Managing the Fast-Track Transformation of a 35-Year Old Federal Survey

For:
FedCASIC
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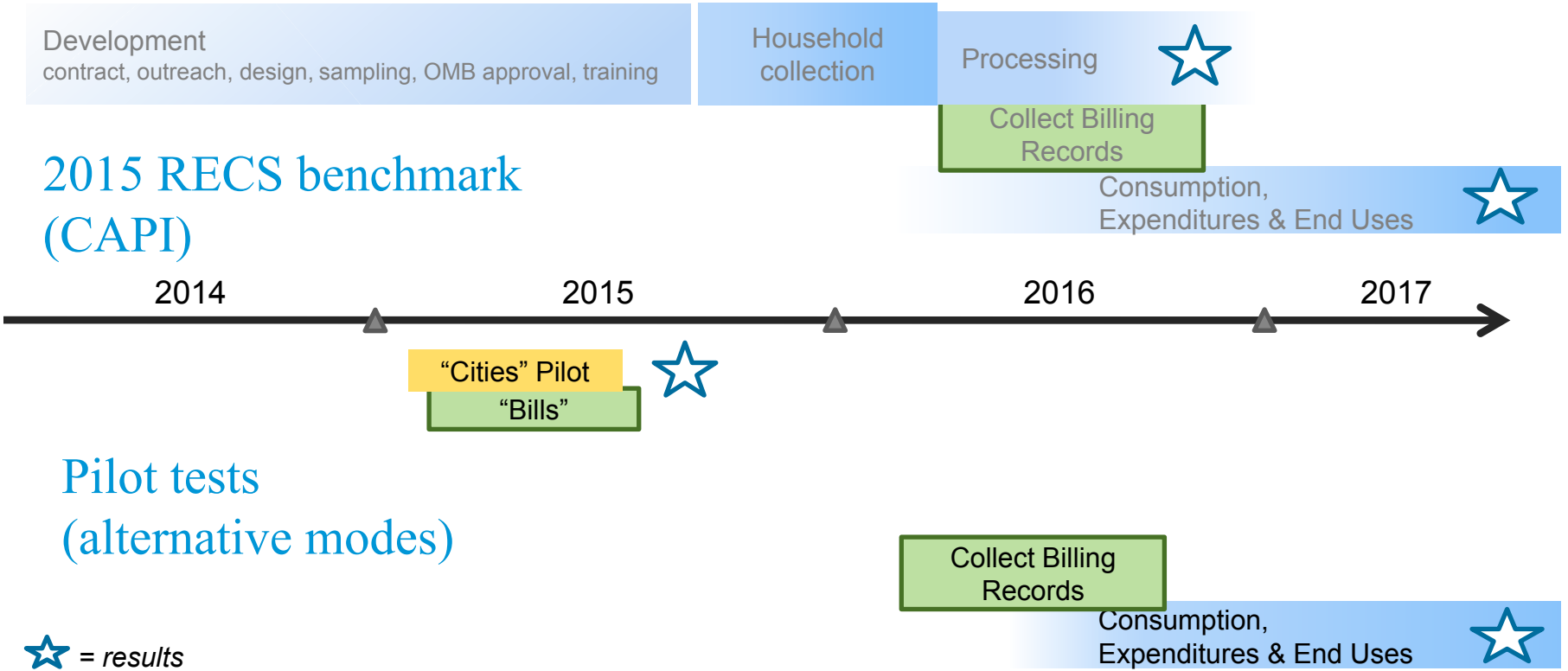
The Residential Energy Consumption Survey (RECS) originated in 1978 as an annual collection

- Resource constraints shifted RECS to a quadrennial cycle by 1997
- Content and methods relatively stable since inception
  - Voluntary, in-person interviews of nationwide sample of households; CAPI since 1997
  - Captures detailed information about energy consuming equipment/devices, behavior, building characteristics, demographics, measured square footage
  - Follow-on data collection captures actual household consumption and cost from energy suppliers
- Key benchmark estimates and uses: modeled end-use consumption and cost, market share of equipment/appliance/device types

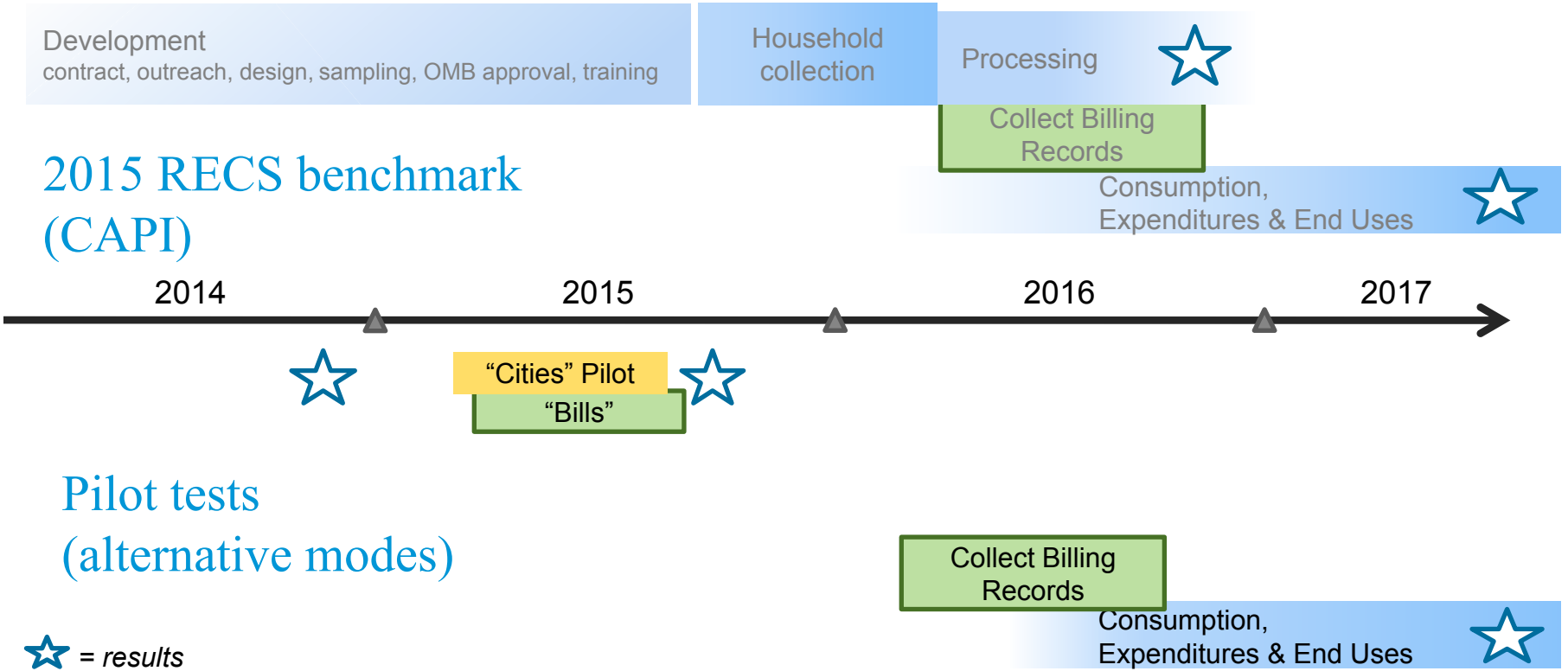
EIA commissions CNSTAT to study building consumption surveys; 2012 report includes 17 recommendations for RECS

- Improve timeliness and increase frequency
  - Rotating sample
  - Multimode/alternate mode collection
  - Streamline editing
- Fill geographic and sub-population data gaps
- Explore longitudinal studies
- Test a short and long form RECS
- Keep pace with rapid changes in energy consuming devices

EIA developed phased strategy to explore use of alternative data collection modes for RECS



Opportunity to conduct additional pilot test emerged in late 2013



RECS Pilot Planning: Key management and design decisions

- 2015 RECS (CAPI) scope reduced to free resources for Pilots
- Less prescriptive procurement vehicle (Statement of Objectives) allowed for more innovative proposals
- At least one test concurrent with 2015 RECS (CAPI)
- JPSM study gave us a running head start for the Cities Pilot
- Multi-mode, Web/Paper approach used for all 3 tests

Procurement for pilot tests released via Statement of Objectives; language invites innovation

With the rising cost of in-person interviews and the time lapse between each RECS cycle, EIA seeks to test the feasibility, cost effectiveness, time efficiency, and response validity of conducting the RECS Household Survey in new modes.

Less costly modes that produce statistically valid results would put the RECS program on a more sustainable path. Furthermore, a new data collection platform may allow EIA to extend program capacities to cover special topics and data gaps, as well as develop estimates for small areas.

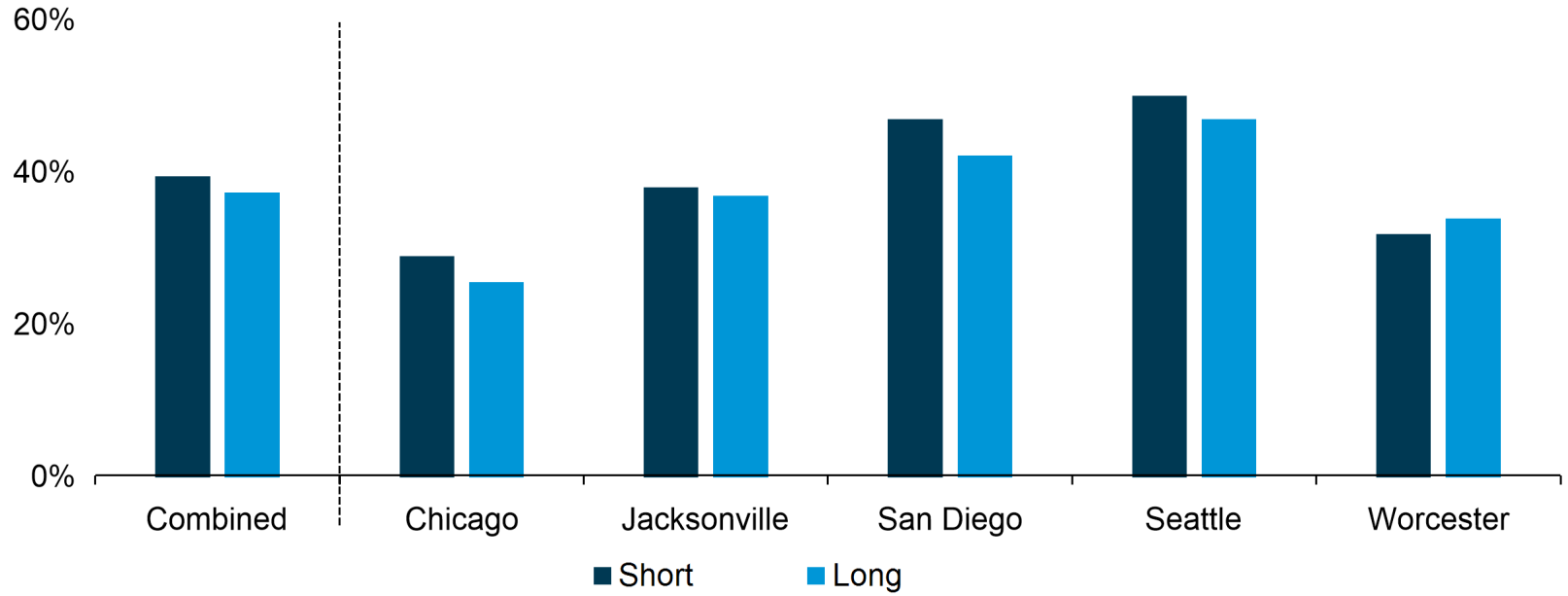
Key performance metrics from RECS Cities Pilot

- Overall response rate of 38% eclipses 32% target
- No difference between RECS “short” (20 minute) form and “long” (30 minute) form response rate; Web/Paper version of RECS can capture about as much information as traditional RECS
- Respondent distributions of key variables (e.g. main space heating fuel and year of construction) are similar to Census Bureau estimates
- Over 50% response via Web; an increase from 33% in JPSM study; Paper is still needed to interact with some respondents

Seattle response highest; Chicago lowest; No significant difference between short (20 minute) and long (30 minute) response rates

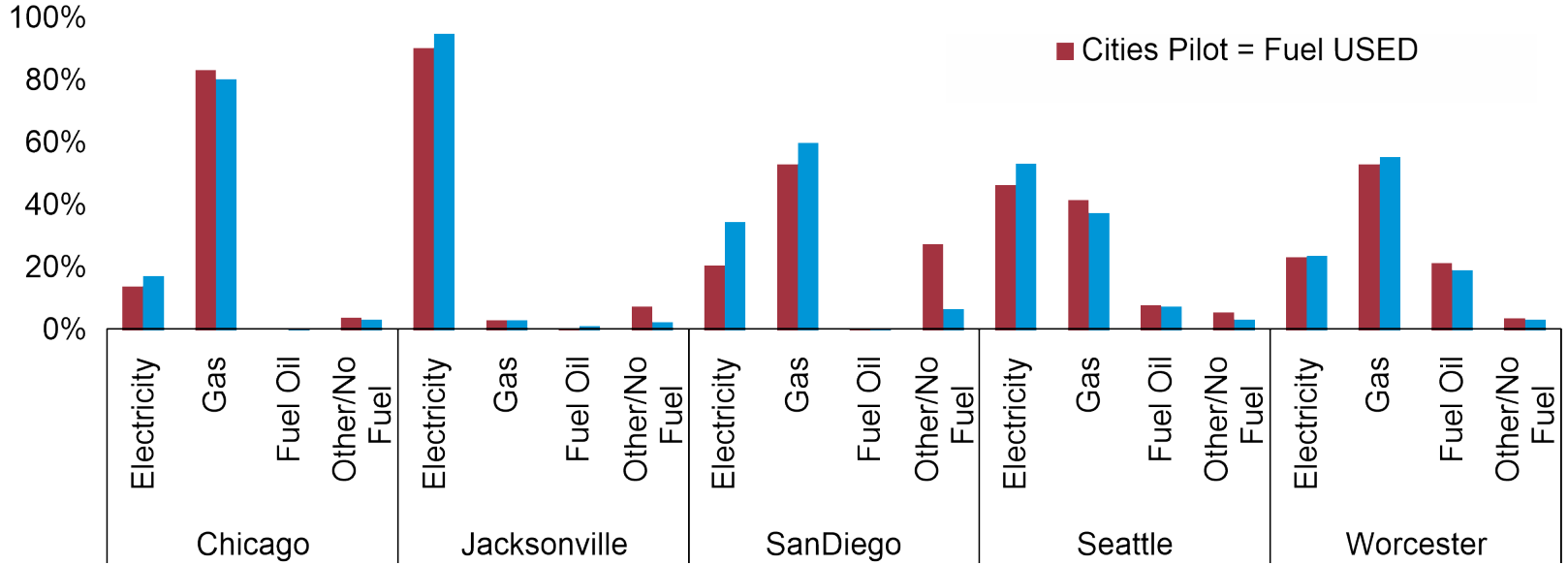
Cities Pilot response rates, by city and form length

percent



Daily ATD reports track key coverage and data quality metrics; Ex: Heating fuel distributions similar to Census estimates

main heating fuel, by city
percent of households



Early Cities Pilot analysis key to National Pilot planning

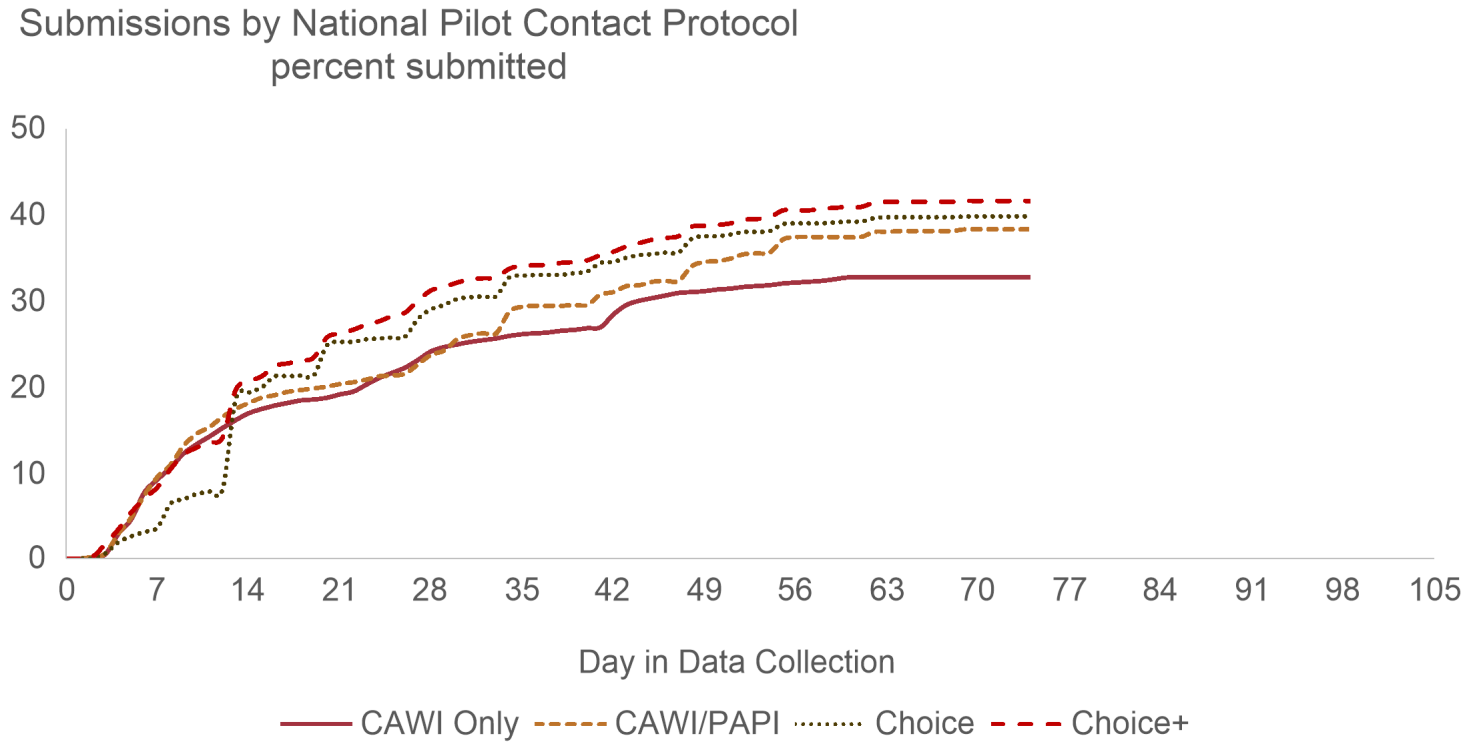
- Use long (30 minute) form; minor changes to questions and format
- Daily reports (ATD) modified and expanded
- Response and coverage results are promising; suggests Web/Paper are viable tools for future RECS
- Additional experiments necessary to inform future design; how can we drive more respondents to the Web?

Sample of 9,650 households invited to participate in the RECS National Pilot

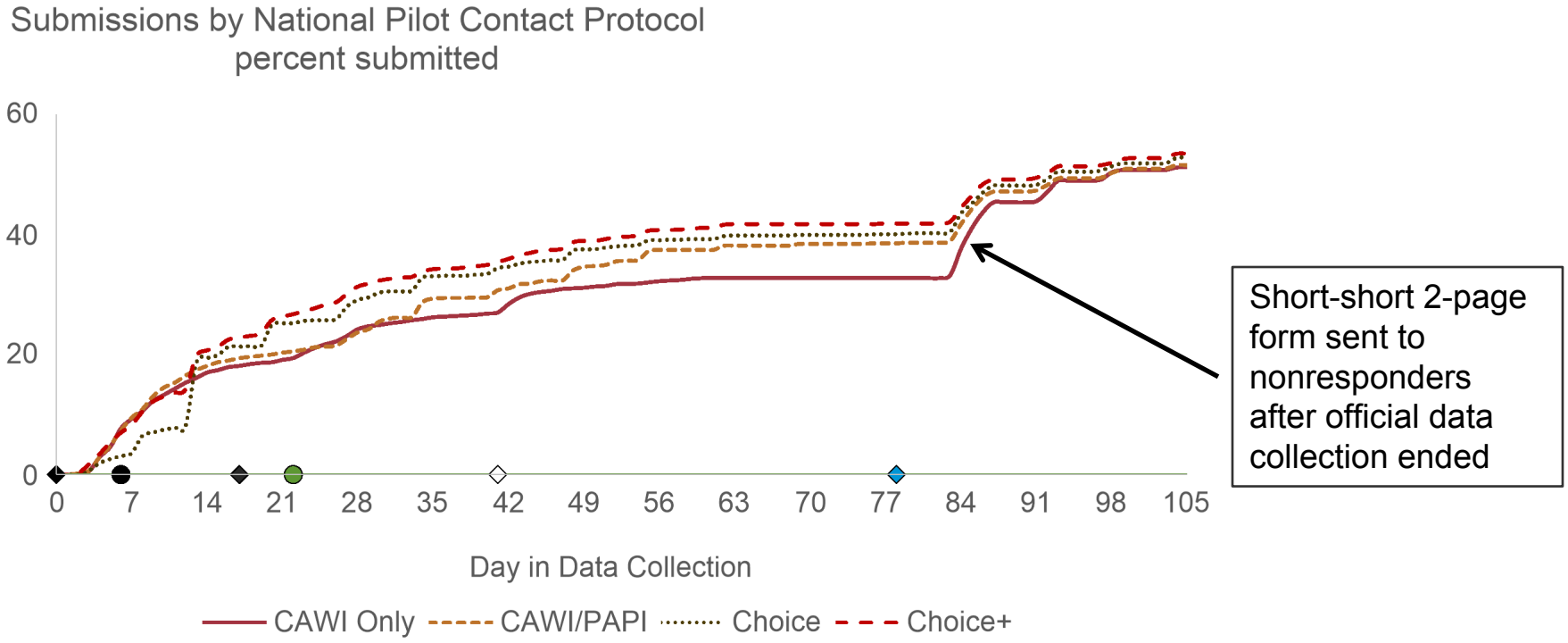
- 4 contact experiment groups; 2 incentive levels

Contact Strategy	Promised Incentive (all receive $5 in advance)	
	Low	High
Web (CAWI) Only	$10	$20
Web (CAWI), then Paper (PAPI)	$10	$20
Choice	$10	$20
Choice Plus	$10 for Paper $20 for Web	$20 for Paper $30 for Web

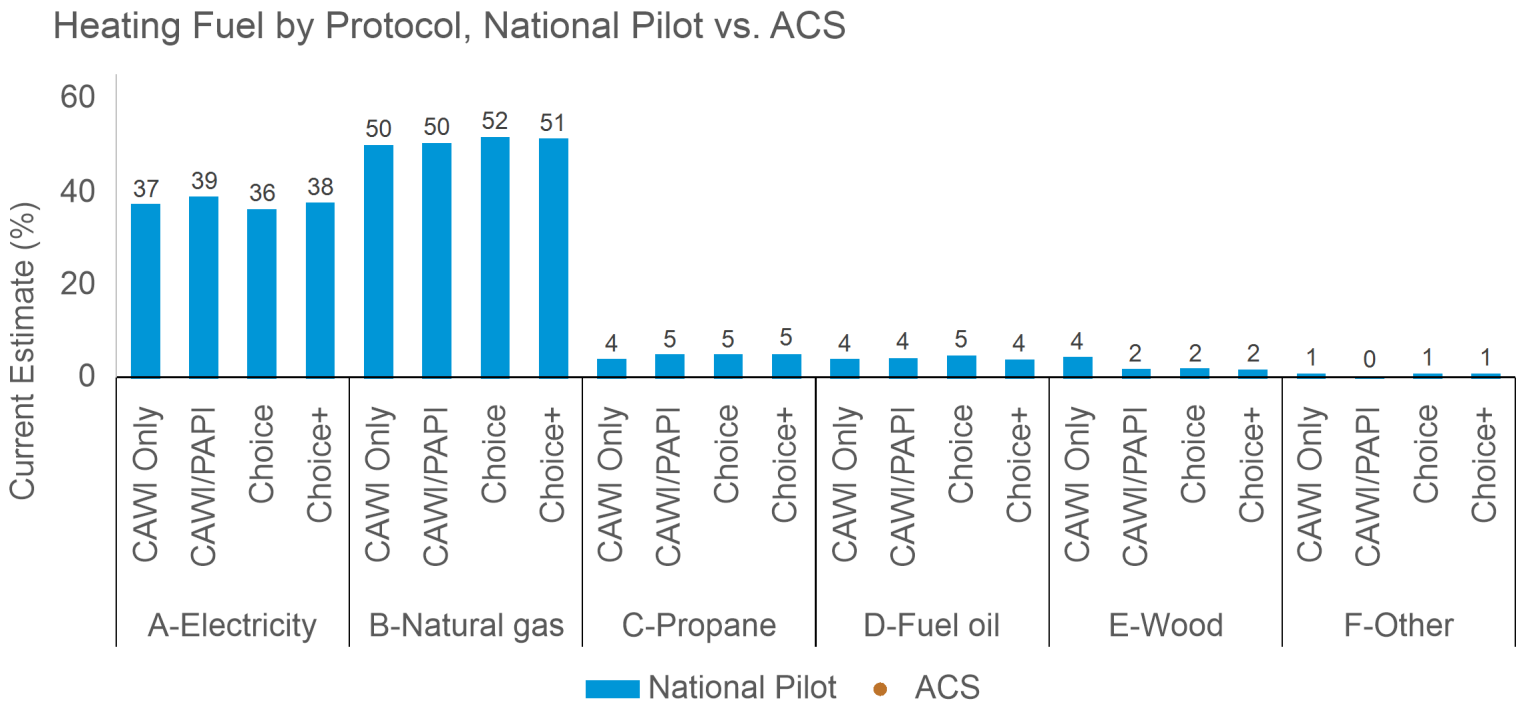
3,659 in-scope National Pilot responses; Choice Plus protocol produces highest response rate



Nonresponse bias study employs short, 2-page questionnaire; pushes response for all protocols over 50%



ATD report example: Heating Fuel comparisons similar to Census estimates overall and across contact experiment groups



Objectives evolve over life of the Pilots project

- Which data collection protocol and incentive structure combination provides the highest quality estimates with and without post-survey weighting?
- Does the nonresponse bias study data add important value for improving the quality of the estimates from the National Pilot?
- How do costs per completed response compare for the eight protocol by incentive combinations?
- How do National Pilot key estimates compare with 2015 RECS CAPI results?

but that's not all…

National Pilot Web/Paper instruments used to complete 2015 RECS (CAPI) study

- Data collection goals not achievable via in-person interviews under reasonable resource scenarios

- Confidence is high for Web/Paper modes based on Cities and preliminary National Pilot results, so EIA using these modes to achieve targeted statistical outcomes

- In-depth evaluation of data quality and nonresponse bias across modes underway

For more information

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