

Questions from AHRI for DOE on Furnace Rulemaking and Related Models EERE-2014-BT-STD-0031

1. The spreadsheet EERE-2014-BT-STD-0031-0002 (the LCC model on the Regulations.gov web site: <http://www.regulations.gov/#!documentDetail;D=EERE-2014-BT-STD-0031-0002>) has electricity consumption of 349.0 kWh for EL 0 and 727.5 to 957 kWh for ELs 1-4 (cells E31-35 on the Statistics sheet) as an Average value. The Median values (cells J32-35) are consistent from 330.2-355.7 kWh. This same pattern is true for all subgroups and is persistent for re-runs of the simulation. There seems to be some sort of mistake here. Can you please explain why this is happening and how it affects the LCC results?
2. DOE has stated that it did not conduct any interviews with HVAC contractors, wholesalers or distributors on their actual markup practices for this rulemaking. Has DOE ever conducted interviews with HVAC contractors, wholesalers or distributors on their actual markup practices? If so, when and where are those interviews documented?
3. Does DOE have any empirical evidence supporting the concept of incremental markups as an actual characterization of behavior in HVAC distribution other than the references in the paper by Dale *et. al.* – LBNL-52791? If so, what evidence does DOE have and where is it documented?
4. Can DOE please provide the numerical data shown graphically in Figure 8C.3.3 of the furnace TSD (relative price versus cumulative shipments)?
5. Reference was made in the March 27 meeting to the presence in recent years of tax credits and rebates for furnaces (not necessarily by DOE). Does DOE believe that the data in Figure 8C.3.3 is distorted by the presence of tax credits and rebates? Does DOE believe that any data distorted by tax credits and rebates is more or less distorted than by other exogenous events such as stagflation in the 1970s, large swings in new construction, etc.
6. DOE computes the LCC for a consumer based on DOE's estimated life of a furnace (according to its aging distribution). How does DOE account for homeowners who move before the lifetime that is assigned to them in the Monte Carlo simulation? Is DOE taking the position that the resale price of a home fully incorporates the expected future savings from the presence of a more efficient furnace, i.e. that the resale market for homes operates "efficiently" with respect to home heating energy costs? Does DOE have any empirical evidence to support such a position? Does DOE then also take the position that the market for furnaces themselves is economically efficient? If

not, what is the logic that says the housing resale market is efficient while the furnace market is not?

7. Has DOE collected data on actual furnace installation costs such as bids/estimates from contractors, surveys of contractors or other means? If so, where is this information documented?
8. On what basis did DOE determine that “consumers are likely to draw from or add to their collection of debt and asset holdings approximately in proportion to their current holdings when future expenditures are required or future savings accumulate” (TSD p-24)? Why did DOE not chose to use marginal discount rates? Does DOE have any data on how consumers actually pay for and/or finance purchase of furnaces? If so, what is the data and where is it documented?
9. On what basis did DOE choose 30 years as the period for analysis of the effect of a standard in the NIA? Why would it not be more appropriate to pick the expected life of a product design – either the normal design cycle for furnaces or the expected time to the next regulatory cycle?
10. How can one change the values of “Electricity Use”, “Fuel Use”, “Retail Price”, “Install Cost” and ‘Repair and Maint” in the NIA? These seem to be set in cells C6-G10 and C21-G25 on sheet NWGF. To what do the references “[Fuel Use Repl]”, “[Elec Use Repl]”, “[Retail P Repl]”, “[Maint Repl]”, [MS Repl]” in cells C6-H10 of the NWGF Sheet and the equivalent references in cells C20-H25 refer?
11. Can DOE make available an unlocked version of the GRIM?
12. Has DOE done a GIRM analysis on the combined effects of the furnace and the furnace fan rules? If so, where is this documented?