



February 8, 2013

Mr. Douglas W. Anderson  
United States Environmental Protection Agency  
Climate Protection Partnership Division  
Washington, D.C. 20460

Re: Energy Star for Windows, Doors, and Skylights, Version 6, Draft 2.

Dear Mr. Anderson,

Southwall Technologies, a subsidiary of Eastman Chemical Company, has supported the Energy Star for Windows program since its inception in the late 1990's. We have been actively involved in the current process initiated in 2008 by DOE to raise the performance requirements of Energy Star, through participation in stakeholder meetings and industry organizations, such as the NFRC. Our engagement with window manufacturers has increased significantly as "Ver. 6" has approached adoption.

We have appreciated the forthrightness and effort for transparency both from DOE and EPA as it has become responsible for this program. It is in the spirit of that forthrightness, that we respond in kind to voice our deep concern over the most recently proposed U-factor / SHGC trade-offs in the Northern Zone.

#### **Unintended Consequences of High Solar Gain**

In our view, the proposed trade-offs have gone too far. Not only do they miss the opportunity to transform the industry by rewarding the adoption of multi-cavity IG technologies, but by encouraging and rewarding window manufacturers to deliver windows with higher solar gain in Northern Zone markets that have significant periods of hot weather in the summer, they create the real potential for homeowner discomfort, increased air-conditioning costs, and peak demand implications for utilities. Southwall has heard directly from manufacturers – who had been strongly considering multi-cavity solutions to meet Energy Star requirements – that the new Northern Zone trade-offs will allow them to meet the criteria with existing single-cavity (dual-pane) products. Because single-cavity glazing is less expensive and avoids potential hardware and frame upgrade costs that may be required to support multi-cavity IG, the proposed trade-offs create a dilemma for manufacturers. Do they provide a more expensive multi-cavity solution that will provide a more comfortable year-round customer experience? Or, do they provide a less expensive (but equally compliant) product that has potential for customer discomfort and dissatisfaction in the hot seasons? It is very unlikely that window companies will offer a palate of options, and very likely that the lower cost solution will prevail. As a result, builders may be able to install lower cost windows; but when summer arrives, homeowners will have excessive solar gain that decreases comfort, increases air-conditioning bills and burdens utilities' summer peak load requirements.

#### **Case Study**

As noted above, we have deep concerns about this proposal. In no small measure these concerns are driven by experience. In the early 1990's Ontario Hydro developed a program which eventually became

a national standard in Canada specific to window performance. The ER (Energy Rating) system greatly rewarded windows with high solar gain, at the same time penalizing windows which had low U-factor values, if they also had low SHGC. Southwall spoke directly with Ontario Hydro about this program at its inception, warning them of the dangers of a standard which did not factor in the impact of solar gain in residential markets. This writer was told by Ontario Hydro in almost these exact words: "We don't have a summer peak load problem. We have a winter peak load problem." Southwall responded to Ontario Hydro that if they proceeded with their proposed program, in time they would have a summer peak load problem as an unintended consequence. And we were right. We have enclosed a report entitled *Electricity Demand in Ontario*, submitted to the Ontario Energy Board by Hydro One Networks and Hydro One Brampton in November 2003. Several points can be taken from this report:

- From 1999 to 2002 in Ontario, 45% of the hours with very high demand were in the winter, 41% of the hours were in the summer.
- 6.3% of the winter peak demand came from residential heating.
- 21.7% of the summer peak demand came from residential air-conditioning.

By its own analysis, Ontario Hydro did not have a summer peak load problem in the early 1990's. A decade later, however, over 40% of the peak demand hours in Ontario were in the summer and almost 22% of that demand came from residential air conditioning. We would not be so bold as to assert that this problem can be solely attributed to high gain windows. But if we look at the data, we are confident in asserting that summer demand from residential air conditioning is almost four times greater than the impact of winter residential heating, and broad market use of high solar gain windows exacerbated this problem. We know solar gain from windows is a big contributor to air conditioning demand. If a decade long practice of installing in high solar gain windows helped reduce winter peak demand, it is reasonable to assert that the practice had negative impacts in the summer.

With a proposed standard that rewards the use of high SHGC windows in markets where air-conditioning is prevalent in the summer, we are in danger of repeating the unintended consequences of the Ontario Hydro experience. Of this we can be certain: summer peak load demand WILL increase. And as electricity is significantly more expensive than other forms of energy typically used in heating, we believe this proposed modification is short-sighted and not beneficial to homeowners, our ultimate "end customers." Their comfort will be negatively impacted, their summer energy costs will increase, and window manufacturers will face the prospect of complaints from consumers expecting higher efficiency Energy Star windows to deliver increased comfort as part of the implied promise of the brand.

For these reasons, we recommend dropping the U-Factor / SHGC trade-off option from the final Energy Star criteria.

Regards,

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Enclosure: Electricity Demand In Ontario, Hydro One, November 2003  
[http://www.ontarioenergyboard.ca/documents/directive\\_dsm\\_HydroOne211103.pdf](http://www.ontarioenergyboard.ca/documents/directive_dsm_HydroOne211103.pdf)