UNITED CoolAir

I. **Definition of Basic Model?**
   a. DOE defined as product families with the same efficiency.
      i. What constitutes a Product Family
      ii. What constitutes the same efficiency
   b. Relative to "Built-To-Order" models

      While our process may start with a "basic model" it is seldom that we fabricate more than a few units that are identical. Therefore, the definition of "basic model" has a large impact on the implications associated with testing.

   c. Does the addition of unit options impact on what is considered a basic madel

II. **Definition of Commercial 'niche' product?**
   a. Subset of the main HVAC market
   b. Associated more with specific needs
   c. Niche defines product features
   d. A highly specialized market
   e. Sales volume? (Number of units produced)
   f. Configuration? (Horizontal or Vertical)
   g. Cooling Source? (Air- or Water-Cooled)
   h. Application?
   i. Power supply?
   j. Capacity?
   k. Standards

      The DOE indicated that they did not specify new standards for niche products due to the concern over viability for replacement applications. However, the definition as to what constitutes a "niche" product (page 7196) was so narrow and limiting that it fails to cover products impacted. From that point until this date there has not been any further clarification or definition for "niche" products, and in particular for those in the commercial segment, that have helped the small manufacturers. Not only are efficiency standards impacted, but also the associated testing.

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III. AEDM Development

a. Availability of resources to develop AEDM

Many small manufacturers may not have the talent or capabilities in-house to create and maintain an AEDM. This means that an outside company would have to be utilized for the AEDM creation and maintenance. Again this is an expenditure of capital that must be passed along in the low volume unit pricing.

b. Development of an AEDM is not just at the rating point

An AEDM, as a mathematical model, requires decisions on where and to what extent accuracy is required for the multitude of calculations. Verification of these decisions must be made by testing of many units at various operating conditions, not just at the rating point. Factoring in the accuracy of test facility instrumentation compounds the effective development of an AEDM. This process would, for most small manufacturers, require the services of an independent third party test lab. This may involve from $5,000 to $12,000 per test of a basic model at only the rating point. If more than one facility is used there would be concerns as to how each facility would be rated in comparison to another one for the same product. This means that a small manufacturer would have to spend an enormous amount of capital to develop an AEDM.

IV. Testing

a. Model Classes

i. Small Commercial Package Air Conditioning and Heating Equipment

ii. Large Commercial Package Air Conditioning and Heating Equipment

iii. Very Large Commercial Package Air Conditioning and Heating Equipment

iv. Packaged Terminal Air Conditioners (PTAC) and Heat Pumps (PTHP)

b. AEDMs do not require prior DOE approval

c. Intent: Establish modeling techniques to ensure products are correctly rated without unnecessarily burdening regulated entities

d. Critically important to differentiate between residential and commercial products

e. Market share for small business, versus the amount of testing, places a disproportionate burden on the small manufacturer.

f. Substantiation requires several basic models to validate the accuracy of an AEDM

   i. Manufacturer must retain any test records used to support use of the AEDM

   ii. Manufacturer should be able to demonstrate that an AEDM can be applied across a variety of product classes

   iii. At least one basic model from each DOE product class is to be tested

Unlike residential units that have a relatively low cost, niche value-added units have a cost that may run into 5 figures. It is our strong belief that no small manufacturer of niche products can afford to provide the quantity of units required. It must be kept in mind that the models used for testing cannot be sold so there is no way to directly re-coup the capital for the test units.

There is an impact on our ability to produce the test units while maintaining production for sales to support and sustain the small manufacturer. Dependent upon how a basic model gets defined and what statistical sample is required, it is very easy to realize that the quantity of test units could exceed 20% to 30% of our capability for production of commercial units.

The cost for the creation of test units and the costs for testing would have to be factored into our unit pricing. Since these costs are spread out over a low volume of units, unlike residential or high volume, mass produced units, our pricing will have to be increased substantially. We have already been experiencing market pressures on pricing. Again, as a small manufacturer of niche products the financial impact is much greater than the larger companies. In fact, it may so onerous that small companies would have to abandon the business.

g. AEDM versus Testing

   i. Test Mean must be within 3% of AEDM Mean

The DOE proposal to have the Test Mean and the AEDM Mean fall within 3% may not be realistic. Motors are only required to have an individual tolerance of ten (10%) percent between the AEDM and tested values. Since motors constitute the majority of power consumed in a unit this does not support a closer tolerance for the air conditioners and the AEDM.

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Variations in manufacturing, unit components, test lab instrumentation, test set up and testing procedures and from one lab to another may not hold the requested mean values to within tolerance. As a result more units would have to be tested in order to substantiate an AEDM. For a small manufacturer of niche products this gets very expensive.

All manufacturers will have several component vendors approved for each of their basic models. This allows them to look at performance, cost and reliability when making the purchases. However, it must be noted that all the components will not operate at the same specific level. The power consumed by a motor from vendor "A" may not match what is consumed by vendor "B". In some systems this range of performance where there are a multitude of motors can mean the difference between passing and failing the specific efficiency levels.

How will results be addressed if all the Test data is in the 3 to 5% level? A 3% average cannot be obtained. How are the results to be handled if the AEDM is always conservative?

ii. Test unit quantity

Figure C.1 has been described as the minimum number of tests (5) needed to substantiate the AEDM. This is for when there are not a substantial number of product classes. What defines a substantial number of product classes?

The number of units to be tested was given as six (6) for commercial HVAC.

DOE has proposed at least five (5) basic models be tested, with a minimum of one unit tested of each basic model. This could be hundreds of units for built-to-order products.

In the proposal DOE has indicated that physical size and capacity can have a significant effect on efficiency. Any physical or mechanical change to one unit versus another will impact the efficiency. The proposal to test the smallest and the largest or a unit 25% smaller than the largest creates a burden for small manufacturers. The DOE further went on to indicate that the product class with the highest sales volume would be most representative since they are less likely to be highly customized or built-to-order and therefore would be less costly to test. To what extent does the term "highly" apply? For high volume manufacturer, such as residential units, this may be true; however, as a small manufacturer of niche products that are almost all customized or tailored and

are built-to-order this concept is not a valid or applicable position.

One proposed requirement for validation of an AEDM is that a manufacturer is to use their highest selling basic models. The highest selling models for a small manufacturer can easily change from year to year. This means that the amount of testing and validation would be increased relative to the large manufacturers that have a much more consistent product sales mix.

iii. Substantiation and Re-Substantiation

United CoolAir is of the belief that an AEDM does not need to be substantiated or re-substantiated, in particular for built-to-order or custom units.

If an AEDM has been developed correctly then no matter what the unit efficiency level is the results should still be valid. An AEDM is not time sensitive from one year to another.

If an AEDM has been designed to be applied across different product classes then it should stand up for any products at any time.

No pre-approval for an AEDM is required, but the DOE wants assurance that the AEDM is accurate across a range of products and product types.

At one point it was stated that "However, DOE does not want to unduly burden manufacturers, adversely impact the ability of small business to compete, or otherwise impede the development and marketing of new and innovative compliant products for consumers to purchase." Unfortunately the whole context of testing and substantiation of an AEDM for a small manufacturer, especially of niche value added products, does just the opposite.

At the end of Section "D-3" it was stated that "When a model used for substantiation of the AEDM is discontinued or becomes obsolete, a manufacturer will need to replace that model with a new model and re-rate or re-certify as necessary." If a models test data was sufficient at the time an AEDM is substantiated then the discontinuance of that model or obsolescence of that model should not be an impact on the validity of the AEDM. This statement appears to dictate what a manufacturer can or must offer.

h. DOE Validation

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i. Manufacturer must run tests on selected basic models on request

Section "D -1" addressed the topic of how often an AEDM had to be validated, if at all. DOE has indicated that it wants to reserve the right to request the documentation supporting the AEDM and to test a basic model at any point. In fairness to all manufacturers there should be a minimum time period between a request for documentation and a subsequent request supporting the AEDM from any one manufacturer.

ii. Test Results

1. Re-Substantiation

Under section "D-2-a" it was indicated that "If a basic model is rated incorrectly, DOE proposes to require manufacturers to re-substantiate their AEDM within 30 days of being provided with test data by the Department." It takes a sufficiently long period of time to develop and create an AEDM, let alone all the testing that must be accomplished. Having only 30 days to adjust the AEDM and re-substantiate an AEDM is unreasonable if a unit takes up to 10 weeks to fabricate.

2. Non-Compliant

In section "D-2-b" the DOE may initiate an investigation that a basic model may not comply with the applicable standard. "If following enforcement testing, a model is determined to be non-compliant; all other models within that basic model are deemed non-compliant." In other sections up until now it appeared that a basic model was singular and that therefore there would be no other models within that basic model. Statistically verified results would mean that one divergence does not mean that the entire process or AEDM is invalid.

Under the topic of non-compliance it was indicated that "Therefore, DOE is proposing to disallow the use of an AEDM following multiple instances of non-compliance and/or if there is evidence that the miss-rating was willful." A definition or expectation of "multiple instances" should be stated or clarified for consistency in application.

V. <u>Impact on Small Business</u>

a. Which small business will be impacted?

i. Diversity of small business affected

ii. Size of small business relative to the HVAC industry

iii. Quantity of small business impacted

b. What economic data was obtained?
    i. Source of the data
    ii. How was cost impact determined
c. What are the economic implications and impacts?
    i. What rationale was used
    ii. Is the cost data significant relative to small business
d. Regulatory Flexibility Act

    Section III – B. Review Under the Regulatory Flexibility Act indicates that "DOE reviewed the AEDM and ARM requirements being proposed under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. As discussed in more detail below, DOE found that because the provisions of this rule will not result in increased testing and/or reporting burden for manufacturers already eligible to use an AEDM and will extend AEDM use to a number of manufacturers, thus reducing their testing burden, manufacturers will not experience increased financial burden as a result of this rule." As a small manufacturer of niche value added built-to-order products this proposed testing and the associated AEDM requirements will place a substantial burden on the company.

    They went on to further communicate that "Today's proposal, which represents voluntary methods for certifying compliance in lieu of conducting actual physical testing, would not increase the testing or reporting burden of manufacturers . . . " These proposals will not only increase the testing and reporting, but will impose other financial and operational burdens on the small manufacturers.

    At the conclusion of section B they indicated "For the reasons enumerated above, DOE is certifying that the proposed rule, if promulgated, would not have a significant impact on a substantial number of small entities." It is the belief of United CoolAir that the proposed rules will have a significant impact on all small entities.

    United CoolAir would request that a statement of factual basis be provided.

e. What portion of the intent of the regulations does small business have on the industry as a whole?
f. What, if any, alternatives were considered for the proposed rule to minimize the economic impact on small entities?
g. Evolution of Requirements

    On the surface it appears that requirements for commercial HVAC equipment were developed or evolved from the earlier residential

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programs. For residential type products and producers of high volume commercial products there is some degree of similarity. However, for a small manufacturer of "niche" or custom commercial units this does not necessarily follow. Statistical sampling and test burdens on manufacturers place the small manufacturers at a competitive disadvantage in the market place.

h. Testing Practices

In the Federal Register / Vol. 64, No. 238 / Monday, December 13, 1999 Page 69607 it was indicated that "The Department believes that any significant economic impact will fall only on those firms which do not now routinely test their products. The Department further believes that testing is a widely accepted practice and that companies that do not test are rare and do not represent a substantial number of small entities." It is one thing to have a belief and another to be able to support that belief. Yes, testing for performance and efficiency is a widely accepted practice in the HVAC industry. However, it is done by the larger manufacturers and those companies that make high volumes for any particular model. It is felt that most small companies do not test due to the costs and limited resources associated with the testing as well as the type of products being produced. Therefore, "...companies that do not test are rare and do not represent a substantial number of small entities." is not a valid conclusion or belief. That belief or presumption seems to have been carried forward to this day and continues to have a negative impact on small business.

i. Disproportionate Burden

i. Large and High Volume Producers

On page 36387 of the Federal Register / Vol. 67, No. 100 / Thursday, May 23, 2002 the DOE had broached the subject of financial burdens associated with the new standards. At this point it was noted that larger "volume" manufacturers will benefit disproportionately versus the value-added systems (i.e. smaller manufacturers).

ii. Niche Product Manufacturers

The Department and the Department of Justice both indicated in the Federal Register / Vol. 67, No. 100 / Thursday, May 23, 2002, Pg. 36388 that small manufacturers would be disproportionately impacted by the efficiency standard. In particular those companies involved with space constrained type products. It would only follow that the associated testing would also constitute a hardship. The Department indicated

that manufacturers of niche products would have more of a detrimental effect.

VI. Conclusions

1. The definition of "basic model" and in particular niche products are critical to small manufacturers.
2. There is a substantial increase in the administration and processing of data for a small company.
3. Small businesses do not have the resources available to support all the requirements for the creation and substantiation of an AEDM.
4. Small entities have the highest cost to comply with the regulations. This cost may eclipse their ability to remain a viable company.
5. The amount of testing required is somewhat unclear. However, it is clear that the amount of testing anticipated will incur a substantial financial burden on small manufacturers.
6. The number of test units required for United CoolAir could be more than 30% of our annual production. In addition to the financial impact this may not provide us with enough capacity to fill orders for sales.
7. Pricing for our products will have to grow substantially in order to try and re-coup the expenses incurred for testing and substantiation of an AEDM. The higher pricing will render our units not acceptable in the market place.