Characterization of Windows Cost Data provided by Manufacturers

The U.S. Environmental Protection Agency (EPA) has been requested to provide additional information regarding the July 31, 2013 release of the "Review of Cost-Effectiveness Analysis" document, specifically related to the characteristics of the incremental cost data provided by windows manufacturers to EPA in the ENERGY STAR® Windows, Doors, and Skylights Version 6.0 Specification Revision Process. The information below is provided in response.

Size of Manufacturers Providing Data

A total of eight manufacturers submitted cost data to EPA. Based on *Window and Door Magazine* Top 100 manufacturers by revenue, three of the manufacturers place in the top 20, three others in the top 100 and the final two are not included on the list.

Geographic Distribution of Products for Manufacturers Providing Data

Of the eight manufacturers that submitted cost data to EPA, five regularly distribute products nationally while three primarily sell products regionally, though products can be shipped to anywhere in the country.

Frame Materials of Manufacturers Providing Data

Seven of the eight manufacturers submitted a total of 44 cost data points for vinyl frame products, and three of the eight manufacturers submitted a total of 36 cost data points for fiberglass and clad-wood products. Note that some manufacturers submitted cost data for more than one frame type.

Distribution of Data Points across U-Factors

The table below indicates the distribution of data points across U-factors received by EPA.

U-Factor	Number of Products Submitted
≤ 0.27	37
0.28 – 0.30	23
0.31 – 0.40	20
Total	**80**

Incremental Cost Data Analysis

EPA was asked to provide the actual calculated "low" and "high" incremental costs identified in the "Review of Cost-Effectiveness Analysis." Upon review of the original data sets, EPA has determined that these figures were "calculated" medians, rather than actual data points submitted by manufacturers. Therefore, EPA is able to specify that the low "median" incremental cost was calculated to be $24.69 and the high "median" incremental cost was calculated to be $41.00.

Distribution Data Points across Climate Zones

The table below indicates the distribution of data points across climate zones (i.e., the number of products qualifying in each zone from the data set). The distribution is broken out by double-pane and triple-pane

products. Note that many products qualify in more than one climate zone; therefore the total of the numbers in each column do not add up to the total number of data points received.

Climate Zone	Double	Triple
Northern	11	25
North-Central	29	28
South-Central	12	27
Southern	26	27

Use of Low- and Average-cost Products to Assess Cost-Effectiveness

EPA was also asked about the consistency with established program methodology when it stated that, "Payback periods based on lower- and average-cost products are more consistent with how cost effectiveness is evaluated for other ENERGY STAR product categories." The ENERGY STAR program guiding principle that most directly addresses this issue is "Principle 3: Purchasers will recover their investment in increased energy efficiency within a reasonable period of time."

From the *ENERGY STAR® Products Program Strategic Vision and Guiding Principles* document (Page 4):

> "In applying this principle, EPA recognizes that product prices can vary dramatically and are a function of a range of different product features and consumer circumstances. The test is not for every model that carries the label to be cost-effective or even for those in a single category to be cost-effective on average. Instead, this assessment tends to be made based on individual price comparisons between models that are similar except in terms of energy performance. To the extent energy efficiency is sometimes bundled with other high-end product features, it is sometimes difficult to isolate the cost of the energy saving technology."