

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF
AIR AND RADIATION

November 30, 2015

Dear Connected Thermostat Provider or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) requests your assistance in assembling data about connected thermostat (CT) performance as measured by the draft metric. The objectives of this data assembly are to inform:

- Selection and improvement of a single metric to be used in the ENERGY STAR CT specification
- Specific requirements for field savings in Draft 3 of the CT specification

This effort will help ensure the ENERGY STAR logo helps consumers find connected thermostat products that deliver cost-effective energy savings and emissions reductions. **Data submitted by January 8, 2016** will be considered in choosing statistics and setting proposed levels for Draft 3 of the specification.

Below is a draft of the data requested, which EPA expects to refine in conversation with stakeholders. Stakeholders are invited to join the regularly scheduled metrics working group call **on Friday December 4, 2015** from 11am to 1pm Eastern time, which will be dedicated to this data request. Stakeholders who do not participate in these calls regularly but would like to participate in this call, please RSVP to connectedthermostats@energystar.gov by December 4. Stakeholders are also free to contact EPA directly to discuss questions and concerns. EPA intends to finalize the data request (including the relevant software to use for it) in conjunction with the December 10 stakeholder call on the draft specification and test method.

Requested Data Submission - DRAFT

EPA encourages all interested CT manufacturers and service providers to participate by submitting an edited output file from the ENERGY STAR CT Field Savings software (currently under development) for each applicable CT product. Upon its release, the open-source software tool will be available for download from < <https://github.com/impactlab/thermostat/> >. Software documentation will be available at < <http://thermostat.readthedocs.org/en/latest/> > and will provide installation and usage instructions. Input data shall be a statistically significant data set consisting of CT data collected from January 1 through December 31, 2014, and shall be large enough to have at least 250 thermostats in each BA climate zone, if possible. Please run the software tool using the [Building America Climate Zone/Zipcode Database](#), supplied by EPA, such that the output file includes data breakout by Building America climate zone. As detailed below, the output file may be edited to include only national averages and averages by Building America climate zone. (Data by single zip code or weather station need not be included.):

- Mean metric scores and standard error of the mean for the following fields (using each of the three candidate methods in the software module, as relevant)
 - # days with insufficient data
 - # days in season
 - # days with both heating and cooling
 - Parameters of the fits as applicable for each method
 - For method 1 (linear fit method): Slope, intercept
 - For methods 2 and 3 (HDD/CDD): Alpha, Delta T base
 - Mean squared errors
 - Baseline daily runtime
 - Baseline seasonal runtime
 - Baseline comfort temperature
 - Actual daily runtime
 - Actual seasonal runtime
 - Seasonal avoided runtime
 - Seasonal savings
 - All 12 RHU bins (independent of the modeling method)
- Deciles for **savings metric scores only** (note: this includes the median - 50th percentile)
 - 10th percentile
 - 20th percentile
 - 30th percentile
 - ...
 - 90th percentile

Data Confidentiality

EPA recognizes there may be concerns with respect to data confidentiality. Data submitted to Doug Frazee at ICF International will be shared with EPA and the public in the form of a masked data set, with the submitter's identity removed and contingent upon the receipt of data on at least (3) CT Products. If service providers have additional concerns about data confidentiality, please contact EPA to discuss.

Thank you for taking the time to review this Data request. If you have any questions regarding it, please feel free to contact me at daken.abigail@epa.gov and 202-343-9375, or Doug Frazee, ICF International, at dfrazee@icfi.com and 410-279-1093.

Sincerely,

Abigail Daken, Product Manager
ENERGY STAR for HVAC