

# Public Scoping Meeting for Potential Amendments to District Rule 4354 (Glass Melting Furnaces)

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# Valley's Air Quality Challenges

- Valley's challenges in meeting federal air quality standards unmatched due to unique geography, meteorology, and topography
- Valley designated as “Extreme” non-attainment of the 8-hour Ozone NAAQS; “Serious” non-attainment of federal standards for fine particulate matter (PM<sub>2.5</sub>)
  - Substantial emission reductions needed to achieve federal standards – need to go beyond already strict control limits
- Combustion is a significant source of NO<sub>x</sub> emissions, primary precursor to ozone and PM<sub>2.5</sub> formation
  - Comprehensive strategy in *2018 PM<sub>2.5</sub> Plan* includes commitment to reduce emissions from mobile sources and a number of stationary source categories, including glass melting furnaces



# Glass Melting Facilities in San Joaquin Valley

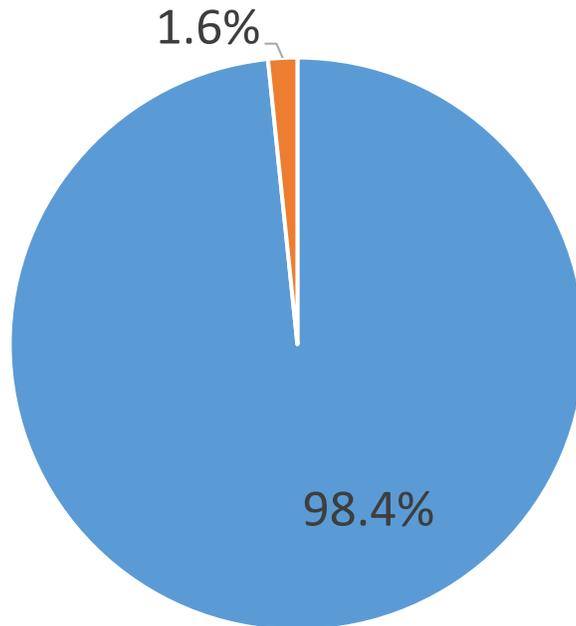
- Valley home to six glass-making facilities with glass melting furnaces
  - **Container glass**: Any glass manufactured by pressing, blowing in molds, rolling, or casting (i.e. into bottles)
  - **Fiberglass**: Material consisting of fine filaments of glass
  - **Flat glass**: Glass produced by the float, sheet, rolled, or plate glass process - used in windows, windshields, etc.



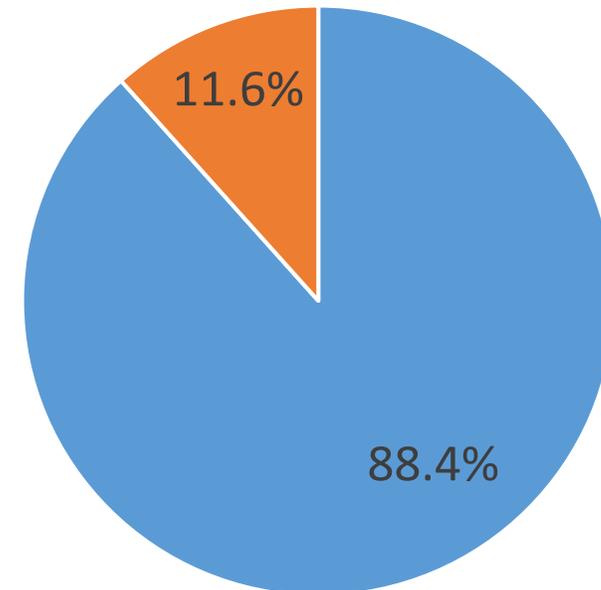
Image credit: Cesyco, 2020

# NOx Emissions from Glass Melting Furnaces in the Valley

All NOx Emissions in the Valley  
Mobile, Stationary, & Area  
Sources



NOx Emissions from Stationary  
Sources



■ Other NOx Sources   ■ Glass Melting Furnaces   ■ Other Stationary Sources   ■ Glass Melting Furnaces

# Rule 4354 Overview

- District Rule 4354 first adopted September 14, 1994 and has been amended six times
- Rule 4354 establishes specific NO<sub>x</sub>, CO, VOC, SO<sub>x</sub>, and PM<sub>10</sub> limits from glass melting furnaces
- Various control technology installed at glass melting furnaces to meet existing stringent limits
  - Millions of dollars invested in control technology to reduce NO<sub>x</sub> by 70-80%
- Specific types of glass melting furnaces have different limits, due to variations in the glass production process, residency time in the furnace, temperature requirements, etc.
- Monitoring and recordkeeping requirements

# Evaluation of Additional Emission Reduction Opportunities

- Per *2018 PM2.5 Plan*, District pursuing potential opportunities to reduce NO<sub>x</sub> from container glass furnaces, as technologically and economically feasible
  - Evaluating lowering NO<sub>x</sub> limit from 1.5 lb/ton to between 1.0-1.2 lb-NO<sub>x</sub>/ton glass pulled or lower, based on rolling 30-day average
- To achieve additional reductions, District also evaluating feasibility of lower NO<sub>x</sub>, SO<sub>x</sub>, PM emission limits for container, flat, and fiberglass glass melting furnaces



Image credit: Peak Sensors, 2020

# Control Technologies Under Evaluation

- Ceramic Catalytic Filters
  - Tri-Mer UltraCat Catalytic Filter System
- Oxy-Fuel Combustion
  - Adds oxygen to fuel and reduces NO<sub>x</sub> emissions by minimizing the availability of nitrogen
- Selective Catalytic Reduction (SCR)
  - Reduces NO<sub>x</sub> emissions through injection of ammonia type reagent into furnace
- Combination of control technologies

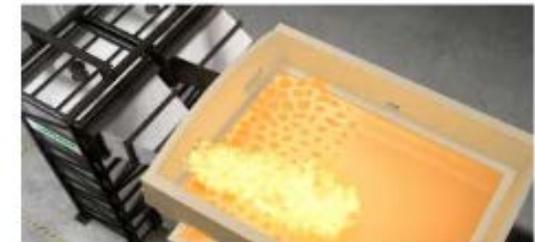
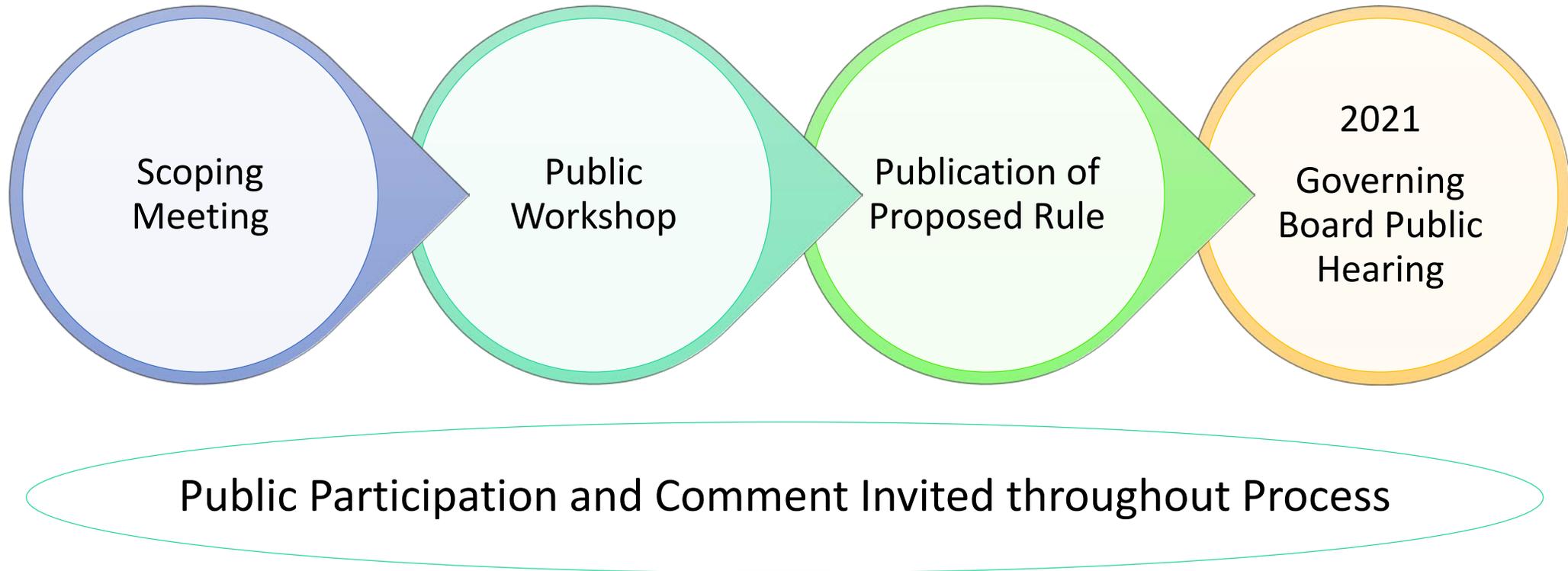


Image credit:  
Praxair, 2016

# Rule 4354 Evaluation Process

- District staff analyzing technological and economic feasibility of further controls, taking into account costs, cost-effectiveness, and considerations depending on specific type of glass melting furnace
  - Costs and feasibility of most effective emission control technologies available
  - Review of requirements in other districts and regions
- Socioeconomic Impact Analysis will be conducted by third-party consultant to evaluate the regional economic impacts of proposed amendments
- Ongoing opportunities for public input
  - Public workshops will be scheduled in 2021
  - Regular updates to Citizens Advisory Committee (CAC), Environmental Justice Advisory Group (EJAG), and District Governing Board meetings
  - Identified as priority through AB 617 community engagement

# Next Steps: Public Engagement Process for Rule 4354 Amendments



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# Comments/Input/Questions

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