



California Air Resources Board

Comments on the Adoption of the "Cool Cars 2009 Regulation"

Southwall Technologies Inc. is a small, California based company with a 30 year history of developing and marketing energy efficiency film products for architectural and automotive glass. We are solely focused on developing and producing industry leading products that reduce energy use and cut the production of green house gasses (GHG). Southwall is considered a leader in automotive solar reflective glass technologies and has had our product installed on an estimated 20 million vehicles over the past 15 years mostly in the European market.

Southwall fully supports the efforts of the California Air Resources Board to improve the environment, both locally and globally, and we have been pleased to work closely with the Board's staff over the past thirteen months.

Tier 1- 2012 / 2013

Southwall fully supports the current draft of the regulation with respect to the 2012/2013 windshield, sidelite, backlite and roofite glazing performance.

- This portion of the regulation will make enormous strides in reducing the emission of GHG from passenger vehicles in California in a very short period.
- In particular, the first tier of windshield regulation, implemented in 2012 and 2013, achieves up to a 30% reduction in the solar energy transmitted through a windshield as compared to clear glass.
- The first tier takes the windshield to within roughly 15% of the theoretical maximum solar energy rejection performance achievable for legal windshields - a Tts of 35%.
- This change, *utilizing technologies widely available today*, will achieve the vast majority of the GHG reductions under CARB's proposed rule.

Tier 2 – 2014 and beyond

Southwall respectfully requests that the CARB Board shift the Tier 2 windshield implementation from 2014 to 2016.

The second tier of windshield performance, as currently specified in the proposed regulation, will further reduce the total transmitted solar energy from the 50% achieved in the first tier to 40% in 2014. This shift will result in only a modest incremental reduction in GHG emission as compared to the large reductions achieved in the first phase of the regulation. While the performance improvement is modest, the implementation challenges to the industry are significant.

Southwall remains fully committed to supplying product that is compliant with Tier 1 and Tier 2 of this regulation regardless of implementation timing and will have a Tier 2 compliant product available for the 2014 model year. However, we strongly believe that two additional years are needed for the majority of the world's glazing manufacturers to raise capital, secure/develop and validate compliant technology, conduct necessary R&D, perform requisite durability testing, construct coaters around the world, carry out production, establish long-term contracting with vehicle manufacturers, and address the necessary logistical planning needed for every model.

Key reasons for Southwall's Request

1. Logistical/Supply Constraints:

- A single company currently claims the ability to produce glass that meets the required performance, and this company accounts for less than 10% of the windshields produced world wide. One (or two) glazing manufacturers cannot supply all vehicle models for California. For instance, note that nearly 400 applicable vehicle models produced for California will be assembled by 2014, and most of the 2012-2014 Model Year vehicles have been already awarded to specific suppliers.
- The challenges in developing and qualifying products that meet this standard are significant and virtually ensure a very limited supply base for glass that will be compliant with the current regulation in the 2014 time frame.
- A situation in 2014 in which one or only a very few manufacturers are able to supply compliant glass will result in severe supply constraints that will almost certainly drive the cost of compliant glass well above the current CARB staff estimates.
- Shifting the implementation date for the second tier of windshield performance to 2016 will allow a significantly larger number of glass suppliers to develop, qualify and field compliant glass that will meet staff cost targets.

2. Harmonizing with CAFE and forthcoming GHG emission standards:

- According to the Cool Car staff report estimates, national implementation of the proposed glazing standards would achieve **3 to 10 times** the GHG emission benefits achieved in California alone. The introduction of the federal GHG emission standards and a significant step in the federal CAFE standards are both scheduled for the 2016 model year. Both of those federal regulations will necessitate a significant redesign for most or all vehicle models. We believe that moving the tier two implementation date to 2016 will increase the likelihood that the nation harmonizes with California, enabling CARB's policy to influence dramatic GHG reduction levels.
- If tier 2 of this regulation is aligned with that redesign, it is far more likely that automobile manufacturers will take advantage of the reduced solar load on the cabin - the ultimate benefit of this glazing - to downsize the air conditioners on these redesigned models. This downsizing of the AC and associated systems will be attractive to auto manufacturers, because the cost savings achieved will help offset the increased cost of the glazing.
- Resizing air conditioners, however, is a considerably more challenging task than re-specifying the glass because of the complexity in resizing other associated systems. This would only be done if the redesign were to be rolled out to the entire US fleet. Naturally, if sufficient glass for the national fleet were unavailable, it would not be possible to follow this path.
- The potential GHG reduction achieved is significant, if even only a few vehicle models are deployed nationwide with high performance glazing and reduced AC plant sizes. If the models are moderate to high volume platforms, a reduction in AC plants could easily outweigh the total benefits achieved in California through the use of improved glazing alone.

In summary, Southwall fully supports the Cool Car Standards and Test Procedures (Proposed Regulation Order: sections 95600 through 95606, title 17, California Code of Regulations) with the minor modification of shifting tier 2 windshield performance implementation from 2014 to 2016. This shift will allow major manufacturers to develop tier 2 compliant windshields and also allow the industry/consumers to avoid most of the additional hundreds of millions of transition costs in 2014, if even logistically feasible. This shift would also greatly increase the likelihood that the nation harmonizes with California, which would enable even more significant GHG reduction levels.


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