

The Modeling Error in DOE's Regulatory Analysis

May 11, 2017



The Issue

- **There is a basic error in the model used in the regulatory analysis underlying the draft standards for commercial packaged boilers**
 - **The justification of efficiency standards depends upon the economic impact of the universe of purchases consumers do not choose to make on their own**
 - **DOE's model does not actually address the impact of those purchases; instead it addresses the impacts of a universe of purchases that is representative of *all possible purchases*, including those consumers choose to make on their own**
- **This error causes the model to overstate the potential for efficiency standards to provide regulatory benefits**
- **As a result, model outputs:**
 - **Are invalid, and**
 - **Inherently overstate the net benefits that any efficiency standard would provide**



This is not complicated

- **There is no dispute as to:**
 - **What DOE's modeling is should be designed to accomplish; or**
 - **What DOE's model actually does instead**
- **What the model does:**
 - **Fails to address the actual impacts efficiency standards would have, and**
 - **Produces a systematic overstatement of regulatory benefits**
- **Consequently, model results provide no basis to determine that efficiency standards are economically justified as required by law**



The Basics

- **Due to factors such as differences in product use and installation conditions:**
 - **Higher-efficiency products provide economic benefits for some consumers but impose net costs on others; and**
 - **The magnitude of the individual consumer impacts (both favorable and unfavorable) varies considerably**
- **Some consumers purchase higher-efficiency products on their own, and others do not**
- **The premise of efficiency regulation is that:**
 - **Consumers do not always invest in higher-efficiency products when it would be economically beneficial for them to do so**
 - **Efficiency standards are beneficial to the extent the purchases they “force” provide net economic benefits**
- **Consumer benefits = the net benefits of the purchases consumers would “leave on the table” in the absence of regulation**



The Error

- DOE's model is supposed to assess the impacts of the universe of purchases consumers would actually “leave on the table” in the absence of regulation
- **But that isn't what the model does**
- Instead, the model assesses the impacts of an automatically-selected universe of purchases that is representative of *all possible purchases*, including all of the purchases consumers would make in the absence of regulation
- Because it considers the wrong universe of purchases, the model always shows that the average net impacts of purchases supposedly forced by regulation *are exactly the same as the average net impacts of purchases consumers choose to make on their own*
- This could only be the case *if consumers literally never considered the economics of their purchases at all*



The Problem

- **The proposition that consumers *never* consider the economics of their purchases is demonstrably false**
- **There is overwhelming evidence that:**
 - **Consumers frequently do consider the economics of their purchases, and**
 - **Are most likely to do so when the magnitude of the impacts would be greatest**
- **Consequently, purchases forced by regulation would never have net impacts as beneficial as model outputs suggest**



The model is legally inadequate

- DOE does not even consider the core issue: *whether consumers are actually leaving net benefits “on the table”*
 - Lacking information on the choices consumers are actually making, DOE’s model supplies unreasonable answers by randomly “assigning” purchases to consumer choice or rule benefit
 - From a conceptual standpoint, the model is not even arguably designed to address the actual impacts of efficiency standards
- Because consumers frequently do make economically rational decisions, the model inherently produces outputs that overstate the benefits any efficiency standard would provide
- It is no answer to say that DOE lacks the information needed to do its job right
 - Standards must be economically justified on the basis of clear and convincing evidence (42 U.S.C. 6313(a)(6)(A)(ii)(II))
 - *No evidence = no lawful standard*



Our Request

- **Due to the error in DOE's model, the draft standards for commercial packaged boilers:**
 - Will not produce the benefits DOE has projected, and
 - Are not economically justified as required by law
- **DOE should promptly issue a notice acknowledging the error in its analysis and requesting comment to assist it in assessing the extent to which purchasers of commercial boilers are actually failing to make economically beneficial efficiency investments on their own**

