

Data collection and efficiency metrics for the services sector: Commercial Buildings Energy Consumption Survey (CBECS)



For:

*Fourth workshop of the G20 end use data and energy efficiency metrics initiative
October 29, 2020*

By:

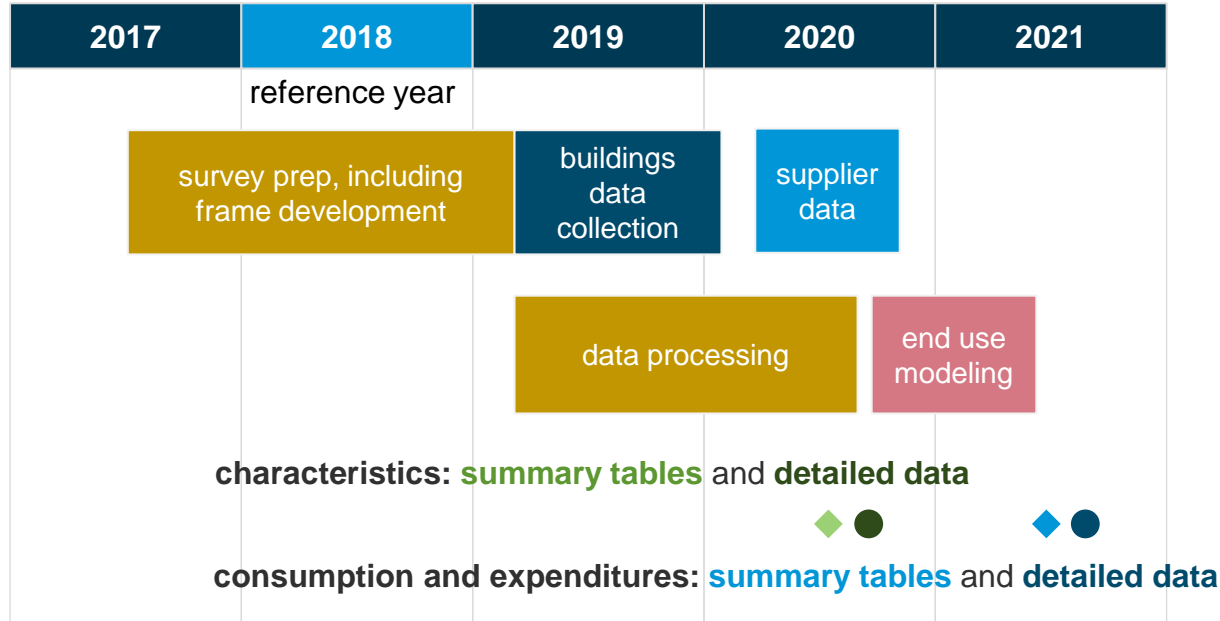
*Ian Mead, Director of Energy Demand and Integrated Statistics
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CBECS forms basis of efficiency metrics for service sector

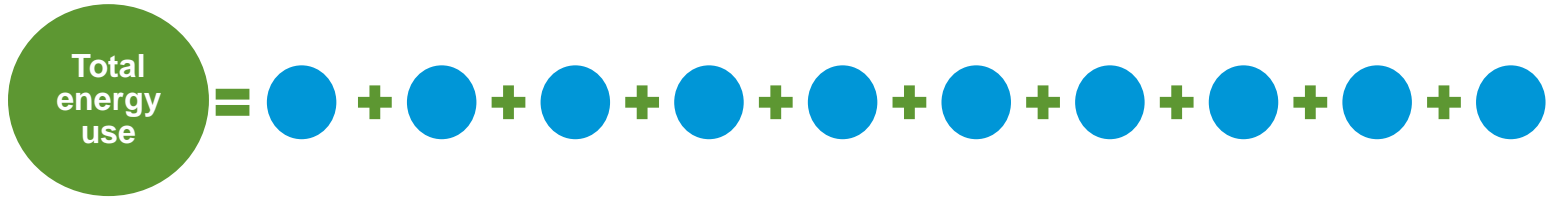
- The only independent, statistically representative source of national-level data on the characteristics and energy use of commercial buildings
- A data collection that produces a snapshot of the commercial buildings stock and their energy use for a reference year, most recently 2018
- The base year data for EIA's modeling system sourced for annual energy efficiency indicators to the International Energy Agency



CBECs cycle consists of two data collection phases



EIA uses engineering and statistical models to disaggregate total energy consumption into end use estimates

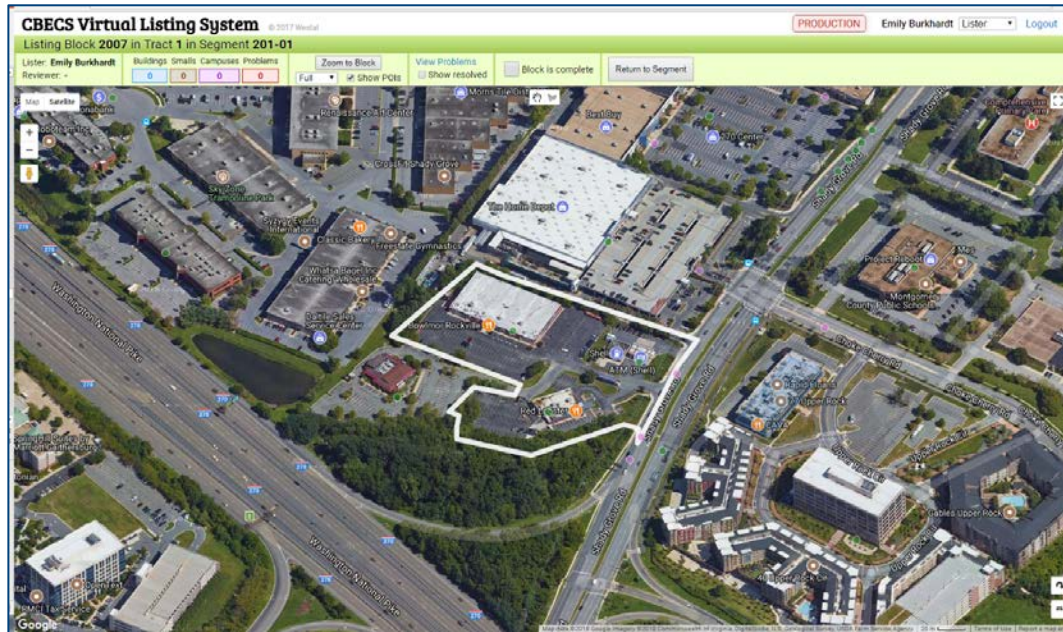


ENERGY SOURCE	Space heating	Space cooling	Ventilation	Water heating	Lighting	Cooking	Refrigeration	Computing	Office equipment	Other
Electricity	X	X	X	X	X	X	X	X	X	X
Natural gas	X			X		X				X
Fuel oil	X			X		X				X
District heat	X			X		X				X

Commercial end uses model: <http://www.eia.gov/consumption/commercial/estimation-enduse-consumption.cfm>

EIA used virtual listing to create 2018 CBECS area frame

- *Virtual listing*: Area frame created using satellite imagery and GIS tools will replace traditional on-the-ground listing in many areas



2018 CBECS made several data collection improvements

- Modernized survey processes—listing, screening, case management, etc. are transitioned to applications on iPhones and tablets
- Provided self-administered, web option for the building questionnaire

Evolution of survey modes across CBECS survey years

Mode	1979	1983	1986	1989	1992	1995	1999	2003	2007	2012	2018
Paper and pencil	X	X	X	X	X						
Telephone							X			X	X
In-person						X		X	X	X	X
Web											X

Summary

- CBECS serves as the base for EIA efficiency metrics for the service sector
- CBECS is a complex survey requiring multiple stages of collection and processing to release final statistics
- CBECS data are processed in EIA's modeling system to produce the annual energy efficiency indicators submitted to the International Energy Agency

