

Buildings Working Group Meeting

AEO2018 Debrief and AEO2019 Updates



Office of Energy Consumption and Efficiency Analysis

May 31, 2018 | Washington, DC

By

Buildings Energy Analysis Team

Overview

- AEO2018 debrief
- AEO2019
 - Major model updates
 - Policy assumptions
 - Historical updates
- Medium-term projects
- Long-term projects
- Discussion/ polling questions

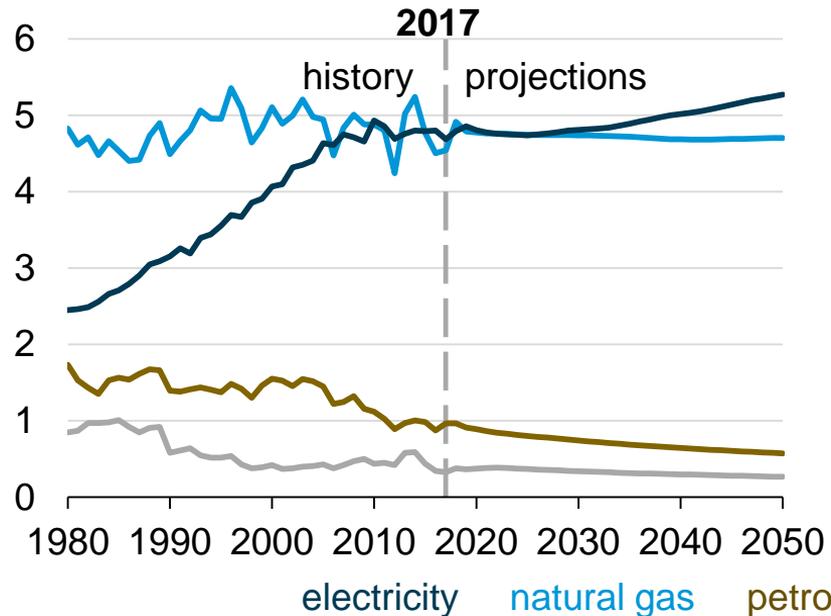
AEO2018

AEO2018 debrief—some reminders

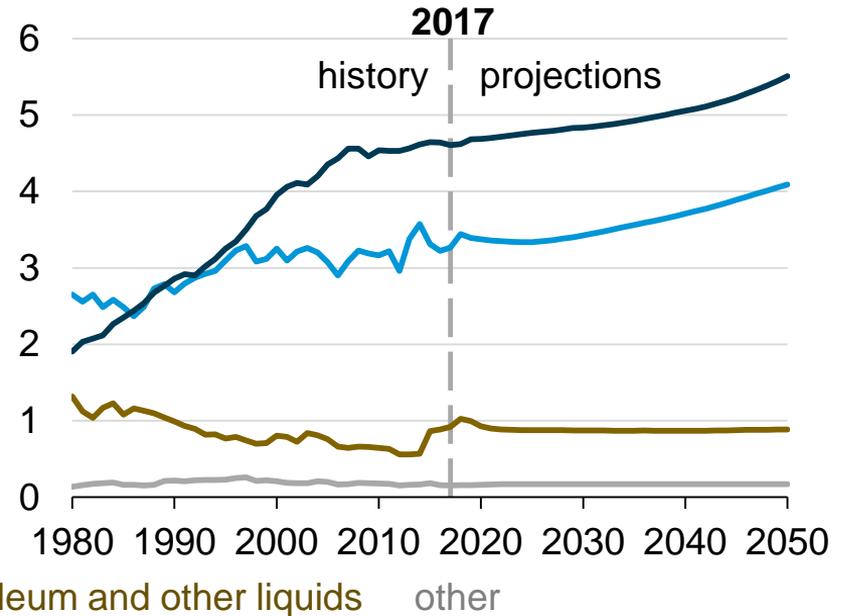
- 2018 EIA Energy Conference
 - June 4–5, 2018 at the Washington Hilton in Washington, DC
 - *Energy efficiency of buildings as a competitive factor* breakout session, Monday, June 4 at 4:00 p.m.
 - Concurrent EIA breakout sessions on Tuesday afternoon include *Future directions for EIA's consumption and efficiency data program* and *Current market and future outlook for energy storage*
 - <https://www.eia.gov/conference/2018/>
- Interactive graphs available as part of our online data table browser
 - <https://www.eia.gov/outlooks/aeo/data/browser/>
- AEO and other select EIA data available as part of our Application Programming Interface (API) tools
 - <https://www.eia.gov/opendata/>
- *Alternative Policies in Power Generation and Energy Demand Markets* Issues in Focus
 - https://www.eia.gov/outlooks/aeo/section_issues.php#ppg

AEO2018 debrief (continued)

Residential sector energy consumption
quadrillion British thermal units



Commercial sector energy consumption
quadrillion British thermal units

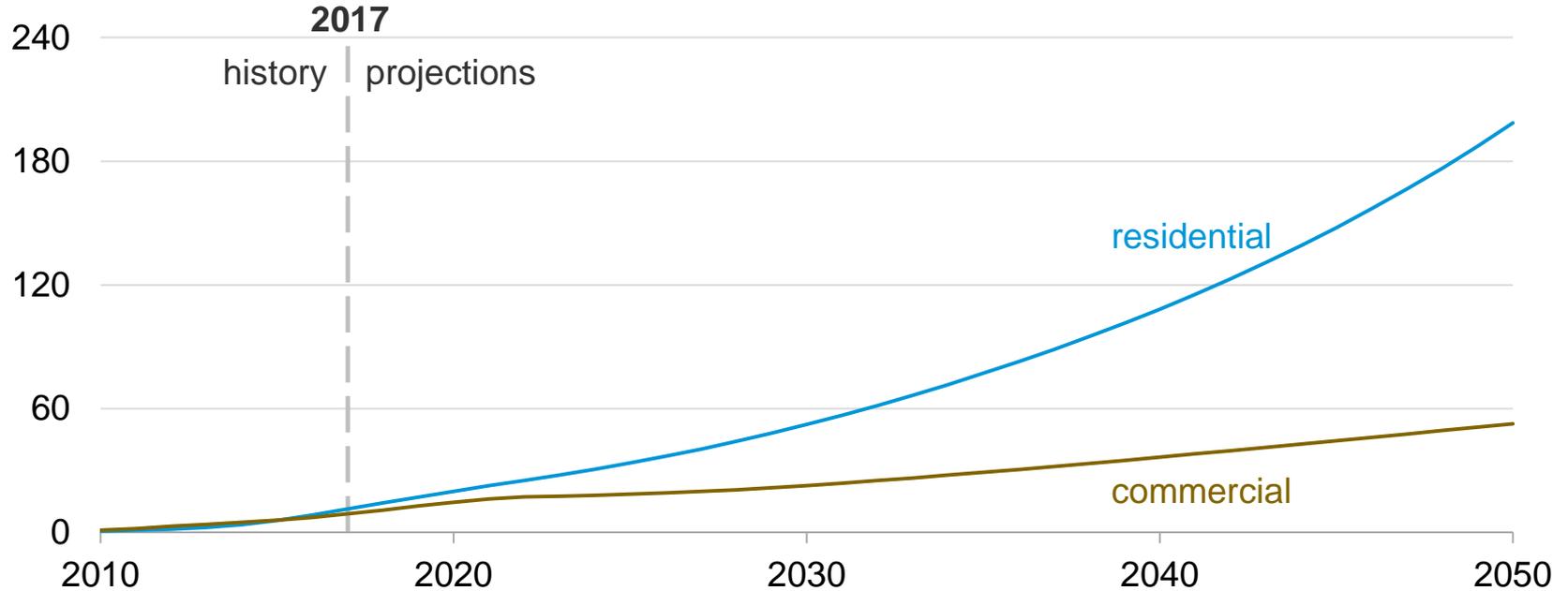


AEO2018 Reference case



AEO2018 debrief (continued)

Buildings solar photovoltaic capacity
gigawatts DC



AEO2018 Reference case

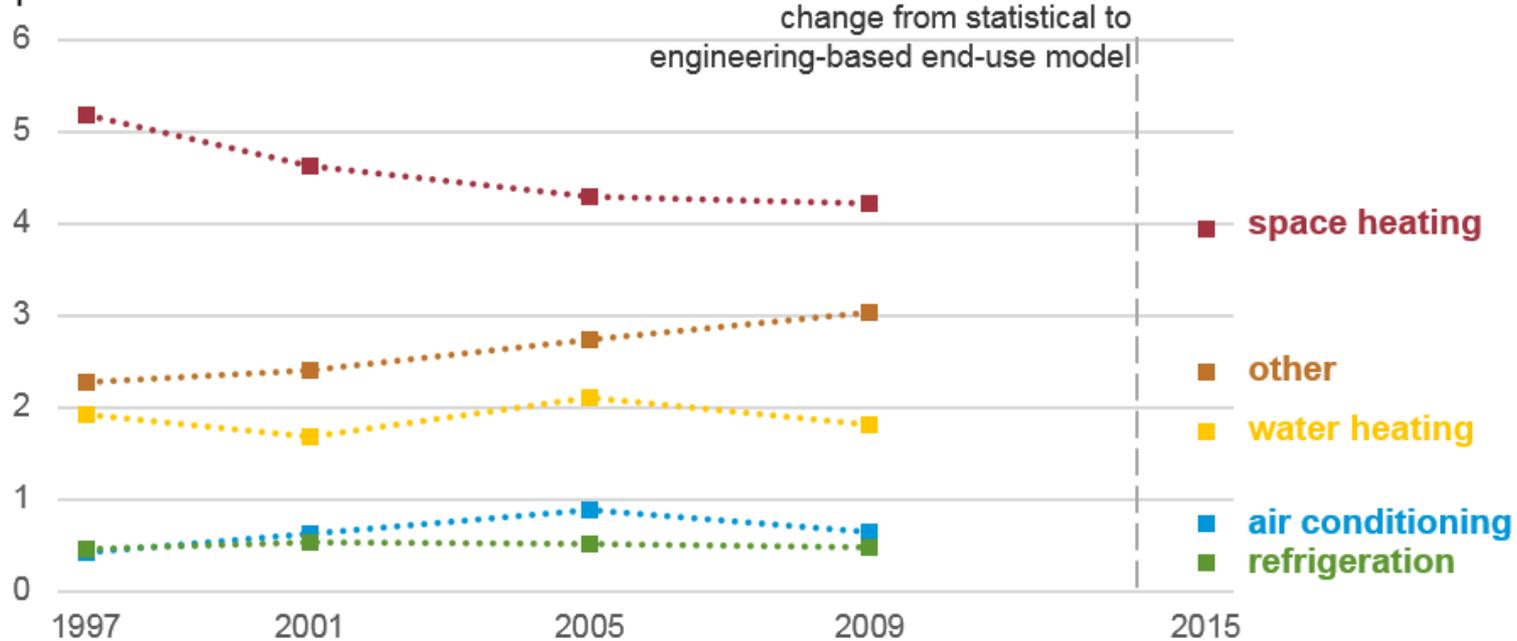
AEO2019 (and beyond)

AEO2019 major model updates

- Investigating impacts of California's mandate for solar PV on new residential buildings
- Updating major end-use technology menus
 - residential and commercial space heating and cooling, water heating, residential appliances, commercial cooking (draft commercial space heating and cooling updates used for AEO2018)
 - Updated report data will be posted to the web here:
<https://www.eia.gov/analysis/studies/buildings/equipcosts/>
- Incorporating 2015 Residential Energy Consumption Survey (RECS)
 - Consumption and revised characteristic microdata to be posted to the web:
<https://www.eia.gov/consumption/residential/>

AEO2019 major model updates—2015 RECS

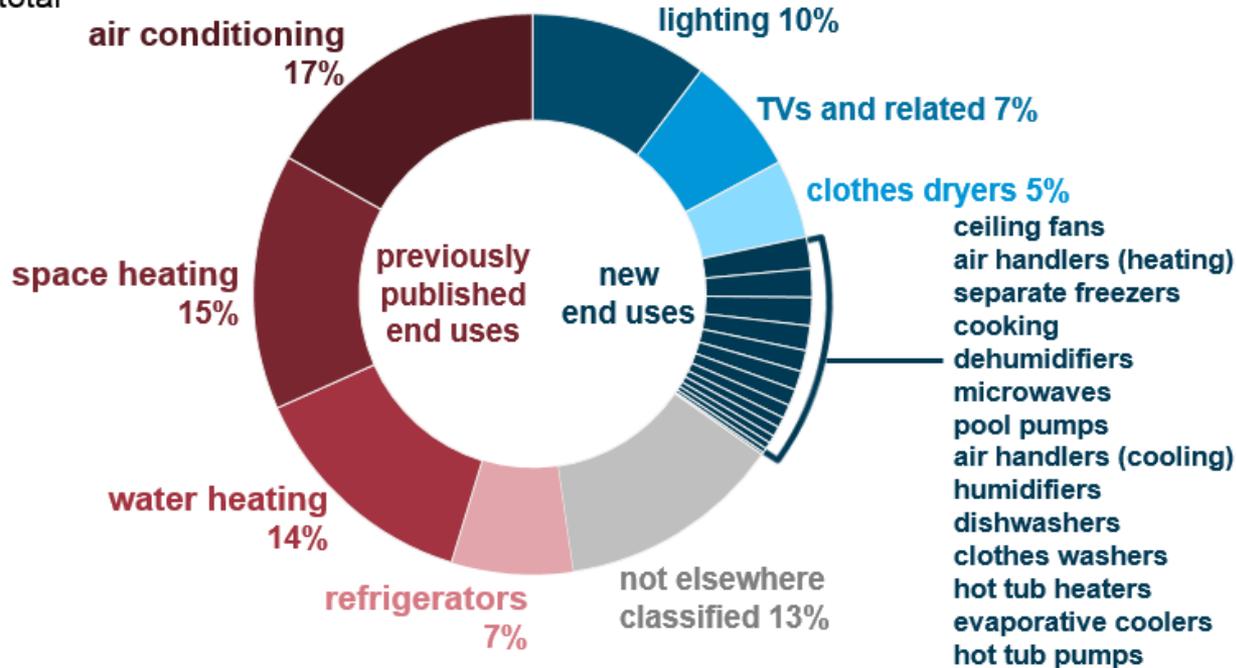
Total consumption by end use, Residential Energy Consumption Surveys, 1997-2015
quadrillion British thermal units



2015 RECS

AEO2019 major model updates—2015 RECS

Residential electricity consumption by end use, 2015
percent of total



2015 RECS



AEO2019 policy assumptions

- Standards for portable air conditioners, uninterruptible power supplies, and commercial boilers were finalized at the end of 2016; however, they have yet to be published to the Federal Register.
- Identify any new ENERGY STAR specifications as they affect major end-use equipment and miscellaneous electric loads (MELs)
 - Also working with other DOE offices and national labs to develop consistent terminology and characterization of MELs

AEO2019 historical updates

- Sectoral energy consumption by fuel
 - Monthly Energy Review (MER)
 - Short-Term Energy Outlook (STEO)
- NOAA weather data and forecast
- Calibrate new residential heating equipment shares based on U.S. Census Bureau's Survey of Construction
- Continue to refine historical (and projected) impacts of utility energy efficiency incentives

Medium-term projects

- Update distributed generation and combined heat & power (CHP) characteristics and costs
- Investigate impacts of low income energy efficiency and weatherization projects
- Characterize whole-building sensor and control technologies
- Research energy efficiency and renewable energy policies affecting buildings in Germany
- Finish working with Northeast Energy Efficiency Partnerships (NEEP) to improve data collection for and understanding of utility energy efficiency programs

Long-term projects

- Research alternate distributed generation electricity rate policies (i.e., retail versus wholesale rate for sales back to the grid)
- Investigate modeling of battery storage technologies for buildings
- Research use of district services in China
- Research energy efficiency and renewable energy policies affecting buildings in Indonesia and the Middle East

Discussion/ polling questions

- How do you use AEO building energy projections?
- What AEO scenarios do you use most frequently?
- How frequently do you refer to the AEO?
- What suggestions do you have for us?

For more buildings information

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For more information

U.S. Energy Information Administration home page | www.eia.gov

Buildings Working Group materials | www.eia.gov/outlooks/aeo/workinggroup/buildings/

Today in Energy | www.eia.gov/todayinenergy

Annual Energy Outlook | www.eia.gov/aeo

Short-Term Energy Outlook | www.eia.gov/steo

State Energy Data System | <http://www.eia.gov/state/seds/>

Monthly Energy Review | www.eia.gov/mer

Residential Energy Consumption Survey | <http://www.eia.gov/consumption/residential/>

Commercial Building Energy Consumption Survey | <http://www.eia.gov/consumption/commercial/>

International Energy Portal | <http://www.eia.gov/beta/international/>

Bonus Slides

Buildings-related reports

- Updated Buildings Sector Appliance and Equipment Costs and Efficiency: <https://www.eia.gov/analysis/studies/buildings/equipcosts/>
- Analysis and Representation of Miscellaneous Electric Loads (MELs) in NEMS: <https://www.eia.gov/analysis/studies/demand/miscelectric/>
- Distributed Generation System Characteristics and Costs in the Buildings Sector: <https://www.eia.gov/analysis/studies/buildings/distrigen/>
- Modeling Distributed Generation in the Buildings Sectors: <https://www.eia.gov/outlooks/aeo/nems/2017/buildings/>
- Price Elasticities for Energy Use in Buildings of the United States: <https://www.eia.gov/analysis/studies/buildings/energyuse/>