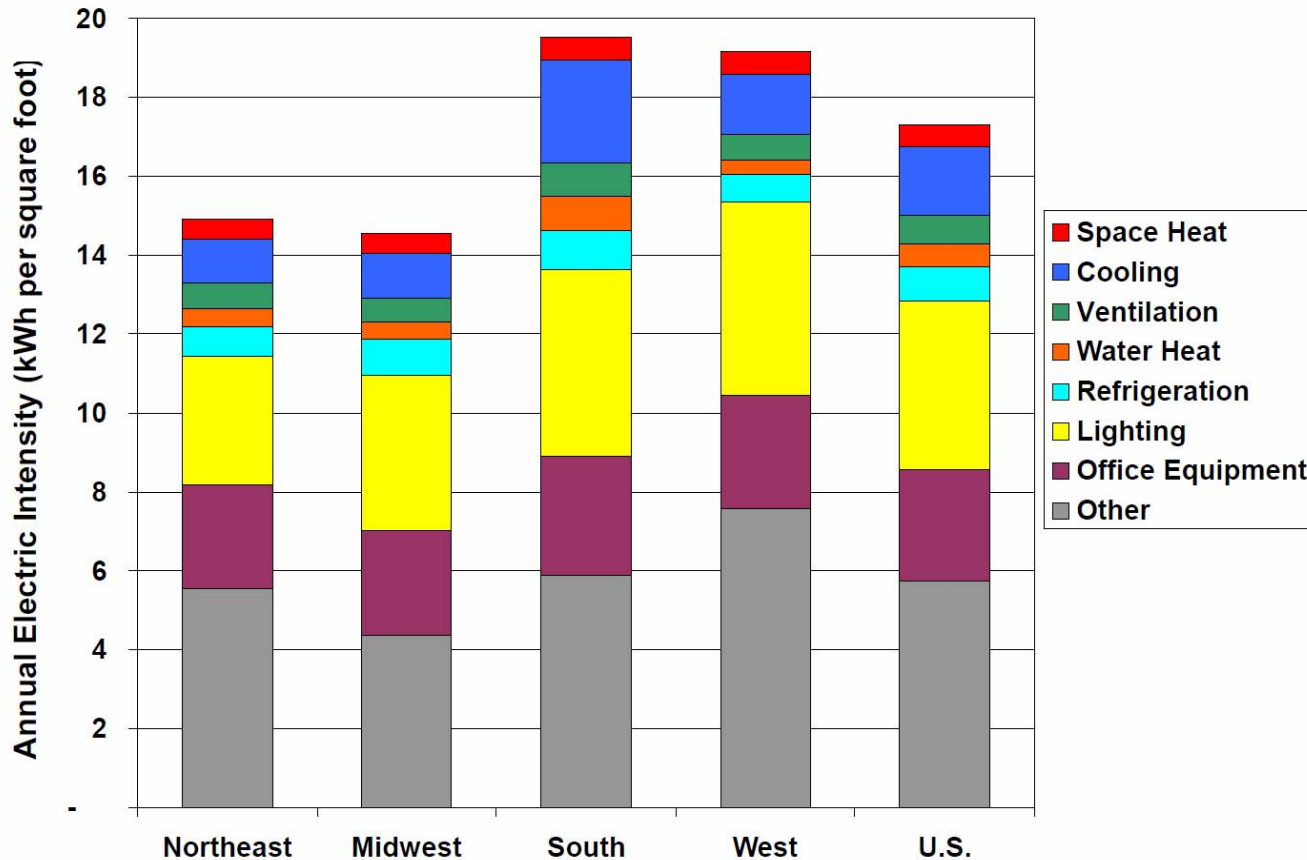
Ground Rules

- ▶ 100% Participation – Please stay off of email
- ▶ Off topic issues & questions will be recorded in a parking lot for future discussion
- ▶ All ideas are valid and valued
- ▶ Meeting closure outlines next steps and actions

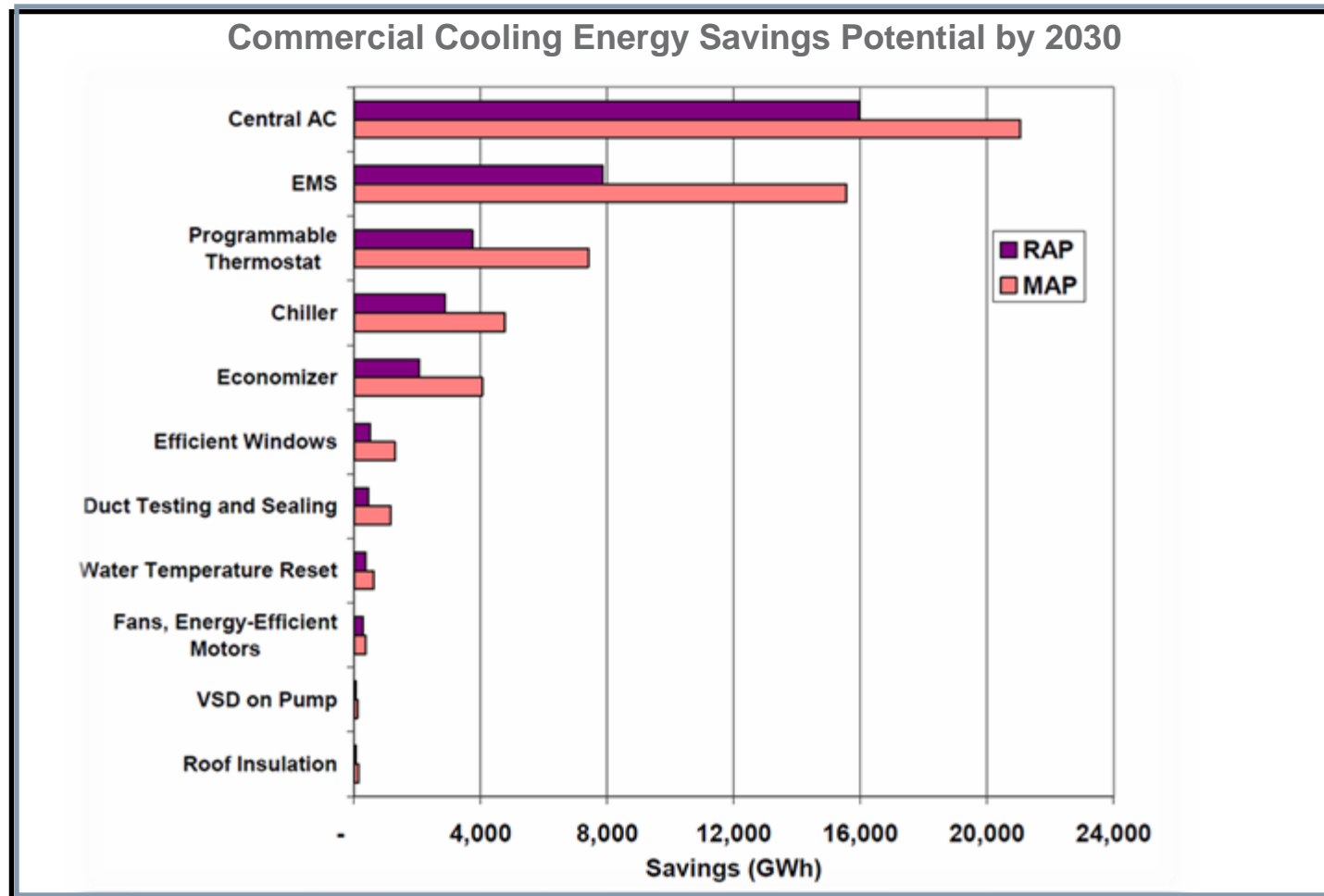
This meeting will be held according to
CEE Guidelines for Program Meetings

The Opportunity for Commercial HVAC

2008 US Commercial Intensity by Region



Continued Potential for Savings



Source: 2008 EPRI Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S
(RAP – Realistic Achievable Potential; MAP - Maximum Achievable Potential)

CEE High Efficiency Commercial Air-Conditioning (HECAC) Initiative

- ▶ Launched in 1993 with specifications identifying SEER/EER/IPLV for Unitary AC and HP equipment.
- ▶ Goal is to encourage the proper installation and widespread use of high-efficiency air conditioners and heat pumps in commercial buildings.

Current Commercial HVAC Initiative

Work Efforts

▼ Current Unitary AC/HP Specification

- New industry performance metrics (IEER)
- Plan to revise specification in mid-2010

▼ Rooftop Unit Concept

- Advanced Feature-set to address e-savings, persistence and maintenance

▼ Quality Installation, ANSI QI Standard

- Comments to ACCA, larger commercial HVAC systems
- Committee to discuss program integration

▼ New Systems; Technologies

- Variable Refrigerant Flow technology
- Chiller Systems

Unitary AC Performance Levels

Size Category (Btu/hr)	Heating Section Type	Federal Minimums (1/1/2010)	ASHRAE 90.1-2007 (1/1/2010)	ENERGY STAR (5/1/2010)	ASHRAE/ANSI /USGBC/IES 189.1-2009	CEE Tier 1 (Current)	CEE Tier 2 (Current)
>=65k - <135k	Electrical Resistance	11.2 EER	11.2 EER 11.4 IEER	11.7 EER 11.8 IEER	11.5 EER 12.0 IEER	11.7 EER	12.2 EER
	All Others	11.0 EER	11.0 EER 11.2 IEER	11.5 EER 11.6 IEER	11.3 EER 11.8 IEER	11.5 EER 11.9 IPLV	12 EER 12.4 IPLV
>=135k - <240k	Electrical Resistance	11.0 EER	11.0 EER 11.2 IEER	11.7 EER 11.8 IEER	11.5 EER 12.0 IEER	11.7 EER	12.2 EER
	All Others	10.8 EER	10.8 EER 11.0 IEER	11.5 EER 11.6 IEER	11.3 EER 11.8 IEER	11.5 EER 11.9 IPLV	12.0 EER 12.4 IPLV
>=240k - <760k	Electrical Resistance	Not defined	10.0 EER 10.1 IEER	Not defined	10.0 EER 10.5 IEER	10.7 EER	11.0 EER
	All Others	Not defined	9.8 EER 9.9 IEER	Not defined	9.8 EER 10.3 IEER	10.5 EER 10.9 IPLV	10.8 EER 12.0 IPLV
>=760k	Electrical Resistance	Not defined	9.7 EER 9.8 IEER	Not defined	9.7 EER 10.2 IEER	9.9 EER	10.4 EER
	All Others	Not defined	9.5 EER 9.6 IEER	Not defined	9.5 EER 10.0 IEER	9.7 EER 11.0 IPLV	10.2 EER 11.0 IPLV

Program Challenges

- ▶ Peak load is increasing faster than average load for electric utilities (narrower peaks)
- ▶ Rise in material costs have impacted utility cost-effectiveness tests
- ▶ Varying legislative issues dictating program retooling and design
- ▶ Lack of system metrics for meeting growing needs and challenges

Program Trends

- ▶ Broadening prescriptive measures to include economizers, DCV and VSDs
- ▶ Incorporating whole building approaches that make use of retro-commissioning
- ▶ Training and certification emphasis in programs to create appropriate “efficiency experts” for effective delivery

Objectives of Session

- ▶ Learn about implications of part load metric on commercial unitary HVAC programs
- ▶ Discuss initial program methods for calculating and including energy savings resulting from better part load system performance
- ▶ Work together to identify and prioritize the common program resources needed by program designers and

Introduction to New Part Load Metric, IEER

Colin Odell, ICF Consulting

Program Approaches

Judy Stasack, NYSERDA

Brainstorm Activity

- ▶ Small group discussion to identify resources and tools for program support
 - Fact Sheets, Tech Briefs
 - Incremental Cost Information, Cost Effectiveness Calculators
 - Program Guidance Document