Welcome and Introductions
Don Frey welcomed the group. Attendees introduced themselves.

Commissioning with Demand Response
Mary Ann Piette gave an overview of her work on automated demand response (DR) strategies and commissioning commercial building controls. The objectives of the project are to develop a DR communications structure and control strategies, evaluate the role of commissioning in execution of DR strategies and improve the understanding of the link between DR and energy efficiency. She provided a definition of demand response, explained its relevance to the commissioning industry, and explained the primary
motivations for demand response: economic (saves money) and citizenship (protects the grid, improves reliability).

The three-year project included a total of 32 sites in California and New York. The most successful strategy was direct digital control global temp adjustment. Field tests show DR potential is 5-10% in most buildings with advanced controls, though automation appears feasible with many systems. The project often uncovered commissioning measures such as air balancing, duct static pressure reset, zone temperature reset and night time fans left on. Addressing these measures before implementing auto-DR strategies was found to be the best starting point for successful auto-DR.

Mary Ann noted that she is currently recruiting buildings into the program, and is looking for reviewers for Demand Response Strategies Guide. Anyone interested in the opportunities should contact Mary Ann at mapiette@lbl.gov

Discussion
In a brief discussion of the presentation, Craig Sheehy commented on the difficulties of applying DR to leased/commercial spaces.

Building Operator Training – Energy Centers (Chris Shockman)
Chris Shockman presented her recent project: California New Energy Centers – Operator Education in the 21st Century.

Chris explained that the energy field and commissioning industry is advancing rapidly and the workforce is not able to keep up. The vision for creating Energy Centers at the community college level would address the need for educating operators as opposed to training them. Current energy education programs are HVAC-based, and don’t teach about all the opportunities and new technologies (demand response, commissioning, etc.). Several obstacles challenge the growth of the workforce:

- Recruiting students is not easy. This is a male-dominated field and fewer men are going to college. Fewer and fewer high schools have vocational programs that direct people toward the industry.
- Building operator as a profession has low awareness and is misunderstood.

The Energy Center’s Assembly Bill will allow for the creation of improved and advanced energy education programs. Next steps in this effort are: supporting energy education, developing the political will in favor of Energy Centers, building individual programs and developing infrastructure within energy organizations to provide ongoing assistance.

For more information or to get involved, contact Chris Shockman. 408.246.3436; chrisshockman@comcast.net

Update on Green Building Committee (Jim Parks)
Jim Parks gave an update on the progress of the Green Buildings Committee. The Governor’s Executive Order (EO) includes mandates for benchmarking, commissioning
and retrocommissioning to increase energy efficiency in government, private and commercial buildings. Four work groups have been established to address the mandates: Energy Efficiency Plan and Strategies; Benchmarking; Commissioning and Retrocommissioning; Owner Commitment Campaign.

The Commissioning and Retrocommissioning Work Group’s scope is to suggest an approach to promote widespread use of Commissioning, with these desired outcomes:
- Make Cx standard practice for owners, managers and operators.
- Increase awareness of importance and value of Cx among owners.
- Develop accepted methodology and practice to get cost-effective results.
- Cx training for building operators becomes standard practice.
- Provide the means for a sufficiently trained labor force.

The Group’s work is closely tied to CCC tasks and initiatives including developing case studies, marketing commissioning, identifying existing programs and training. It is expected that the CCC will work closely with the Green Building effort to produce the final report. The Work Group is soliciting more input and discussion on priorities to finalize work plan, collaborative with CCC.

**Overview of Program Priorities**

Don Frey reminded the group about the slate of projects developed and prioritized by the Advisory Council earlier this year. There are 19 projects for 2006-07 with a budget of $1,400,000; the 2006 budget is $548,000. At their meeting on May 5, the Board asked that the Advisory Council make sure the plan addresses needs of all stakeholders.

Don reviewed the prioritization of tasks in the program plan, matched to the 2006 budget, and illustrated how tasks meet the needs of utilities, providers and owners in different ways. Owners have voiced their opinion of programs that are most valuable to them – some are not currently planned for funding in 2006. This perspective indicates that a slight reallocation of project funding would help better accommodate owner perspective.

**Discussion of Owner Perspectives**

Don Frey opened this discussion by asking those who represent owner interests to share their thoughts before opening up the discussion.

Craig Sheehy: Commissioning is one of the most exciting things going on in commercial real estate, but it is not well known. Owners are missing out on opportunities to participate. Utility priorities are opposite of owners, and the two sides don’t speak the same language. Building owners need as much info as possible. The industry is conservative. Need proven case studies on what can actually be done.

Scott Williams: Commissioning is difficult to sell internally. If stakeholders don’t understand building technology, they are lost right away. They don’t understand why all buildings don’t function optimally. They need to hear simple definitions and explanations
of commissioning. We need a one page executive summary with potential and costs and benefits to sell to corporate stakeholders. Tailor commissioning case studies to owners and market segments (retail, restaurant, etc.) and address specific owner needs instead of using the same process for every commercial building. The quality of third-party providers is a concern – they need more education and training. Need to balance demand generation efforts with developing the supply of service providers.

Karl Brown: Need for better educated and stronger workforce at building operator level. The Green Buildings Initiative is about mainstreaming commissioning and it’s not obvious how to do that without strengthening infrastructure through training.

Don opened up the discussion for others. Many commented on the need for standardized language and marketing efforts that raise awareness and fluency in commissioning and retrocommissioning. For example, case studies and a single-sheet executive summary (definition of commissioning and financial case) would be possible tools to help sell owners on commissioning projects. LEED was brought up as an example of a successful marketing effort of an unfamiliar and unknown concept that now has high awareness.

The discussion returned to the slate of projects for 2006-07, with the intention of addressing owner concerns and making a recommendation to the Board to allow for authorization of funds for the approved projects.

Phil Welker presented an overview of the relationship between projects and how they fit together, explaining that the Advisory Council has the opportunity to direct the focus of the projects and possibly adjust the timing of projects. Phil walked through a proposed revision of budget allocations, and asked the Advisory Council to carefully consider the budget and priorities to allow at least a portion of projects to be recommended to the board for funding approval. This would allow work to move forward over the remainder of 2006.

The Advisory Council amended the proposed 2006 project slate to include $20,000 for Analysis of Educational Opportunities:

<table>
<thead>
<tr>
<th>Project</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin</td>
<td>$141,000</td>
</tr>
<tr>
<td>Cx and RCx Guidelines</td>
<td>$49,000</td>
</tr>
<tr>
<td>Market Research</td>
<td>$66,000</td>
</tr>
<tr>
<td>RCx Toolkit</td>
<td>$84,000</td>
</tr>
<tr>
<td>Acceptance Testing Training</td>
<td>$82,000</td>
</tr>
<tr>
<td>Verification of Savings</td>
<td>$45,000</td>
</tr>
<tr>
<td>Support for Decision Makers</td>
<td>$30,000</td>
</tr>
<tr>
<td>Analysis of Educational Opportunities</td>
<td>$20,000</td>
</tr>
<tr>
<td>Case Studies</td>
<td>$25,000</td>
</tr>
<tr>
<td>Outreach to Owner Groups</td>
<td>$5,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$547,000</strong></td>
</tr>
</tbody>
</table>
Don Frey made a motion to recommend the proposed project slate and budget allocations. Pat Pico seconded the motion.

*The CCC Advisory Council shall recommend the agreed upon slate of projects and budget allocations for 2006 for approval by the Board of Directors.*

The motion passed with 13 in favor, 0 opposed, and 0 abstained.

It was noted that the project roster won’t be accomplished even in 2007 due to the constraints of the budget and that delay in taking action on projects may result in CCC becoming a follower instead of a leader in the industry.

**Market Sector Targets**

Phil Welker presented highlights of the Market Research project and Kristin Heinemeier explained that the intent of the project is to focus on a few sectors where we can be most effective and that the direction of this work will follow through to other interrelated projects to form a cohesive effort from the CCC. The goal of this discussion would be providing criteria to be used in selecting the market sectors to be studied. Martha Brook provided a break down on electricity use by building type to inform the discussion.

The group recommended the following criteria:

1. Look at current utility programs for their target building criteria
2. What sectors present opportunities for retrocommissioning success stories
3. High energy usage
4. Medium energy usage and high square footage
5. Avoid government buildings
6. Look at new construction sector breakdown to identify sign of future growth opportunities
7. In what sectors can we make the most difference with this project? What sectors have high potential for leveragability (tipping points)?
8. What decision makers are most likely to buy in to retrocommissioning programs? Avoid hard-to-reach markets.
9. What sectors have commissioning champions, which sectors need a champion?
10. Look at third party real estate management firms vs. owner managed to reach multi-tenant buildings

Kristin asked for interest in serving on a technical advisory group. Ken Gillespie, Scott Williams, Brian Smith and Chris Shockman indicated their interest. Others should contact Kristin if they would like to participate.
Retrocommissioning Tools
Kristin Heinemeier provided an overview of the project and explained that it originally was targeted to providers, but could include other targets. The toolkit will include sample docs, draft templates, etc. It could also include tools for decision makers and others. The group offered the following comments to consider in developing the toolkit:
- Identification of project opportunities – screening tools
- How to determine if in-house staff can lead/implement a RCx project
- End use analysis
- Sample documents are of high interest to people who use the CCC website.
- An online resource for operators to share experiences and knowledge

Kristin asked for interest in serving on a technical advisory group. David Jump and Ken Gillespie indicated their interest. Others should contact Kristin if they would like to participate.

Advisory council Roster: Vacancies, and Owners
Don Frey announced that the Advisory Council needs to fill the vacancy left by Glenn Friedman’s resignation from the group. Phil Welker suggested that the group consider the needs of the council – more owner participants, or representation from other interested parties such as a designer, code official. Phil also described the process for nominating new members: the Advisory Council provides a list of recommended nominees to the Board; the Board approves the list to be vetted for interest and availability from the nominees; of those interested and available, the Advisory Council selects a nominee to recommend to the Board for approval.

Two individuals were named as possible nominees: George Denise from Cushman Wakefield and Cliff Moriyama (as a representative from BOMA). The group also mentioned considering an IFMA representative to bring a facilities perspective to the council (Chris Shockman will follow up with a specific suggestion). Phil requested that Advisory Council members send other names to the CCC by the end of the week.

It was also noted that Tony Pierce is no longer with SCE and will be considered for the vacant spot on the Advisory Council. Tony served as a Board alternate for SCE; Gregg Ander will provide a new alternate to take Tony’s place.

Upcoming Meetings: Formats, Topics, and Dates
Don Frey explained that at the request of the Advisory Council, the meeting format was change this year to include informative presentations and Advisory Council business in a day-long meeting. He requested feedback on this format and the group agreed that it was a positive change. It was noted that the goals and desired outcomes of the meeting should be stated clearly at the beginning of the meeting. Additional discussion of meeting formats included the possibility of 2-day meetings to allow for in-depth work sessions and fewer meetings throughout the year. Some concerns were expressed about travel
costs for 2-day meetings, but that the council may consider this format on an as-needed basis. It was also suggested that conference calls can be effective to accomplish specific tasks. Conference calls could be alternated with 2-day meetings to control costs.

Don introduced a discussion of proposed meeting dates, stating that holding Advisory Council and Board meetings on the same days allows Board members to attend Advisory Council meetings. Phil noted that scheduling all the meetings for the upcoming year should allow for more participation. The consensus from the group was that Thursdays are the best day, with proposed dates and meeting locations as follows:

| Date    | Location
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>September 14</td>
<td>SCE</td>
</tr>
<tr>
<td>November 16</td>
<td>PG&amp;E</td>
</tr>
<tr>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>February 8</td>
<td>SMUD</td>
</tr>
<tr>
<td>April 12</td>
<td>SDG&amp;E</td>
</tr>
<tr>
<td>June 7</td>
<td>PG&amp;E</td>
</tr>
<tr>
<td>August 23</td>
<td>SMUD</td>
</tr>
<tr>
<td>November 8</td>
<td>SoCal Gas</td>
</tr>
</tbody>
</table>

Don asked for any additional feedback on the proposed dates to be sent to the CCC in the next week so they can be finalized and published.

**Conclusion**

Don Frey thanked Jim Parks and SMUD for hosting the meeting and for the active participation of the attendees.