NRDC Comments on ENERGY STAR Version 7.0

Residential Window, Door, and Skylight Draft 1 Specification

On behalf of its more than three million members and online activists, the Natural Resources Defense Council (NRDC) respectfully submits its comments in response to EPA's request for comments on the ENERGY STAR Version 7.0 Residential Window, Door, and Skylight Draft 1 Specification.

NRDC supports EPA's proposed change to the Version 7 proposal, and suggests that EPA consider higher levels of performance—including lower U-values--than those currently proposed, in a new Version 8 in the very near future.

Windows make up about 50 percent of the envelope load for heating in a typical home but represent only 7 percent of the envelope area. They are a critical element for saving energy, improving comfort and health, and reducing greenhouse gas emissions and air pollution from heating and cooling buildings. In addition, since windows last many decades and are expensive to replace; poorly performing windows lock in higher bills, more discomfort, and high pollution for a long time.

Version 7 solves a problem that has slowed the deployment of improved windows for years: far too many windows complied with the previous version for it to have much impact on the market. EPA's usual target for market share is about 25%--high enough that the consumer can find the product to purchase, but low enough to reduce free ridership and to show the consumer that Energy Star makes a difference.

For years, the window market has gotten ahead of Energy Star: the overwhelming majority of windows meet Energy Star criteria. The author of these comments saw this in his own experience: when his condominium association specified windows for a replacement project in 2013, *the only choices offered* were those with a U-value of 0.28—better than the current Energy Star spec. So even then, the spec failed to enhance consumer options for efficiency in windows.

This level of market acceptance precluded most utilities from incentivizing Energy Star windows because their regulators would find too much free ridership.

The technology for better windows has been there for decades. Amory Lovins incorporated R-10 windows into his house in about 1980, and their installation had zero net cost, as the savings from not needing heating and cooling outweighed the costs of the windows along with the other efficiency upgrades.

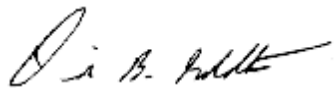
The author of these comments procured a set of U=0.14 windows in about 1990 for the purposes of testing what could be done for efficiency in a new apartment building in Estonia. We ordered about 200 square feet of windows and shipped them across the ocean (which meant that we could not rely on fill gas as an efficiency measure because it might not survive the plane ride—a constraint that reduced the performance of the windows) at a total cost including shipping of less than $10,000. The windows' performance was tested in a hot box upon receipt at the 0.14 value. (They were measured to have reduced heating energy consumption for the apartment unit by about 20 percent all by themselves.)

The technologies are there—have been there for decades, and the barrier to their universal implementation is mainly cost effectiveness. But cost effectiveness depends more on the development of robust markets than it does on the underlying cost of making the windows more efficient. We saw this process (referred to as "learning curve") in the evolution of the cost of low-e coatings: the cost, which was once comparable to that of adding a pane of glass, became negligible once the products gained market share. This development process shows how a more ambitious Energy Star specification can help accelerate the uptake of energy efficiency.

More ambition would solve more problems than just those of reducing consumer costs. Better windows could have saved lives in Texas this winter and in the Northwest this summer by insulating residents from weather extremes. The benefits to occupants include enhanced comfort which in these extreme cases turned into enhancements of health: better windows and shading solutions lower the radiant temperature indoors in summer, reducing both solar heat gain and thermal radiation heat gain to the occupants, which means that the human body can better maintain safe temperatures. Similarly, in winter better windows increase radiant temperatures and thus improve comfort and protect health, especially during cold snaps. The health benefits apply only during a few hours, but the comfort benefits are year-round.

Nevertheless Version 7 is a significant and essential step forward. We urge its prompt acceptance by EPA and hope that EPA will soon begin the process of planning for more rigorous requirements for Version 8.

Respectfully submitted,



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