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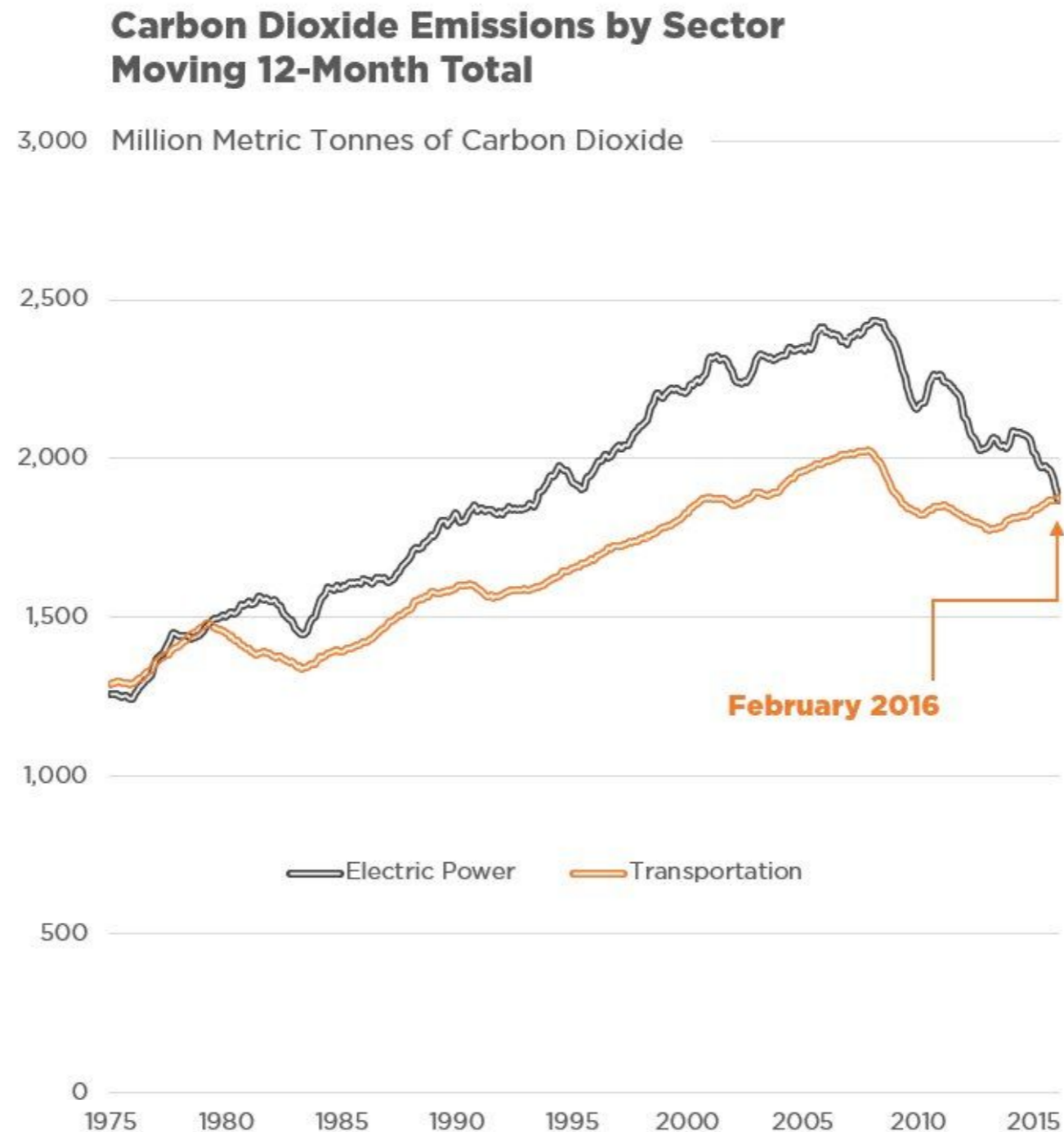
# SHARED-USE AND AUTOMATED MOBILITY: ARE WE THERE YET?



***MSTRS***  
***DERON LOVAAS, NRDC URBAN SOLUTIONS PROGRAM***  
***OCTOBER 18, 2016***

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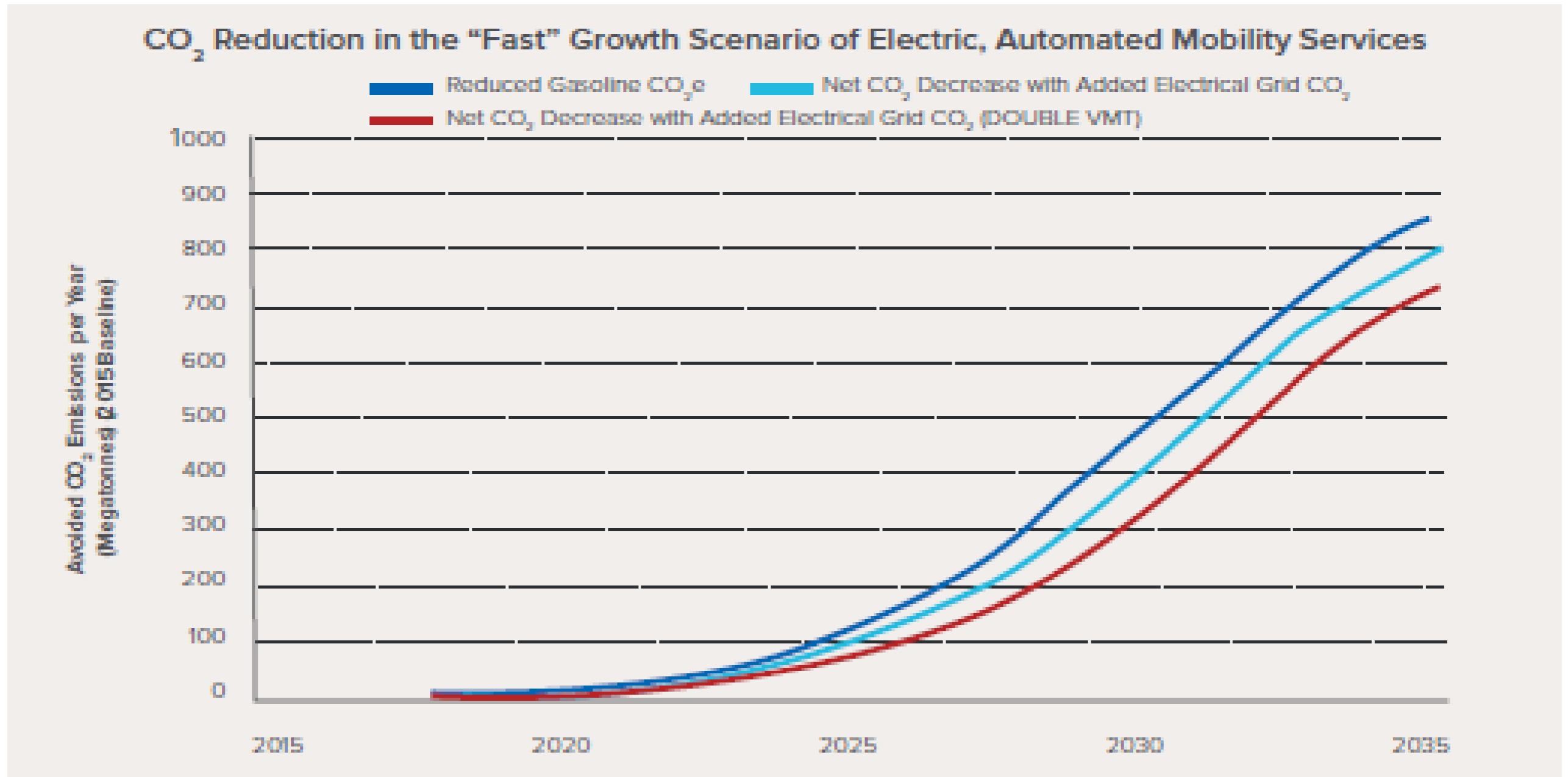
# Transportation is now the #1 source of US carbon pollution



Source: DOE, EIA, May 2016 Monthly Energy Review

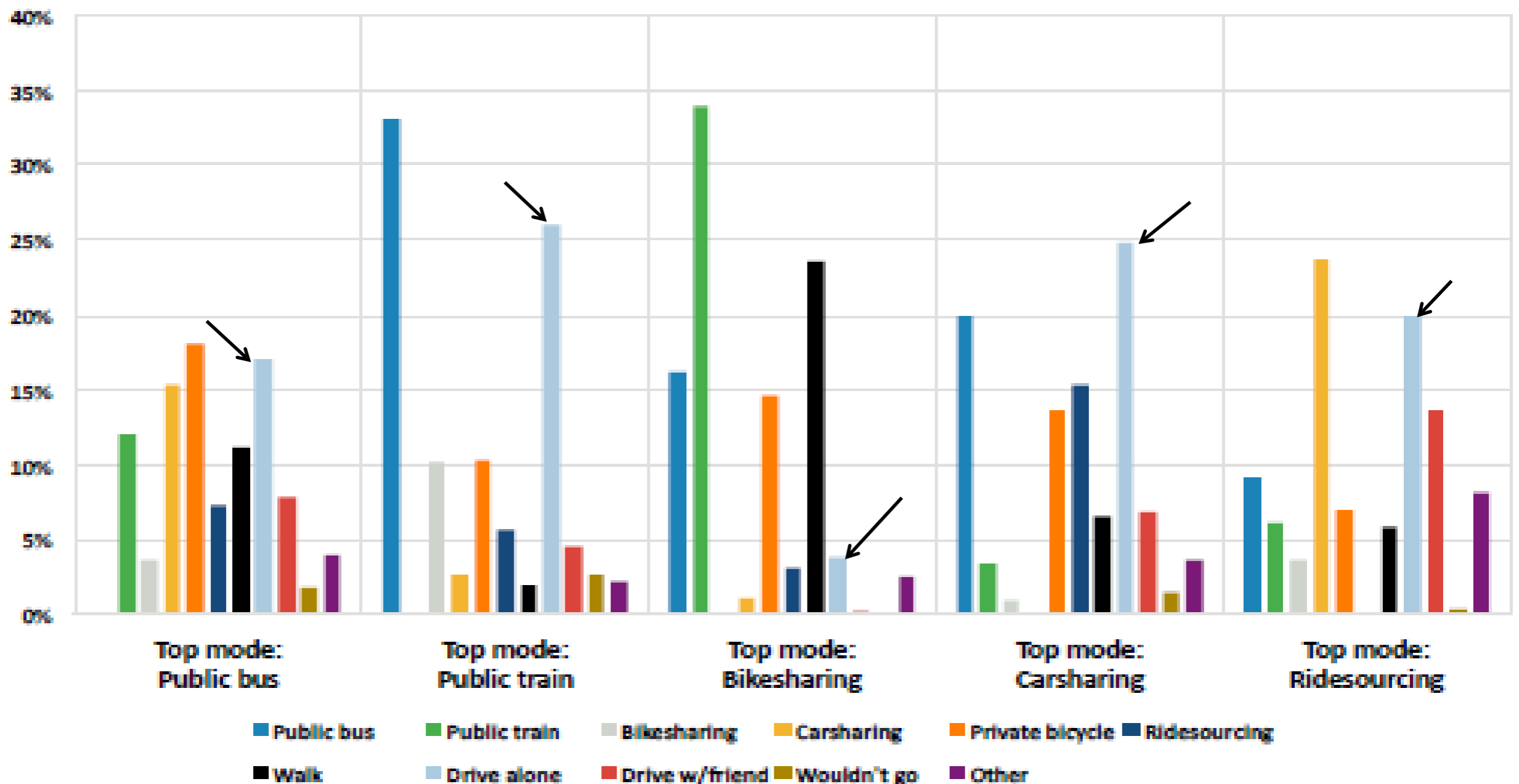
# A Rosy Scenario, Courtesy of RMI

**FIGURE 8:** WITH MASS AMOUNTS OF EVS FUELED BY A RELATIVELY CLEAN GRID, CARBON DIOXIDE FROM PERSONAL MOBILITY PLUMMETS.



# One Survey Shows VMT-Reducing Synergy with Public Transit

**Figure 10:**  
**Alternative for most frequent shared-mode trip if that service was not available—by top shared mode<sup>9</sup>**



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# Potential for Decarbonization Exists

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*Energy analysts, economists, transportation planners, policymakers, and social theorists will have to watch this space carefully to prevent their projections from becoming inaccurate or (worse) irrelevant. However, chances are good that these technologies will, in aggregate, offer greater energy and environmental benefits to conventional vehicles, taking some pressure off of policy makers and planners who have typically seen the personal mobility sector as difficult to decarbonize.*

*- Greenblatt and Shaheen, “Automated Vehicles, On-Demand Mobility, and Environmental Impacts,” 2015*

# On the Other Hand, AVs Could Drive VMT Up

**Table 3** Autonomous Vehicle Impacts on Total Vehicle Travel

Increases Vehicle	Reduces Vehicle Travel
<p>More convenient and productive travel (passengers can rest and work) will reduce travel time costs, stimulating more vehicle travel.</p> <p>Provides convenient vehicle travel to non-drivers (people too young, old, disabled, impaired, or otherwise lacking a drivers' license. Sivak and Schoettle (2015c) estimate that, accommodating non-drivers' latent travel demands could increase total vehicle by up to 11%.</p> <p>Self-driving taxis will travel more for empty backhauls.</p> <p>Can make sprawled, automobile-dependent locations more attractive.</p> <p>Reduces traffic congestion and vehicle operating costs, which induces additional vehicle travel.</p>	<p>More convenient shared vehicles allows households to reduce total vehicle ownership and use.</p> <p>Increases vehicle ownership and operating costs, further reducing private vehicle ownership.</p> <p>Self-driving transit vehicles improve transit services.</p> <p>Reduced pedestrian risks and parking demands makes urban living more attractive.</p> <p>Reduce some vehicle travel, such as cruising for parking spaces.</p>

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# One Thing is Certain: The Roads Ahead are Unclear

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**MORE CREDIBLE  
STUDIES NEEDED**




# Are Uber and Lyft helping or hurting the environment?

Berkeley researchers will get unprecedented access to data from both companies and riders to analyze if on-demand ride services are climate friends or foes




Everyone has an opinion on Uber and Lyft, but research results can be surprising. Photograph: Anthony

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"THE BRAND'S FUTURE  
NEVER BEEN CLEARER"  
- MOTOR TREND





# Recent Study of car2go

## Methodology:

- Online survey from ~9,500 North American car2go members residing in Calgary; San Diego; Seattle; Vancouver; and Washington, D.C.
- Activity data analysis



# Study of One-Way Carsharing

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## Key Findings:

- **Between 2% to 5% of members sold a vehicle due to carsharing across study cities**
- **7% to 10% of respondents did not acquire a vehicle due to car2go**
- **Car2go took estimated 28,000-plus vehicles off of road and reduced parking demand**
- **Average age of vehicles sold ranged between 12 and 15.7 years across the five cities; entire sample of sold vehicles had an average age of 14.4 years across all cities**

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# Study of One-Way Carsharing

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## Key Findings:

- Car2go prevented btw 10 to 29 million VMT per year per city
- **VMT reduction ranges from -6% (Calgary) to -16% per hhd (Vancouver and Washington, D.C.), with an average across cities of -11%**
- Car2go removed between 5.5 to 12.7 metric tons of GHGs per car2go vehicle annually (on average)
- **GHG reduction ranges from -4% (Calgary) to -18% (Washington, D.C.) per hhd, average across cities of 10%**

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## Robin Chase to Policymakers: Be Proactive, Don't "Wait and See"

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Picture Credit: Pixabay

- SCAG estimates implementation of car sharing & ridesourcing will contribute to a 0.36% & 0.56% VMT reduction, respectively
- 1 short-term car rental operator serves 4 communities in SACOG region, & they assume car sharing expands to serve 2 additional communities or job centers by 2035
- MPOs and state DOTs play key roles in developing long-range plans that account for and guide policy that can drive us to a lower-carbon future

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# U.S. DOT Moving to “Level Up” Long-Range Planning

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- USDOT draft rule establishing performance measures for State Depts of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs)
- Draft rule issued Earth Day 2016; comment period ended August 2016

At issue:

- Whether and how states and regions should track carbon pollution and set GHG reduction targets

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# Americans strongly support cleaner transportation

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## **78% of Americans agree:**

“State transportation agencies should take vehicle-related carbon pollution and climate change into account when developing transportation plans, and also seek ways to reduce that pollution.”

## **Including:**

- 92% of Democrats
- 79% of Independents
- 64% of Republicans

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# Diverse stakeholders support a carbon standard

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## **Supportive comments to USDOT from:**

- > 190 business leaders, including from Apple, Facebook, and Lyft
- > 100 mayors and other local officials, from 23 states
- > 10 MPOs, including CMAP, Oregon Metro, and NJTPA
- At least 10 State DOTs, including Minnesota, Virginia, California and Pennsylvania
- > 60 health, environmental, and transportation groups, including the American Public Health Association and the Tri-State Transportation Campaign

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# Getting Ahead of the Curve: New AV Guidance

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- Very Clear:
  - Guidance
  - Model State Policy
  - Existing Regulatory Tools
  - New Tools/Authorities?
- However, Missed an Opportunity to Address Carbon Pollution
- Need an Interagency Approach



U.S. Department  
of Transportation





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# Thank you!

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