



PILKINGTON

NSG Group Flat Glass Business

July 11, 2011

Mr. Steve Cliff
Office of Climate Change
Air Resources Board
California Environmental Protection Agency
1001 "I" Street
P.O. Box 2815
Sacramento, CA 95812

**RE: CARB Draft Cap and Trade Regulations
Pilkington North America, Inc.
15-Day Public Revision Package posted July 25, 2011**

Dear Mr. Cliff:

Pilkington North America, Inc. (PNA) appreciates this opportunity to continue to work with CARB on the cap and trade regulations as they apply to the flat glass industry in California and in particular to PNA. PNA recognizes the hard work that CARB has already done to help minimize the impacts of the cap and trade program on the flat glass industry to reduce the risk of emissions leakage. PNA hopes that CARB will consider these additional suggestions to further secure PNA's ability to continue operating and investing in California.

PNA currently operates six flat glass lines in the United States including one in Lathrop, California in the San Joaquin Valley which is considered a "covered entity" in terms of the cap and trade program. The Lathrop site uses the float process to produce flat glass with a natural gas-fired, side-port regenerative glass melting furnace. PNA and PNA's predecessor, Libbey-Owens-Ford Co. (LOF) have operated this flat glass plant since 1964. The Lathrop site currently employs around 130 people.

PNA recently applied for and received four authority to construct (ATC) permits from the San Joaquin Valley Unified Air Pollution Control District to implement a significant investment at this site, including an extensive furnace cold repair, installation of a pollution-control plant on the furnace to minimize emissions of priority pollutants, and installation of an on-line coating operation with an associated pollution control plant. This investment at the PNA Lathrop site would give PNA the ability to produce transparent conductive oxide (TCO) coated glass products in California which have energy efficiency benefits when used in applications for buildings and for solar energy.

Pilkington North America, Inc.

140 Dixie Highway Rossford OH 43460
www.pilkington.com

Both of these applications are consistent with AB32's goal of decreasing overall GHG emissions and increasing the use of renewable energy resources. This investment would also provide the opportunity for about 40 more direct jobs at the PNA Lathrop site.

As CARB recognized in the cap and trade regulatory proposal, the flat glass industry is energy intensive and highly trade exposed. This is particularly true with TCO glass. Although CARB has accounted for this by offering free allocations to the flat glass industry, the method by which the number of free allocations to the flat glass industry will be determined still leaves PNA, one of only three remaining flat glass manufacturing plants in California, particularly vulnerable and significantly increases the risks associated with the planned investment for the PNA Lathrop site. In particular, PNA would like to address the following three issues in terms of the current 15-day notice released on July 25, 2011.

Leakage Risk & Product Based Benchmark

The technology available to the flat glass industry for achieving significant step reductions in GHG emissions is extremely limited both in terms of availability and timing. Facilities in California already employ many energy efficiency measures in the operation of the furnaces both to meet stringent priority pollutant requirements for NOx and to minimize operating costs. Major changes in furnace design can only be done between campaigns during cold repairs which take place every 10 – 14 years.

As currently proposed in the 15-day notice, the flat-glass industry benchmark is based on only the three flat glass furnaces in California which includes two air/fuel-fired regenerative furnaces and one 100% oxyfuel-fired furnace. The 100% oxyfuel furnace design is not widely employed in the flat glass industry. In fact, of about 30 furnaces that exist in the U.S. as of 2010, only four of them at most employ this type of furnace design. PNA operates one of these at its Rossford, Ohio facility. The inclusion of that one oxyfuel-fired furnace in an average benchmark consisting of only three plants, however, pushes the benchmark lower to a degree that disproportionately impacts the PNA air-fired regenerative furnace which is one of only two remaining in California.

As stated, PNA is positioned to make a significant investment in the Lathrop facility but cannot assume the additional risk of increased compliance costs or the technical risks of conforming to the oxyfuel furnace design which CARB has identified as a low GHG emitting technology for flat glass production.

PNA's planned investment for the Lathrop site includes the installation of an on-line chemical vapor-deposition coating process. That coating process is sensitive to the surface conditions of the glass as it exits the furnace since it is applied while the glass is in the forming stage. The PNA on-line coating process produces proven, acceptable results on glass produced from an air-fired regenerative furnace, but the ability to apply the coating in this way to glass produced from an oxyfuel-fired furnace is uncertain because the surface conditions of the glass from an oxyfuel-fired furnace are different from glass produced from an air-fired regenerative furnace. There are only nine on-line

TCO coated glass production plants in the world, and NSG (PNA's parent company) runs six of them, two of which are in the U.S. PNA is not aware of any on-line TCO glass production process existing on an oxyfuel-fired furnace. PNA is not prepared to assume the risk of producing on-line coated glass on an oxyfuel-fired furnace and so must assume the additional costs of the cap and trade program in order to continue to operate in California or choose not to invest further in California and produce the coated glass product at another site outside of California or outside the US.

Obviously PNA would like to continue to operate in California. To help make that possible and to help reduce the risk associated with the planned investment at the PNA Lathrop site, PNA proposes an alternative benchmark which can be applied to on-line coated glass products. Specifically, PNA proposes that the current benchmark already defined for flat glass production in the 15-day cap and trade modification package (0.471 metric tonnes of CO₂eq/ton of glass draw) be applied to all glass product not coated with an on-line process and that a new benchmark be developed by taking 90% of the average CO₂ emission intensity (in metric tonnes / ton of glass draw) of the two air-fired regenerative furnaces in California and apply it to the tons of coated glass produced with an on-line coating process. The cap adjustment factor and the industry assistance factor would remain the same for both products. The result would look something like this:

$$\begin{aligned} &\text{Allocations in budget year} = \\ &[(\text{Output} * B1 * c * AF) + (\text{true up formula})]_{(\text{uncoated glass production})} + [(\text{Output} * B2 * \\ &c * AF) + (\text{true up formula})]_{(\text{on-line coated glass production})} \end{aligned}$$

Where, B1 = existing benchmark for flat glass production = 0.471 metric tons of CO₂eq/ton of glass draw and B2 = benchmark for on-line TCO glass production

This approach is consistent with the CARB benchmarking approach and at the same time helps to mitigate some of the risks involved with investments in the production of on-line coated glass products in California that can be used for energy efficiency and renewable energy applications.

Product Output Based Allocation Calculation §95891 (b)

PNA notes that in the current 15-day revision of the regulation the product output-based allocation calculation includes only one year of production data, specifically production in year t-2 (two years prior to the budget year for which the calculation is being performed) and is then adjusted later in the program with the trueup factor. PNA would like clarification from CARB that the first trueup factor would be applied in 2015 to reconcile the production in years 2011 and 2013.

PNA also notes that the trueup factor will only account for changes in emissions that are directly linked to production and not those emissions that are needed to keep the glass furnace hot during hot holds or start-ups and shut-downs associated with cold repairs.

Cold repairs and hot holds are a normal part of a float glass furnace operation and are generally required to perform repair and maintenance activities. During a cold repair (which can take about three months), the furnace is cooled down completely in order to replace worn refractory, to complete required maintenance and to make any necessary changes or adjustments to the furnace and then heated up again gradually to operating temperature. During the cool-down and heat-up periods, which could take a total of a few weeks fuel may still be burned but no glass would be pulled. During a hot hold or idling period, the furnace is kept hot to keep the contained glass in molten state, but the flow of glass into the forming operation is stopped or banked (glass pulled goes to zero). While the furnace is idled, the site would be burning up 45% of the maximum normal fuel usage to keep the glass in a molten state, but no glass would be produced (or pulled). Cold repairs take place about once every 10 – 14 years while a hot hold can take place more frequently to perform maintenance between cold repairs or to control glass inventory to respond to market conditions.

PNA emphasizes and seeks confirmation from CARB that the furnace would not be considered shut down during a cold repair or a hot hold as the term is defined in the cap and trade rules despite the fact that no glass is being produced and that neither a cold repair nor a hot hold necessarily represent an intention to cease production, but instead are considered to be routine maintenance and repair events.

As the rule is currently drafted, it seems that PNA would have a compliance obligation for the emissions during these idling periods, but would not receive any allowances for this time because the product output-based allocation methodology includes only a single year of production and there would be no production during hot hold periods and periods of cool-down or heat-up. Even though the years used to establish the flat glass industry benchmark included one hot hold period for at least one of the three flat glass furnaces, the method of calculating the allowance allocations still does not adequately cover the months where there could be no glass draw during hot hold periods. This is because there is such a wide variation in the durations and frequency of hot holds in the industry and the benchmark represented only a very small portion of the industry range of operations.

As such, PNA would like to suggest that a factor be added to the existing product output-based “trueup” factor to account for the actual emissions from the fuel combustion during the time period in which the furnace is idled but not shut down and that such a factor be based on the fuel benchmark used for the fuel portion of the thermal energy-based allocation methodology multiplied by the actual amount of fuel burned during the hot hold period.

Cap Adjustment Factor Table 9-2 § 95891

During recent discussions between PNA and CARB staff regarding the flat-glass industry benchmark it was suggested that PNA and the flat-glass industry look at the provisions made for the cement industry in terms of calculating allocations because the flat-glass industry has a similar situation in terms of its process emissions.

Like the cement industry, an average of 25% of the CO₂eq emissions from float glass production is from the reaction of three primary glassmaking raw materials: soda ash, limestone and dolomite. The raw batch material fed into the furnace is supplemented to the extent possible by combining it with cullet (broken glass from the downstream trimming and cutting operations of the furnace line). The ability to reduce the process GHG emissions from the processing of carbon containing raw materials in the glass production process is limited, however, by the availability and suitability of cullet for use in flat glass furnaces to meet strict product specifications, and the lack of any substitutes for the basic carbon containing raw materials. In fact, PNA already optimizes the use of cullet to the extent possible for operational and energy efficiency reasons. The imposition of the cap and trade program is highly unlikely to yield any additional improvement in this regard.

In consideration of these reasons and given the approach already approved for the cement industry, PNA is proposing a cap adjustment factor for the flat glass industry that applies the yearly reduction only to the fuel portion of the flat glass emissions as in the following Table 1.

Table 1 – Cap Adjustment Factors (Existing and Proposed Flat Glass Industry)

Budget Year	Cap Adjustment Factor (c) for All Other Direct Allocation	Cap Adjustment Factor (c) for Cement Manufacturing (NAICS 327310)	Cap Adjustment Factor (c) for Flat Glass Manufacturing (NAICS 327211)
2013	0.981	0.991	0.986
2014	0.963	0.981	0.972
2015	0.944	0.972	0.958
2016	0.925	0.963	0.944
2017	0.907	0.953	0.930
2018	0.888	0.944	0.916
2019	0.869	0.935	0.902
2020	0.851	0.925	0.898

In conclusion, PNA asks that CARB consider these additional adjustments to the program to guard against flat-glass industry leakage from the state. PNA believes that TCO coated-glass production is especially susceptible to leakage, particularly to Asia. These additional adjustments would also lower the risks associated with the planned investments in the PNA Lathrop facility that would allow the site to produce coated glass products that can be used in renewable energy and energy efficient building applications.

PNA welcomes the opportunity to discuss these issues further with CARB in a meeting or conference call at CARB staff's convenience. Please contact Pamela Rygalski at 419-247-3715 should you have any questions.

Best Regards,

A handwritten signature in cursive script that reads "Pamela A. Rygalski". The signature is written in a dark ink and is positioned above the printed name and title.

Pamela A. Rygalski
Director of Environmental Affairs
Pilkington North America, Inc.