

July 30, 2013

MEMORANDUM FOR: JOHN CONTI  
ASSISTANT ADMINISTRATOR FOR ENERGY  
ANALYSIS

PAUL HOLTBERG  
TEAM LEADER  
ANALYSIS INTEGRATION TEAM

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DIRECTOR  
OFFICE OF ENERGY CONSUMPTION AND EFFICIENCY  
ANALYSIS

FROM: BUILDINGS CONSUMPTION & EFFICIENCY ANALYSIS  
TEAM

SUBJECT: First AEO2014 Buildings Sector Working Group Meeting  
Summary (presented on 07-22-2013)

Attendees: James Berry (EIA OES)  
Stephanie Burns (IMT)  
Gwendolyn Bredehoeft (EIA OEA)  
Paul Holtberg (EIA OEA)  
Colin McMillan (NREL)  
Danielle Mayclin (EIA OES)

Attending by Phone: Justin Baca (SEIA)  
Bill McNary (EIA OES)  
Alan Swenson (EIA OES)  
Elena Alschuler (DOE EERE)  
Mark Friedrichs (DOE EERE)  
JD Doliner (Alliance for Green Heat)  
Xiaoqing Sun (Georgia Tech)  
Marilyn Brown (Georgia Tech)  
Frances Wood (OnLocation)  
Robert Lorand (SAIC)  
Olga Livingston (PNNL)  
Sameer Kwatra (ACEEE)

Presenters: Erin Boedecker  
Owen Comstock  
Kevin Jarzomski  
David Peterson  
Steve Wade

**WORKING GROUP PRESENTATION FOR DISCUSSION PURPOSES ONLY  
DO NOT QUOTE OR CITE AS RESULTS ARE SUBJECT TO CHANGE**

The buildings presentation provided a discussion of the projects underway and anticipated for AEO 2014. An overview of the projects discussed is included in the presentation materials provided as a separate attachment.

Specific discussion/questions:

1. Discussion of the update and expansion of miscellaneous end-use loads (MELs) included questions about what share of “other” electricity use will the new MELs assumptions affect and whether pool heaters will be represented by fuel source. Many of the uses are already represented in NEMS with the new MELs report providing an update to previous estimates and projected trends so the additional share of electricity consumption carved out of “other” will not be that large. Some of the uses that weren’t previously covered include commercial video displays and lab refrigerators and residential computer networking equipment. Residential pool pumps and pool heaters comprise one of the new categories provided in the report. The MELs report only covers electric loads meaning at this point only electric pool pumps and heaters will be represented. EIA hopes to eventually specifically include pool heaters that use other fuel sources, but for AEO2014 these heaters will remain part of the “other” category for each fuel.
2. Additional discussion regarding MELS included questions about the elimination of the end use category for external power supplies and what causes the large difference between 2005 and 2009 estimates for rechargeable devices. External power supplies are still covered in the model under their parent devices to avoid the potential for double-counting consumption. The rechargeable device category is one of the most difficult to characterize and estimate due to the wide variety in both type and use of these devices. Also, a portion of the category is covered by the standard limiting standby power to one watt.
3. Discussion of the pending update to commercial hurdle rates generated questions about what new reports are being used in addition to the Johnson Controls reports and how hurdle rates affect adoption of solar photovoltaic (PV). The new reports EIA mentioned in the presentation are the most recent annual indicator surveys from Johnson Controls. The hurdle rate distribution applies to end-use equipment while adoption of PV and other distributed generation (DG) technologies is handled with a cash-flow calculation and penetration function. Further information on the DG modeling methodology was requested and was sent after the meeting. Georgia Tech will also share some analysis work they have done on modeling PV costs and penetration.
4. The discussion of DG led to questions about how interconnection limitations are developed. The limitations apply a state-level score to new construction based on each state’s policies regarding DG with state scores aggregated to the Census division level for model input.
5. EIA was contacted several days after the meeting by an attendee requesting clarification regarding EIA’s investigation of ENERGY STAR commercial

floorspace. EPA's ENERGY STAR building website has a downloadable buildings locator spreadsheet that tracks buildings by type, location, label year, year constructed, and floorspace. EIA is going to analyze how this information might be useful in projecting some portion of building shell improvements or possibly service demand reductions over time. The impacts of ENERGY STAR buildings are inherently included in the AEO's historical consumption data, though EIA has no explicit projections going forward.

Complete Listing of Invitees:

Ackerly, John (Alliance for Green Heat)  
Alex, Aileen (DOE)  
Alschuler, Elena (DOE EERE)  
Amann, Jennifer (ACEEE)  
Ames, Mark (ASHRAE)  
Anderson, David (PNNL)  
Antypas, Yanna (EIA OEA)  
Azevedo, Ines (Carnegie Mellon)  
Baca, Justin (SEIA)  
Bahei-Eldin, Ahmed (GE)  
Barbour, Edward (Navigant)  
Barker, Breton (DOE EERE)  
Bell, Mathias (Rocky Mountain Institute)  
Belzer, Dave (PNNL)  
Bergman, Aaron (DOE PI)  
Berry, James (EIA OES)  
Bredhoeft, Gwendolyn (EIA OEA)  
Brodrick, James (DOE EERE)  
Broene, Thomas (EIA)  
Brown, Austin (NREL)  
Brown, Marilyn (Georgia Tech)  
Burns, Stephanie (IMT)  
Carmichael, Robert (Navigant)  
Carroll, Ryan (Alliance for Green Heat)  
Chase, Alex (Energy Solutions)  
Cogan, Jonathan (EIA OC)  
Conti, John (EIA OEA)  
Cureg, Edgardo (EIA OES)  
Cymbalsky, John H (DOE EERE)  
Daniels, David (EIA OEA)  
deLaski, Andrew (Appliance Standards Awareness Project)  
Dion, Jerry (DOE EERE)  
Dirks, James A (PNNL)  
Doliner, JD (Alliance for Green Heat)

Drury, Easan (NREL)  
Feldman, Dave (NREL)  
Fireovid, James (SAIC)  
Friedrichs, Mark (DOE EERE)  
Garg, Rishi (Office of the People's Counsel-DC)  
Gruenspecht, Howard (EIA)  
Harris, Jeff (ASE)  
Harvey, Stephen (EIA OES)  
Henry, Dave (DOC)  
Hodson, Elke (DOE)  
Holtberg, Paul (EIA OEA)  
Hunter, David (EPRI)  
Kaarsberg, Tina (DOE EERE)  
Kelso, Jordan (D&R International)  
Kwatra, Sameer (ACEEE)  
Laitner, Skip (Economic and Human Dimensions Research Associates)  
Larsen, John (DOE PI)  
Leifman, Michael (GE)  
Lewis, Katie (EIA OES)  
Livingston, Olga V (PNNL)  
Lorand, Robert (SAIC)  
Lu, Ruey-Pyng (EIA OES)  
Majersik, Cliff (IMT)  
Margolis, Robert (NREL)  
Marnay, Chris (LBNL)  
Mayclin, Danielle (EIA OES)  
Mayes, Fred (EIA OEA)  
McDonald, Sean (PNNL)  
McNary, William (EIA OES)  
Meyer, John (SAIC)  
Michaels, Joelle (EIA OES)  
Mignone, Bryan NMN (DOE PI)  
Narayanan, Raj (GE)  
Neff, Shirley (EIA)  
Neubauer, Max (ACEEE)  
Nicholls, Andrew (PNNL)  
Niebling, Charles (Alliance for Green Heat)  
Nordman, Bruce (LBNL)  
O'Brien, Eileen (EIA OES)  
Olsen, Jay (EIA OES)  
Palmer, Karen (RFF)  
Pearson, Gina (EIA)  
Ramea, Kalai (UC Davis)  
Rosenquist, Gregory J. (LBNL)

Schuur, Arah (DOE EERE)  
Steinberg, Daniel (NREL)  
Stellberg, Sarah (IMT)  
Stokes, Kem (DOC)  
Swenson, Alan (EIA OES)  
Taylor, Cody (DOE EERE)  
Ulrey, Peri (NGSA)  
Utzman-O'Neill, Diane (HHT)  
Wang, Joy (Georgia Tech)  
Wang, Yu (Georgia Tech)  
Wiser, Ryan (LBNL)  
Wood, Frances (OnLocation)  
Yeh, Sonia (UC Davis)