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U.S. Department of Energy  
Office of General Counsel  
1000 Independence Avenue SW.  
Room 6A245  
Washington, DC, 20585

**RE: Comments to Docket Number: 2016-10956 Regulatory Burden RFI**

United Technologies Climate, Controls, and Security and its Carrier business would like to submit the following comments to the proposed questions as well as additional commentary as requested and referenced in the RFI.

As referenced in the body of the RFI, the purpose of this review is to make the agency's regulatory program more effective and less burdensome. If you ask any HVAC OEM or read any of our industry trade publications, you will hear and see discussion of the limitless amount of efficiency rulemakings having a confusing and adverse impact on not only our channel, but consumers and end users who are forced to pay more for heating and cooling their homes, businesses, schools, churches - some of which cannot afford to pay. This will lead (has led) to alternative means (repair vs replace) which compromise safety and resulting in significantly less energy savings.

Some key points to be made (pros/cons):

1. We currently find ourselves frequently designing product to meet new base efficiency standards at the sacrifice of developing future technologies which could save more energy. Manufacturers do not have enough time to fully adjust to new regulatory standards. Six years is far from enough – especially when the Department is now regulating components (furnace fans, commercial fans, motors) as well as finished products.
2. Consumers and end users are burdened by these higher efficiency mandates. Many are repairing older pieces of equipment rather than replacing, as the unit cost of replacement keeps escalating. The market does not have time to catch up to the standards and consumers bear the brunt of this in terms of installed cost. As mentioned before in previous rulemakings: higher prices and fewer choices.
3. Due to the multitude of rulemakings – and the short timeframes between them – many HVAC OEMs are moving production to countries with lower labor cost. As cited by Steven Yurek, President of the American Heating and Refrigeration Institute, last month, in his testimony before the U.S. House of Representative’s subcommittee on Energy and Power, our industry has lost one-third of its workforce since 2001 – according to Bureau of Labor Statistics, U.S. Department of Labor Statistics. That’s 55,000 jobs lost since 2001.
4. In several cases, most recently residential air conditioners and heat pumps, new rules are being developed and promulgated before there’s adequate information on the most recent effective rule (e.g. Regional Standards went effective 1/1/15 and DOE began next set of standards only 8 months later).
5. DOE modeling/analysis assumes an average homogenous consumer who is incapable of rational decision making.
6. DOE is not forced to “look back” and validate a rules effects relative to energy savings. This could be a strong tool in terms of developing better rules going forward.

7. The development of the ASRAC to assist DOE in the review process has been positively received by participants. We encourage the use of ASRAC working groups for all rule revisions as well as assist DOE in retrospective rule reviews.

The following comments are in response to the Agency's specific questions:

1. How can the Department (DOE) best promote meaningful periodic reviews of its existing rules and how can it best identify those rules that might be modified, streamlined, expanded, or repealed?

**CARRIER COMMENT: DOE would benefit, as would industry find it useful, if there was an overall strategic plan defined for 8-10 years that factor in all industry activity, including refrigerant changes, efficiency rules, etc. This would help ASHRAE 90.1, DOE, and industry plan their products and standards accordingly. Also, it would be very useful to have a standard work process that defines how efficiency and costs will be evaluated. Current commercial approach appears to use a different method for buildings and equipment models which sometimes are difficult to verify as they are based on old models that cannot be duplicated with outdoor units.**

2. What factors should the agency consider in selecting and prioritizing rules and reporting requirements for review?

**CARRIER COMMENT: Agency should more accurately weigh manufacturer's costs to comply with the benefit of new rules without exposing confidential business information of manufacturers to FOIA. Compliance with new rules is costly and does not always get passed along to consumers. The ultimate benefit for consumers and society should be proven to significantly outweigh the cost to implement new rules: examples of this are FER, the new furnace test procedure, the new Appendix M for AC\HP's, and commercial test procedure changes.**

**Other factors that the agency should consider before selecting and prioritizing rules and reporting requirements is intra-agency activities. For example, EPA and DOE should consider each agency's relative actions on refrigerants and efficiencies. In particular, there are codes and standards such as building codes, fire codes, and safety standards that need to be considered in conjunction with the timing of those changes and the lag from rule-making to effectivity date.**

3. Are there regulations that are or have become unnecessary, ineffective, or ill advised and, if so, what are they? Are there rules that can simply be repealed without impairing the Department's regulatory programs and, if so, what are they?

**CARRIER COMMENT: Carrier is of the position that the department should not be focusing or stipulating mandatory efficiency measures on components (such as FER) and at the same time driving up the ratings on the standard metrics such as EER, SEER, HSPF, AFUE, etc. The final system is what gets installed and that is all that should be regulated, not individual components.**

**Regarding commercial systems, focusing on full load efficiency is not the best approach and future focus should be on annualized performance and more of the system; example: EER vs. IEER revisions. Similarly, fan efficiency focused on full load is not the best approach and should be changed to an annualized metric and factor in variable speed benefits which are far greater than the small full load improvements.**

4. Are there rules or reporting requirements that have become outdated and, if so, how can they be modernized to accomplish their regulatory objectives better?

**CARRIER COMMENT: The requirements that require multiple metrics and testing on the same product add considerable lab work – we suggest consideration of one metric per product.**

5. Are there rules that are still necessary, but have not operated as well as expected such that a modified, stronger, or slightly different approach is justified?

**CARRIER COMMENT: No comment other than the previously stated multiple metrics, full load focus, and a stronger link to EPA.**

6. Does the Department currently collect information that it does not need or use effectively to achieve regulatory objectives?

**CARRIER COMMENT: “Currently” is the presumptive word in this question. Currently, no the information collected is not cumbersome. However, with rules that are in process with Data Collection on Imported Products, the Test procedure for residential AC’s & HP’s (Appendix M), the amount of data grows exponentially with no true benefit to OEMs or DOE. The data being requested is burdensome and completely unnecessary – and in some cases proprietary.**

7. Are there regulations, reporting requirements, or regulatory processes that are unnecessarily complicated or could be streamlined to achieve regulatory objectives in more efficient ways?

**CARRIER COMMENT: The recently issued Appendix M’s new requirements are particularly burdensome and include unnecessary reporting requirements for manufacturers. The SEER and HSPF calculations for variable speed and two-stage equipment are quite burdensome and complicated. A more streamlined test procedure that better captures real world cooling and heating season performance is needed, particularly for variable speed product with their considerably more complicated and proprietary control algorithms. Rather than focusing on raising minimum efficiencies, DOE would be better served by improving installation practices.**

**Secondly, the new gas furnace test procedure requirements are more burdensome than DOE originally thought in terms of testing, computation, and standard upkeep improvements. A new, simple AFUE calculation is in order.**

8. Are there rules or reporting requirements that have been overtaken by technological developments? Can new technologies be leveraged to modify, streamline, or do away with existing regulatory or reporting requirements?

**CARRIER COMMENT: On residential products, variable speed compression and communicating controls have made EER irrelevant. DOE needs to find a way to educate the western U.S. utility companies of this. On the residential heating (furnace) side, these products are burdened with AFUE, FER, and stand-by watts metrics. Collectively this is overly compounded regulation on gas-fired furnaces. Similar comment for commercial package products that with the use of multiple stage and variable capacity equipment and components the focus on full load metrics is no longer a good way to approach and does not encourage the use of new technology.**

**Our previous comment on SEER and HSPF with regard to variable speed systems applies here as well. For example, for certain variable speed systems, Carrier has the built in proprietary capability to run as a two-stage system when attached to a non-communicating indoor. Since this is technically a two-stage system, but with a variable speed compressor, we are not allowed to rate it with coil only combinations as a regular two-stage system would be because the test procedure does not allow coil only combinations to be rated with variable speed systems. This is a feature beyond what was originally envisioned in the test procedure, and many customers would find value in it as they do not necessarily have to replace their indoor section at the same time as their outdoor. Given the ultimate flexibility with the variable speed system's controls, there**

**are only going to be more innovative potential operating modes that will be prohibited by a test procedure that is too prohibitive or a waiver process that is cumbersome.**

9. How can the Department best obtain and consider accurate, objective information and data about costs, burdens, and benefits of existing regulations? Are there existing sources of data the Department can use to elevate the post-promulgation effects of regulations over time? We invite interested parties to provide data that may be in their possession that documents the costs, burdens, and benefits of existing requirements?

**CARRIER COMMENT: One suggestion is a joint development and evaluation working group similar to the ASRAC approach. This would need a predefined standard work and desired outcome with consistent approaches for evaluation.**

10. Are there rules regulations that are working well that can be expanded or used as a model to fill gaps in other DOE regulatory programs?

**CARRIER COMMENT: We have no comment as there are already plenty of regulations our industry is working on to comply with.**

Carrier again thanks the DOE for the opportunity to comment on this notice of proposed rulemaking for regional standards. We ask DOE to consider our modifications to this NOPR and recognize the shared benefit to all parties.

Regards,

A handwritten signature in black ink, appearing to read "John Fild". The signature is written in a cursive, flowing style.

John J. Gibbons  
Executive Director, Regulatory Affairs  
Carrier Corporation  
UTC Climate, Controls & Security

CC: Mr. Matthew Thornblad, Director, UTC Government Affairs  
CC: Mr. Chris Nelson, President, HVAC Americas, UTC-Carrier