

# **Societal Participation Rates in Carbon Mitigation Programs in US Cities: Case Study of Denver, CO**

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## **ABSTRACT**

This paper documents societal participation rates in various climate action programs implemented in Denver and surrounding cities in Colorado, where households and businesses are engaged in various strategies toward renewable energy, energy efficiency and conservation in buildings-facilities, transportation and materials-waste sectors. GHG mitigation is found to correlate with strategy effectiveness per unit, and with societal participation rates in various climate action programs. Results show that greatest carbon mitigation impact occurs with regulations addressing the vast existing buildings stock in cities, followed by voluntary behavior change, technology shifts (e.g., to teleconferencing), and green-energy purchases among individual users. In the best case, a portfolio mix of voluntary programs and regulatory policies can yield a maximum of ~1% GHG mitigation annually in buildings and transportation sectors, combined. Relying solely on voluntary action reduces mitigation rates more than fivefold. A strategy-portfolio analysis of climate action plans launched in 55 US cities reveals predominance of voluntary outreach programs that have low societal participation rates and impact, while innovative higher-impact behavioral, technological and policy/regulatory strategies are under-utilized. Less than half the cities report linkages with high-impact state-scale policies. Future inter-disciplinary fieldwork is discussed that can help address the mis-match in plans, actions and outcomes.