

**Zero Energy Commercial Buildings Consortium  
MELs Working Group First Call  
June 8, 2010**

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**Welcome and Introductions**

1. Overview of agenda
  - *Objectives, Approach, Structure*
  - *Timeline*
  - *Commercial Building MEL Background*
  - *Proposed MEL chapter outline*
  - *Next steps*
2. Chair Introductions

**Consortium Objectives and Deliverables**

- Statement of Need
  - *Imperative to reduce energy use in commercial building sector, mandated into law in 2007*
  - *Challenges and barriers to doing so (fragmented sector, split incentives, lack of awareness and expertise, high perceived risk in risk-averse sector, etc.).*
  - *Milestones are:*
    - o ***NZE New commercial buildings by 2030***
    - o ***NZE for 50% of all commercial buildings by 2040***
    - o ***NZE for all commercial buildings by 2050***
- Consortium's Approach
  - *The CBC was conceived as a way to bring diverse stakeholders together to facilitate concerted industry action to develop solutions to those barriers, share knowledge, and make connections.*
  - *To date, there has been a great deal of industry interest. We have over 350 organizations registered, with over 200 active organizations, many with several individuals who are ready to engage. In some cases, individuals are also signed up for multiple working groups.*
  - *This high volume is encouraging and shows that there are dedicated actors like you who are ready to tackle these issues. At the same time, the high volume has presented organizational challenges. We want to be very thoughtful in establishing the initial structure so we can best use everyone's expertise and time.*
  - *We greatly appreciate your patience in these early months of the consortium as we grapple with these challenges.*
- Task 2 – Next Generation Technologies Report; Task Lead, Brad Hollomon
  - o Objectives:
    - i. Advance technologies that are not ready or economical today but are nonetheless needed to achieve zero energy buildings
    - ii. Characterize gaps between technical feasibility and market achievability of selected technologies
    - iii. Devise and recommend ways to bridge these gaps through:

1. Technology improvements through R&D priorities and other focused innovation mechanisms
2. Accelerated adoption and propagation of the technologies through enhanced institutional policies and programs

Other Goals from CBC Webinar

- Extend and take advantage of ongoing DOE Commercial Buildings Energy Alliance (CBEA) technology identification and screening effort (<http://www1.eere.energy.gov/buildings/alliances/>)
  - Stimulate introduction of new technology by providing ready market for efficient products and systems
  - Expand awareness of emerging technology as it becomes available
- Task 3—Analysis of Cost and Non-cost Barriers Report; Task Lead, Dave Hewitt
- o Objectives:
    - i. Identify and characterize market barriers
    - ii. Assess policies and programs to date and identify characteristics and strategies of successful programs
    - iii. Make recommendations on what promising solutions and approaches may warrant additional resources or complementary policies

**Technologies & Practices**

- Building Envelope
- Mechanical Systems and Controls
- Lighting/Daylighting and Controls
- Process, IT, and Misc. Equipment
- Grid and Micro-Grid Integration

**Market & Policy**

- Codes and Standards
- Integrated Design and Building Delivery
- Benchmarking and Performance Assurance
- Financing and Appraisal
- Voluntary Programs, Incentives, & Green Building Initiatives
- Owner/Tenant Issues
- Workforce Development

**Working Groups in Context of Task 2 and 3**

- *Coordination with Task Leads : The two working group tracks will feed directly into their respective reports. Technologies & Practices for Task 2 and Market & Policy for Task 3.*
- *Each working group will comprise one chapter in one of the two reports.*
- *Each working group chair will have regular contact with their task lead and with other working group chairs.*
- *Task Leads have developed preliminary report outlines to help structure input from the working groups.*
- *Staff from NASEO and the Alliance to Save Energy support task leads and working group chairs in scheduling and logistics for calls and meetings and coordinating and synthesizing input between chairs, task leads, and steering committee members.*

- *Based on the findings and recommendations from tasks 2 and 3, the CBC will report back to DOE and provide input into DOE's planning process.*

### **Working Group Process and Structure**

1. Expectations for Members –See [Working Group Charter](#) online for more.
  - *Participate on calls and meetings*
  - *Provide input as specified by WG chairs on calls and through correspondence*
  - *Draft documents*
    - o *Each call we will try to identify a few key issues to delve into, and solicit volunteers to draft short sections (2-4 paragraphs) on that topic to start with*
  - *Review documents and draft reports*
2. Calls
  - *Will be at least 2-4 calls for the whole group, with potential for additional subgroup calls*
  - *Calls may not be the most effective way to do work due to the size of the groups. Instead, the online file-sharing platform will provide a virtual space to facilitate correspondence.*
3. Meetings
  - *As work progresses, there may be in-person meetings attached to other industry events. Come if you can.*
4. Online Platform
  - *Hosted by NREL, the Plone site will be where chairs post meeting agendas and minutes, documents, and reports.*
  - *Members can comment on documents and reports and respond to other posted comments*
  - *Members can post resources or documents they think other people should see*
  - *There is also a calendar which will show all the call and meeting date and times*
  - *Comments/suggestions on process?*
  - *What else do you think will be helpful for you?*

### **Working Groups**

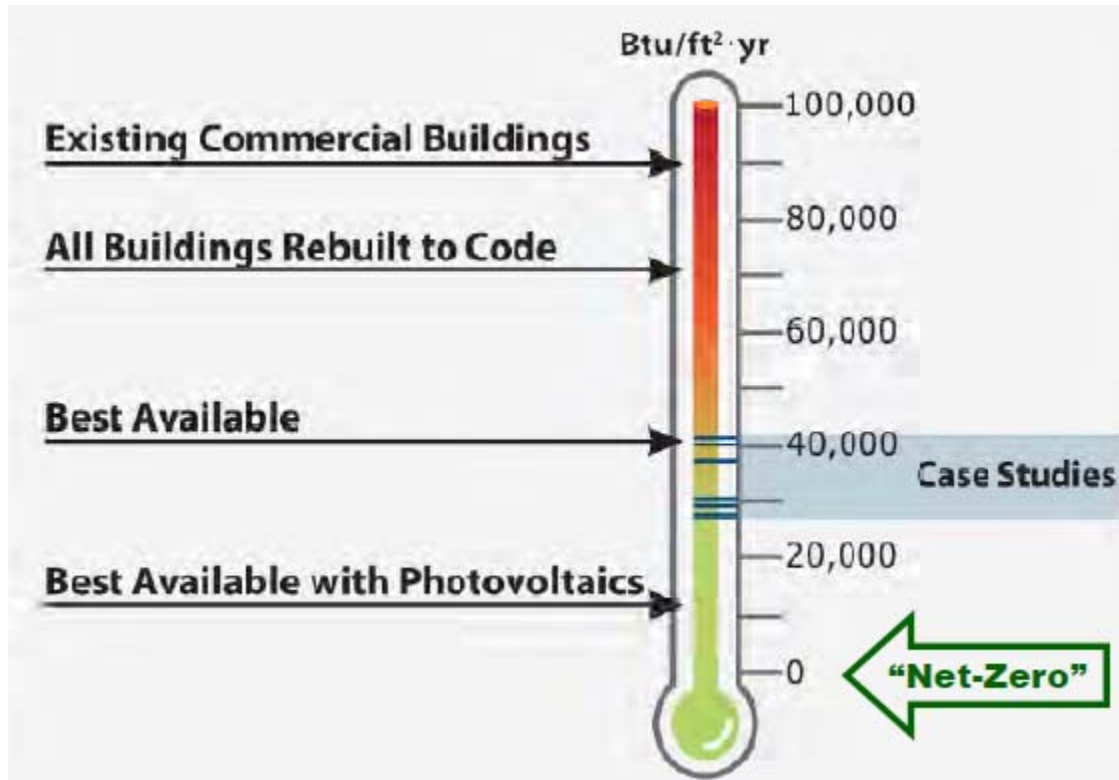
1. Commercial Interest and Antitrust Guidelines
  - *As we get started, we really want to emphasize that these groups are meant to be collaborative and everyone is signed up here to contribute to efforts to transform the sector.*
  - *Members are not to use meetings or informal conversations of this forum to fix prices or otherwise lessen competition by:*
    - o *boycotting or excluding competitors*
    - o *reduce, restrict, or limit in any manner, the kinds, quantities, sizes, or qualities of products*
    - o *reduce or limit products or innovation*
    - o *make decisions based on economic reasons over scientific evidence*
  - *Nor should members use this forum as a way to further personal business interests through marketing, soliciting, or client prospecting*
  - *Communications through e-mail and the online file-sharing site should stay on topic.*
2. Review draft Working Group Scope (see online at [Process, IT, Misc Eq page](#))

### 3. Questions and Suggestions

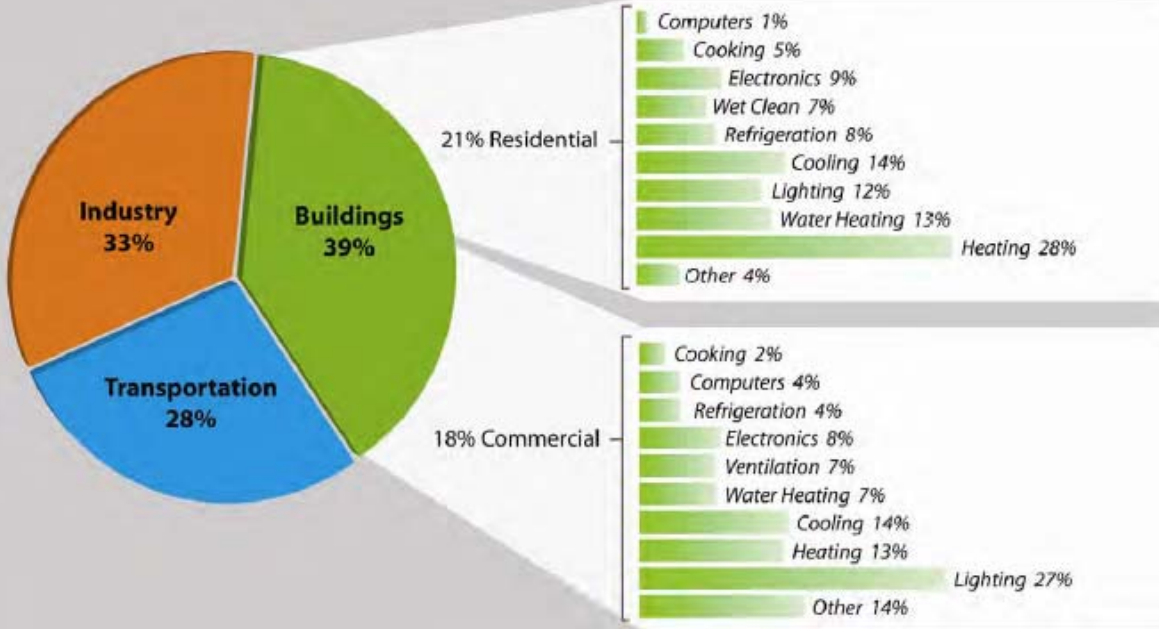
#### MEL Chapter Key Milestones

- Prelim draft chapter: mid-Aug
- Draft chapter: Aug
- Draft Integrated Tech Report: Sep
- Final Reports: Dec

#### Background



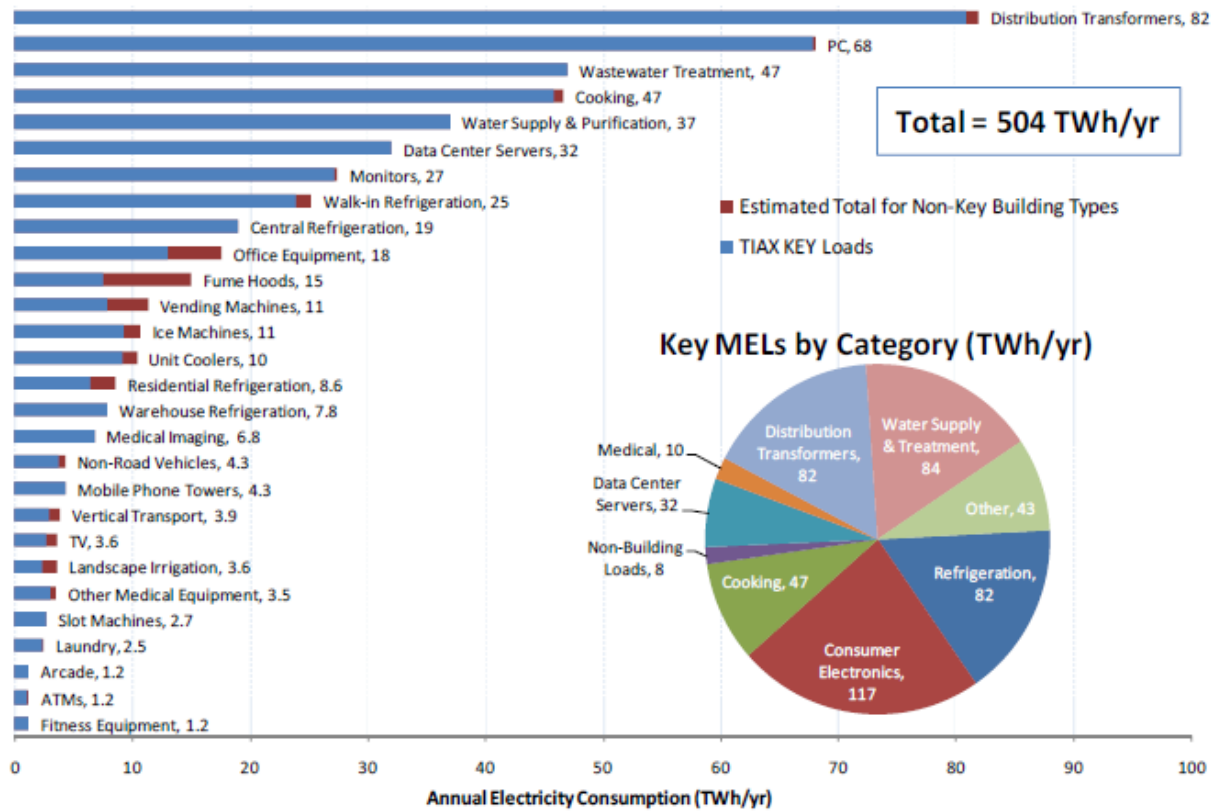
## 2006 Buildings Share of U.S. Primary Energy Consumption End-Uses



Source: Buildings Energy Data Book <http://buildingsdatabook.eren.doe.gov/>  
 Tables 1.1.3, 2.1.5, 3.1.4

Note: The "Adjust to SEDS" percentages for the residential and commercial end-use splits were distributed among the other categories.

### Total AEC in Commercial Building Sector by Load

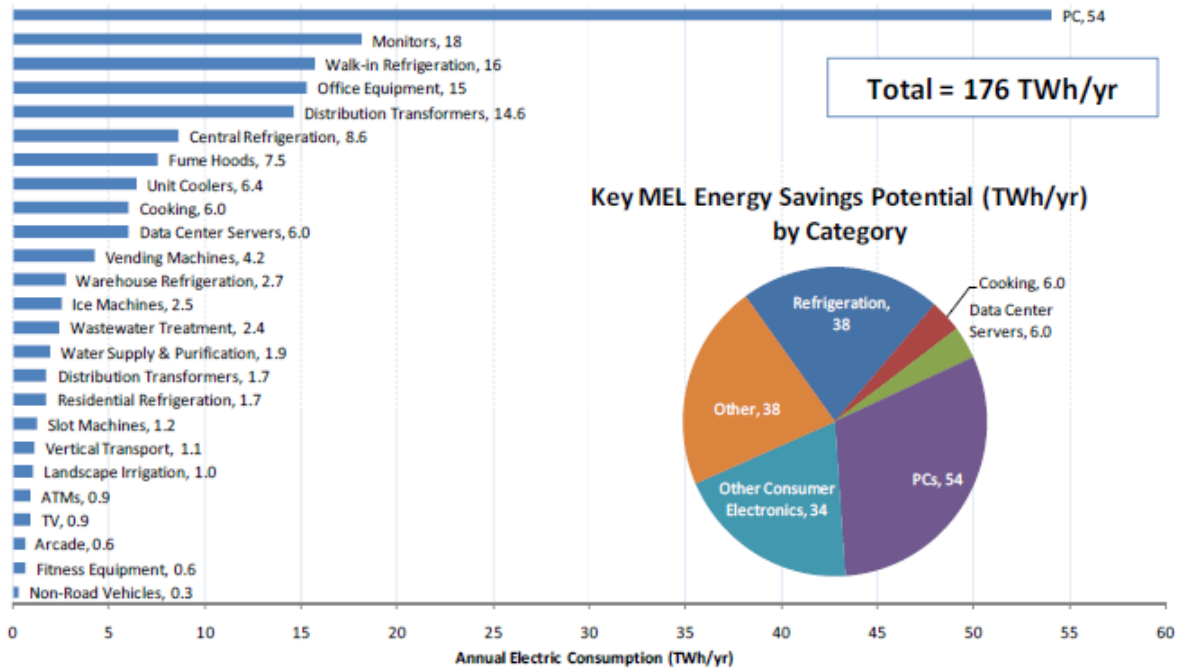


**Figure 4:** Consumer electronics and refrigeration, in aggregate, account for nearly 40% of the evaluated MELs.

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<sup>1</sup> TIAX, May 2010

### Best-in-class Energy Savings Potential (TWh/yr)



**Figure 5:** Achievement of this energy savings potential could reduce C-MEL energy consumption by 176 TWh/yr, thereby reducing C-MELs from approximately one third of commercial primary energy, one quarter.<sup>7</sup>

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### Evaluate cross-cutting technologies

Measure	Description	Applicable Loads
Power Management and Automation	Automated or manual use of Sleep/Off modes, e.g., PC hibernation. Use of occupancy or other sensors	Slot Machine, PC, Monitor, Office Equipment, Arcade, ATM, Vending, Fume Hoods, Elevators, Laundry
Efficient Power Supplies	Advanced power supplies allow for a greater amount of electric input to be utilized by the device instead of wasted as heat	PC, Office Equipment
Efficient Fans/motors	ECM Motors, optimized geometry fan blades	Refrigeration, Fume Hoods, Laundry
Reduced/Automated Lighting	Lighting of unoccupied spaces can be significantly reduced through automated lighting controls. Convert all systems to high efficiency CFL or LED.	Vending, Refrigeration, ATM, Elevators
Advanced Displays	High efficiency LCD screens, advanced backlighting, e.g., LED or OLED, automatic brightness control	Monitors, Office Equipment, ATM, Slot Machines, Arcades
Minimize Conditioned Air Loss	Thicker insulation for refrigeration, especially walk-in, and reduced usage of open cases in supermarkets will reduce both refrigeration and space heating loads. Recuperative ventilation systems on fume hoods can reduce space conditioning loads significantly.	Refrigeration, Fume Hoods
Passive Cooling	Improved mechanical design mitigates the need for active cooling.	Office Equipment, Servers, PCs

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<sup>2</sup> TIAx, May 2010

### Proposed MEL Chapter Outline (8 – 10 pages)

1. Scope
2. Related studies
3. 40 Year Vision for MELs in commercial buildings
4. High level barriers to vision
5. Breakthrough technologies in support of vision  
*Consider Electronics, Refrigeration, and Cooking and cross-cutting technologies such as efficient power supplies, and power management including occupancy sensors and user controls. Look for breakthrough technologies beyond today's best in class. For each technology area develop the following*
  - **Topic area definition**: say why it is important on the path to zero energy buildings.
  - Assessment of the current **state of the art** of the technology area related to low-energy/net zero buildings. This does not need to describe all aspects involved or all approaches to the topic; but should include: major critical challenges examples of significant progress, opportunities for breakthroughs, and key technologies on the horizon.
  - **Gaps and Barriers** What are the barriers, analysis gaps, capability gaps, policy issues, etc. that negatively impact the ability of the state of art from advancing a) in terms of development and b) in terms of adoption and real-world application across the country.
  - **Recommendations for Action** What key actions are needed, including legislation, federal and state programs and policies, academic research, and investments and decisions by the private sector.
6. Conclusion

### Next steps for workgroup members

- Sign-up to write sections above
- Propose breakthrough technologies [web collaboration tools?]
- Recruit experts in the field

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<sup>3</sup> TIAX, May 2010