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Electrochromic Glass

Commercial Buildings and Emissions. Commercial buildings account for 19% of total energy consumed in the United States, representing 440 million metric tons of CO_2 emissions. Traditional windows are a significant source of this energy loss, responsible for 30% of building energy consumption or 430 billion kWh of electricity[i]. Combined, commercial and residential buildings account for 35% of energy related carbon emissions.[ii]

Electrochromic Glass. Electrochromic technology moves ions permanently embedded within windows to change the tint to either absorb or reflect light and heat based on weather conditions. This technology actively heats and cools a building.

Energy Savings & Electrochromic Glass. This technology delivers significant energy reductions in all regions and climates. Annual cooling load reductions are 20%, with peak reductions from 19% to 26%[iii].

Installing 20 million square feet of electrochromic glass over the next 5 years would avoid up to 1.85 million metric tons of CO_2 emissions. The U.S. Department of Energy calculates that if all of today's traditional windows were replaced with electrochromic glass, nationwide window energy losses could be eliminated and instead converted to a 320 billion kWh net energy gain[iv]. Electrochromic windows could be net producers of energy by optimizing heating and lighting within buildings.

Domestic Manufacturing. The electrochromic glass industry is U.S. based, generating thousands high paying domestic manufacturing jobs. For every manufacturing job, there are 6 additional downstream jobs created. Today there are 14 U.S. companies selling or developing electrochromic glass for buildings. The Dynamic Glass Act will expand that job creation.

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[i] Arasteh, D., Selkowitz, S., Apte, J., LaFrance, M., "Zero Energy Windows", 2006, LBNL report number LBNL-60049
[ii] Energy Information Administration. https://www.eia.gov/environment/emissions/carbon/. Figure 5.
[iii] Department of Energy. https://www.energy.gov/eere/amo/electrochromic-windows-advanced-processing-technology
[iv] Lawrence Berkeley National Laboratory. Integrating Advanced Facades Into High Performance Buildings. https://cloudfront.escholarship.org/dist/prd/content/qt30g0h715/qt30g0h715.pdf