



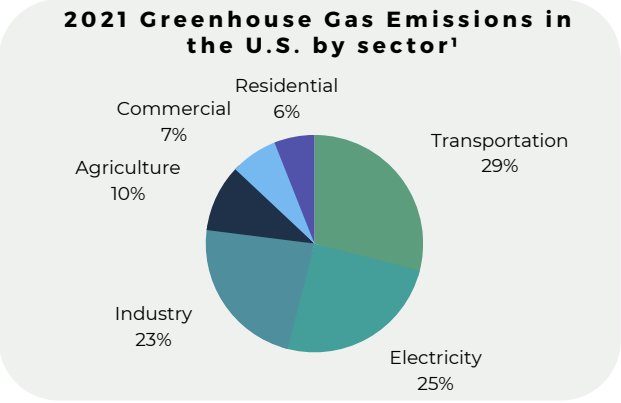
# Decarbonizing the Transportation Sector:

*How Transportation Demand Management Can Untangle the Nation's Mobility Crisis Through Efficiency*

The transportation sector is the **largest contributor to climate change** and its critical infrastructure is highly vulnerable to climate effects. In addition, traffic congestion has economic and local air quality impacts of \$200B annually. Federal, state, and local leaders must act now to address these problems using the quickest and most cost-effective solutions.

We are calling on federal and state leaders to embrace the use of TDM strategies to take immediate steps towards the decarbonization of our transportation systems.

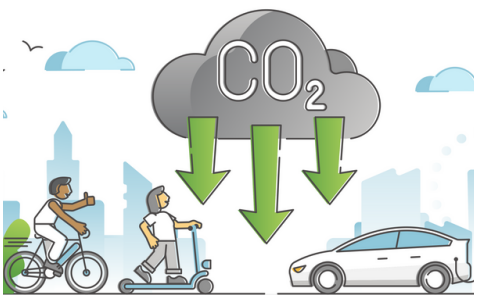
In the electric sector, clean energy and energy efficiency are the “**twin pillars**” of a sustainable energy system. In the transportation sector, the single largest emissions sector, the comparable “twin pillars” of a sustainable and resilient transportation system are clean fuels, including electrification, and transportation efficiency.<sup>2</sup>



## WHAT IS TRANSPORTATION DEMAND MANAGEMENT (TDM)?

TDM is the use of strategies to inform and encourage travelers to maximize the efficiency of a transportation system leading to improved mobility, reduced congestion, and lower vehicle emissions.

TDM makes better use of the transportation infrastructure we already have in place. TDM programs provide all people with real options that enable them to travel from their location to destination in an affordable, efficient, and sustainable way.



Born from the need to reduce traffic congestion and improve air quality in many locales throughout the United States, TDM programs have been successfully and cost-effectively reducing vehicle trips since the early 1970s. We now know that they do much more. An important study in 2020 showed that **local TDM programs are a crucial strategy for meeting US climate targets.**<sup>3</sup> In other words, just electrifying personal cars, or making them more fuel efficient, does not go far enough in reducing carbon emissions from the transportation sector. In addition to low- and no-carbon vehicles, the U.S. needs low-carbon travel alternatives to single occupancy trips.

And this is exactly where TDM programs come into play. By design, they inform and encourage travelers to maximize the efficiency of our transportation systems, leading to improved mobility,



reduced congestion, and lower overall emissions. TDM provides transportation choices that enable people to travel from their location to a destination in an affordable, efficient, and sustainable way.

The research is clear: TDM is highly effective in reducing carbon emissions. A [definitive set of research and policymaker summaries](#) by the California Air Resources Board<sup>4</sup> shows how. Using the [TDM+ model](#), policymakers can predict the effect of combinations of TDM strategies based on the latest research. Depending on the strategies employed, project emissions reductions of 10% to 50% can be achieved.

Another study of projects funded by the Federal Highway Administration's Congestion Mitigation and Air Quality (CMAQ) program concluded that TDM measures were among the most cost-effective in reducing automobile emissions, especially when compared to alternatives such as traffic flow projects. In this study, traffic flow projects received 33% of all funds, but cost \$42.70 per pound of emissions reduced. Ridesharing programs were 4 times more efficient, costing \$10.25 per pound of emissions reduced, and other TDM programs were 5.5 times more efficient, costing \$7.66 per pound of emissions reduced. Yet, TDM programs accounted for only 7% of all CMAQ funds.<sup>5</sup>

## EFFECTIVE TDM STRATEGIES INCLUDE:

- Transportation Fringe Benefits
- Cash Incentives and Gamification
- Public Transit and Private Shuttles
- Vanpools and Carpools
- Bike & Pedestrian Programming
- Micromobility and MaaS
- Parking Management
- Hybrid & Remote Work
- HOV/HOT Lanes
- Trip Planning & Ridematching
- Planning, Zoning, and Ordinances
- Marketing & Behavioral Change



As a nation, we can achieve near-term, deep carbon reductions in the transportation sector by learning from progress in the power (electricity) sector, which shows a path forward for scaling up TDM's impact on reducing emissions. [Most US states](#) require electric utilities to invest in [energy efficiency and conservation programs](#),<sup>6</sup> encouraging them to find market-based approaches to energy efficiency. These innovative solutions include cost-effective behavioral efficiency programs that help people change their energy use choices, such as Opower and Uplight. Overall, energy efficiency programs reduce retail electricity consumption by an incremental 1.2% every year, and this accumulates over time (e.g. over 10 years, energy consumption decreases up to 12%).

For transportation to replicate the success of the electricity sector in decarbonization, partnering with states is the key.<sup>7</sup> State governments are required within the Bipartisan Infrastructure Law (BIL/IIJA) to implement decarbonization plans. As states begin to attack their decarbonization goals, they should prioritize efficiency strategies, including TDM. State agencies should collaborate with stakeholders to identify and implement TDM decarbonization strategies. With a sustained state focus on TDM programs, transportation emissions could be reduced incrementally each year, with effects that compound over time, just like energy efficiency. This will bring additional benefits to state residents, including air quality improvements and traffic reduction.



The Association for Commuter Transportation (ACT), which represents more than 1,400 members directly serving over 200 million Americans through hundreds of TDM programs, has adopted reducing carbon emissions in the transportation sector as a high priority **policy cornerstone**. Reducing carbon emissions directly aligns with ACT’s mission of reducing local air pollution and vehicle miles traveled by making the most efficient use of our roads, waterways, rails, and trails using the least carbon-intensive sources possible.

**To rapidly and cost-effectively decarbonize the transportation sector, the Association for Commuter Transportation (ACT) calls for immediate action on the following from Congress, USDOT, and states:**

<p><b>CONGRESS</b></p>	<ul style="list-style-type: none"> <li>• <b>Codify the definition of TDM</b> to strengthen transportation efficiency programs by giving legal clarity to TDM strategies.</li> <li>• <b>Enact legislation</b> that supports and expands the use of TDM strategies and transportation options, reduces the costs of sustainable transportation choices, and advances new technologies and innovation within the sector.</li> </ul>
<p><b>USDOT</b></p>	<ul style="list-style-type: none"> <li>• <b>Establish a national TDM oversight/advisory group</b> to coordinate TDM decarbonization efforts, made up of key stakeholders including state and local governments and TDM professionals.</li> <li>• Federal, state and local transportation agencies should convene TDM advisory groups to <b>encourage public and private stakeholder engagement to equitably</b> develop, deploy, and oversee TDM strategies.</li> <li>• Identify opportunities to increase flexibility in funding TDM projects through existing federal programs like the Congestion Mitigation and Air Quality program and Carbon Reduction Program. Provide guidance on what specific strategies can be funded with each source.</li> <li>• Provide states and local governments with funding to <b>initiate broad-based marketing and promotional programs</b> to increase the impact of TDM programs through public education.</li> <li>• Fund <b>innovative TDM programs</b> with breakthrough potential for decarbonization, through agencies including <a href="#">ARPA-I</a>.</li> </ul>
<p><b>STATES</b></p>	<ul style="list-style-type: none"> <li>• <b>Empower and dedicate staff</b> to lead, implement, and coordinate employer, institutional, and local land-use TDM programs.</li> <li>• <b>Integrate TDM staff into agency operations and culture</b> as part of coordinated efforts to achieve decarbonization and related climate goals.</li> <li>• Collaborate to <b>establish clear metrics for decarbonization</b>, congestion management, and system efficiency in evaluating TDM programs.</li> <li>• <b>Prioritize the use of federal funding programs</b> to develop and support the implementation of TDM strategies.</li> <li>• <b>Develop dedicated long-term funding sources</b> to support TDM programs.</li> <li>• Ensure <b>NGOs already implementing TDM strategies</b>, including transportation management associations and commuter service agencies, receive the funding and support they need to accomplish their goals and mission.</li> </ul>



## Footnotes

1. "Fast Facts on Transportation Greenhouse Gas Emissions." United States Environmental Protection Agency, [www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions](http://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions). Accessed 30 Aug. 2023.
2. The 2023 [U.S. National Blueprint for Transportation Decarbonization](#) identified clean options and efficiency as key strategies. The electricity sector and transportation sector use different terminology for decarbonization, but the first pillar in both sectors is cost-effective efficiency strategies, especially demand reduction. The second pillar is the shift to clean energy - in transportation, to electric vehicles and clean fuels, and in the electric sector, to appliances, heating and cooling powered by electricity or renewables. Twin pillars: <https://www.aceee.org/sites/default/files/publications/researchreports/e074.pdf>
3. For light-duty fleet electrification to meet emissions targets singlehandedly would require unrealistic levels of EV adoption, electric grid growth and critical battery materials. "Meeting CO2 budgets will require a move from technology-oriented policies to activity-oriented policies to provide better substitutes for LDVs, such as transit-oriented land-use policies, deployment of new public transport options, innovative taxes on fuel, parking, congestion and road use, and subsidies for public transportation." Milovanoff, A., Posen, I.D. & MacLean, H.L. Electrification of light-duty vehicle fleet alone will not meet mitigation targets. *Nat. Clim. Chang.* **10**, 1102–1107 (2020).
4. California ARB, Research on Effects of Transportation and Land Use-Related Policies.
5. FHWA-HOP-12-035, Transportation Research Board. The Congestion Mitigation Air Quality Improvement Program: Assessing Ten Years of Experience. Special Report 264. National Academies, 2002
6. US state Energy Efficiency Resource Standards: <https://www.ncsl.org/energy/energy-efficiency-resource-standards-eers>  
<https://www.eia.gov/energyexplained/use-of-energy/efficiency-and-conservation.php>
7. State standards for clean energy are highly effective. Thirteen states currently have 100% renewable or clean energy goals, which are responsible for half of the growth in renewable energy deployment. In the electricity sector, renewable energy production tripled from 3% in 2008 to 10% in 2018. [Facilitating Power Grid Decarbonization with Distributed Energy Resources: Lessons from the United States](#). Bo Shen, Fredrich Kahrl, Andrew J. Satchwell. Annual Review of Environment and Resources 2021 46:1, 349-375.

