EPA ENERGY STAR Connected Thermostats

Stakeholder working meeting

Connected Thermostat Field Savings Metric

7/2/2015

Agenda

- Introduction – anyone new joining the call?
- Administrative updates and issues
- Data call results, discussion
- Software module alpha release
- Any further thoughts on temperature accuracy?

Data call

- 6 organizations have submitted data
- 5 data sets complete and available, along with our tentative conclusions, at our web site
- We set out to gain clarity as to whether a single national baseline, or a regional baseline, makes more sense than a per-home baseline
  - Clearly a single national baseline will not work – no surprise there
  - The data show a lot of variation, implying that we should start with a per-home baseline as planned
  - The data support that shoulder seasons do not account for much of the run time
  - They also support that the set temperature and indoor temperature are closely related in core heating and cooling seasons

Data call – discussion

- Fan run time very high for some data sets
  - Probably not an anomaly: may have homes that run fan continuously, either to serve a filter system or to de-stratify. If there is little heating or cooling run time in the shoulder season, could be much larger fan run time
  - Fan energy also not 1:1 correlated with fan run time because continuous often = low speed, low power
- Not clear that run time over ΔT is a meaningful measure
- A lot of cooling occurs when the indoor temperature is higher than the outdoor temperature
- What have we learned?
  - Populations of service providers appears to be different.
- Data sets not all the same size – definitely check the standard errors when drawing conclusions

Action items

- EPA will look into running the metric modules on a server, where data can be uploaded
- Stakeholders with data will attempt to use the modules and provide feedback about their performance
  - Suggestions for how software will be used for program implantation? E.g. Aggregated data? Run on central server?
  - Questions about data quality came up during module development – issues related to this in trying these modules
  - Room for improvement in outside temperature look up?
- ICF will check in with stakeholder who provided data with much higher run times, make sure it isn't a mistake
- Talk about data quality two weeks from now?
- EPA/ICF specific list of questions for stakeholders about code

Software Module alpha release

- Source code: https://github.com/impactlab/thermostat
- Documentation: http://thermostat.readthedocs.org/en/latest/index.html
- Immediate request: Please download modules and play with them, present edge cases, etc, to make sure they act as we would expect
- Please send feedback to ConnectedThermostats@energystar.gov, or call Doug directly
- Once initial bugs are flushed out, will issue data call to see what we get
- Anticipate process similar to the one we just finished

Software module release discussion

- Can code be run on a server and files are uploaded for analysis?
  - Is there a privacy/proprietary concern with this? No immediate answer, but get back to us, as a long term solution.
  - May be viable as a way to make the code available to play with, and also as a way to test code made at manufacturers to make sure that it performs similarly
  - EPA will look into this

Running parking lot

- Zoned systems? Usually not integrated. Multiple systems in one home? Ask for statistics about how common this is.
- Definition of a “product” – e.g. enrollment in peak control service makes it a different product
- Verification and gaming the system?
- Does the customer base bias the metric results, aside from the qualities of the products?
- Add on today’s parking lot items…

Contact Information

Web site for these notes and all public discussion/comments:
http://www.energystar.gov/products/spec/connected_thermostats_specification_v1_0_pd

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