



## Title: Electrification in the Glass Industry

In the context of the conference theme “Enhancing Lives Through Innovation and Sustainability,” this presentation discusses electric boosting, all-electric furnaces, and electric forehearth technologies as key technologies for reducing CO<sub>2</sub> emissions and increasing energy flexibility in glass production. It shows how electrification can contribute to a more sustainable melting process by lowering combustion-related emissions, improving process efficiency, and enabling better control of furnace operation. Electric boosting is presented as an important transition technology between conventional and fully electric melting concepts.

The presentation explains the basic principles of electric glass melting, electrode arrangements, and different boosting configurations for melting, barrier, refining, and throat sections. It also compares power supply solutions, with emphasis on transformer and thyristor-based systems and their influence on dissipation, cabling layout, and power management. In addition, the talk addresses furnace geometry and scaling strategies, showing how rectangular all-electric furnace designs and optimized melt-area concepts can support higher cullet use, stable glass quality, and larger production capacities.

A second focus is placed on electric forehearth technologies, including indirect and direct electrical heating systems as well as submerged forehearth concepts for special glass types. Overall, the presentation demonstrates that electrification is a central pathway toward lower emissions, improved process flexibility, and future-ready glass melting and conditioning.