

# Overview of Autonomous Vehicles' Potential to Reduce GHG Emissions

Transportation Technology & Society Research Group  
University of Connecticut

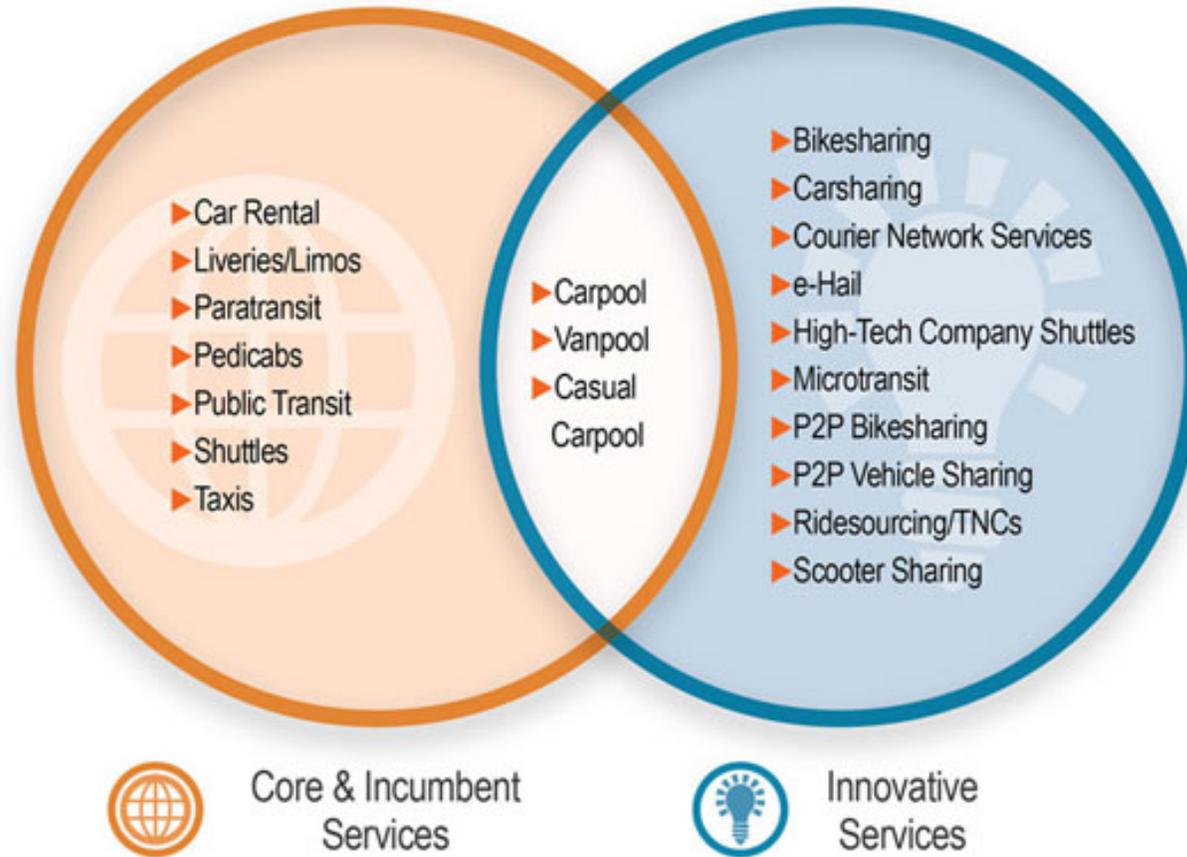
Carol Atkinson-Palombo  
Presentation to DEEP, 13 February 2020

# Autonomous



# Shared

## SHARED MOBILITY SERVICE MODELS



# Electric





# 3 Revolutions Future Mobility Program

# THREE REVOLUTIONS

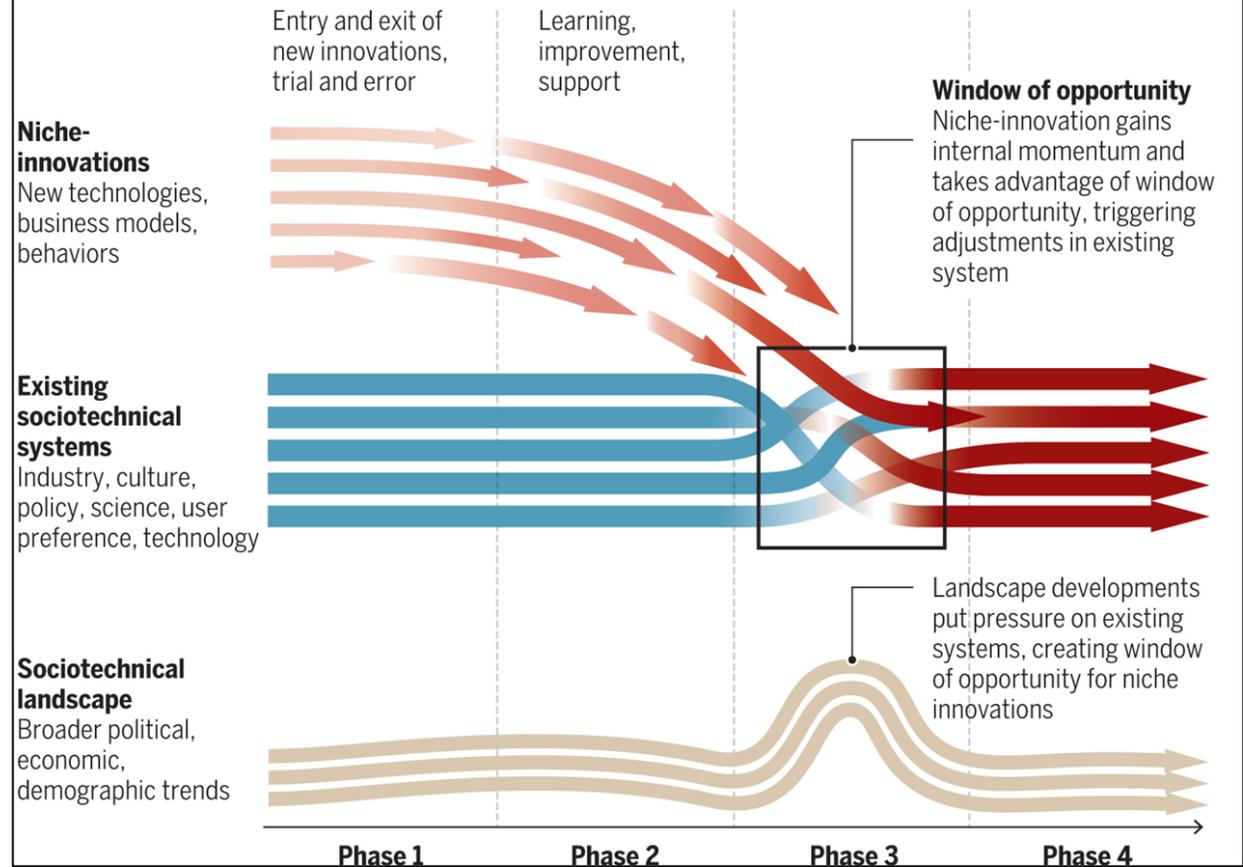
STEERING AUTOMATED, SHARED,  
AND ELECTRIC VEHICLES TO A  
BETTER FUTURE

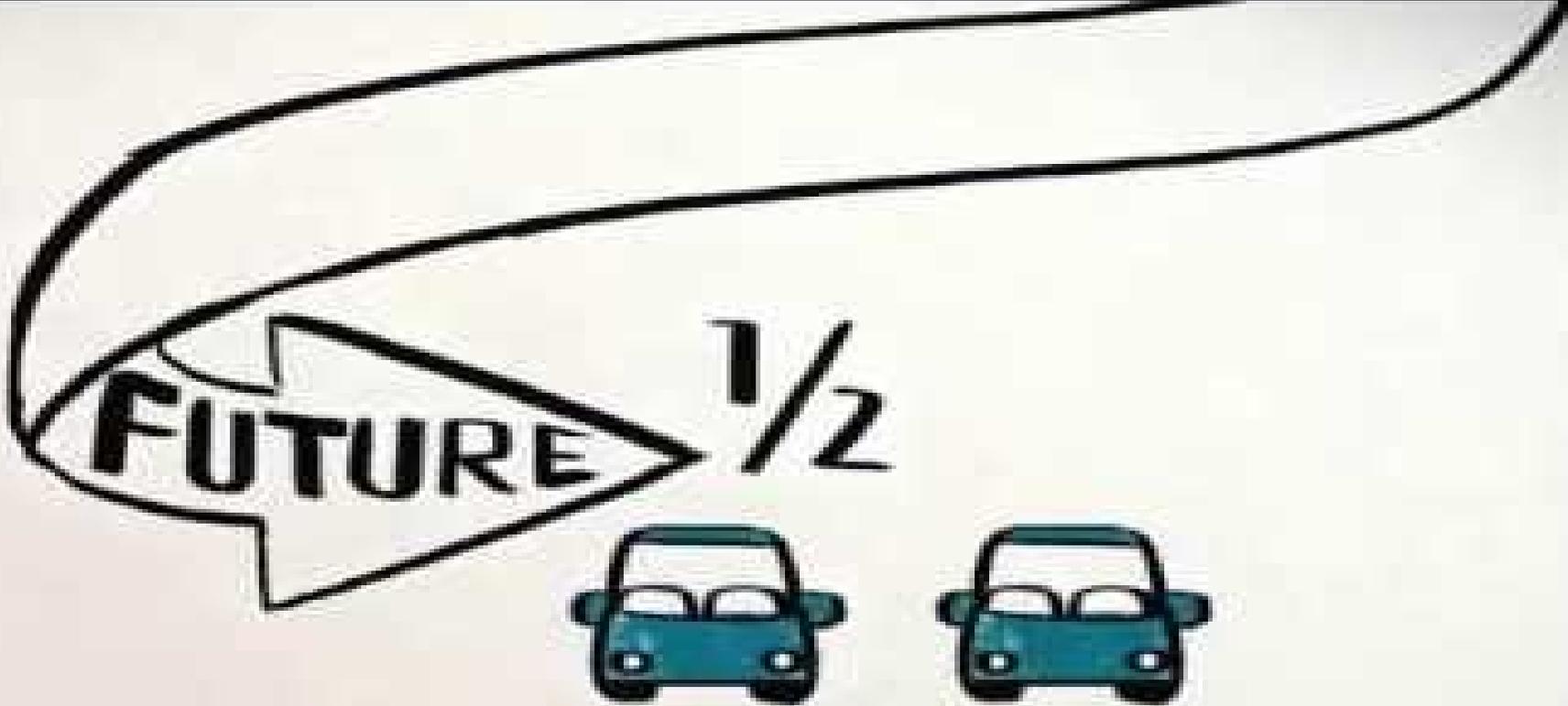
DANIEL SPERLING



## Foster innovations to take advantage of windows of opportunity

Internal and external forces pressure the existing system, which can realign around maturing innovations





11,667



TESLA



TESLA



TESLA



TESLA



TESLA



TESLA



TESLA



TESLA



TESLA

4,120



TESLA



TESLA

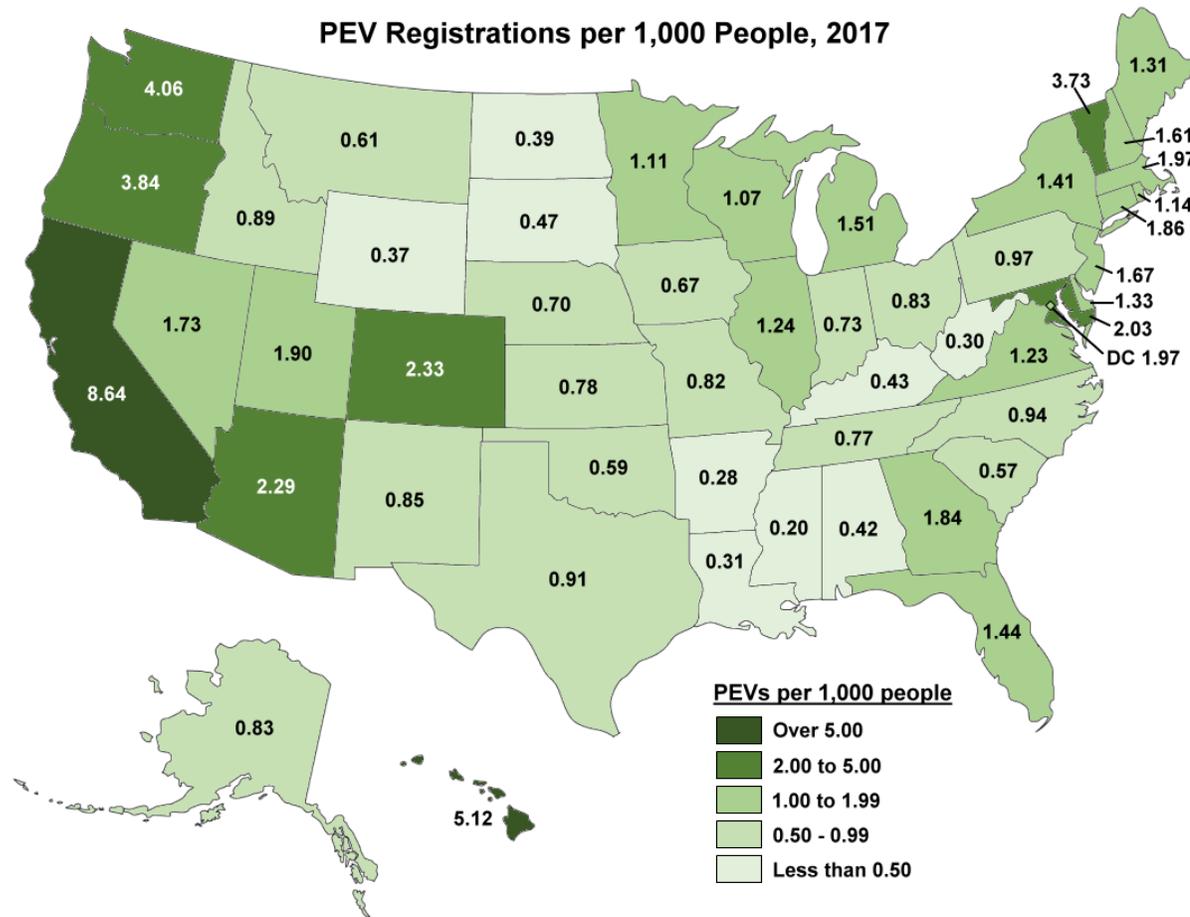


TESLA

1/1/2019

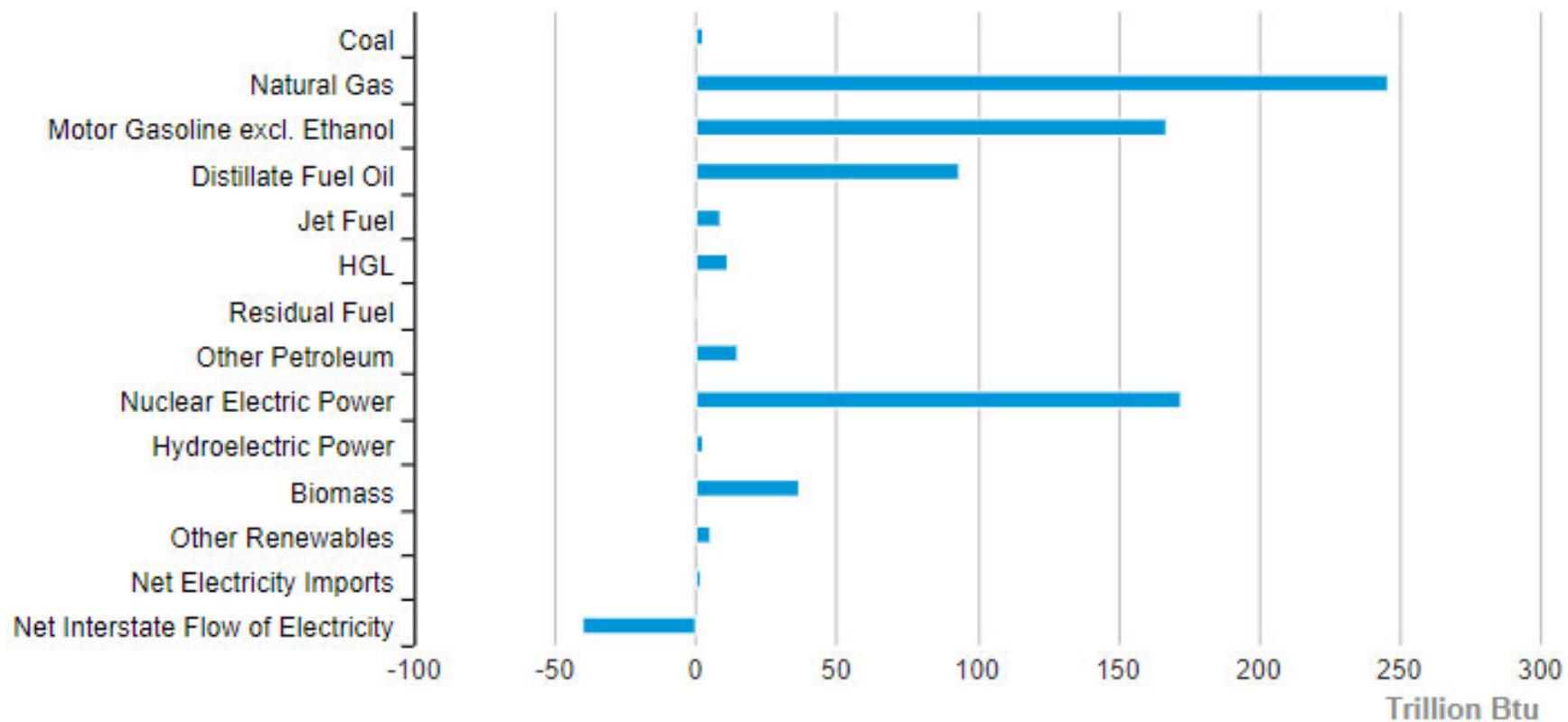
1/1/2020

PEV Registrations per 1,000 People, 2017



< 1% of total fleet in CT

## Connecticut Energy Consumption Estimates, 2017



Source: Energy Information Administration, State Energy Data System

# Connecticut is lagging other states in renewable energy production

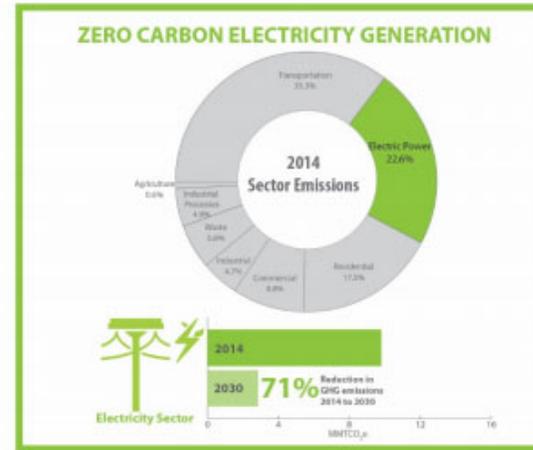
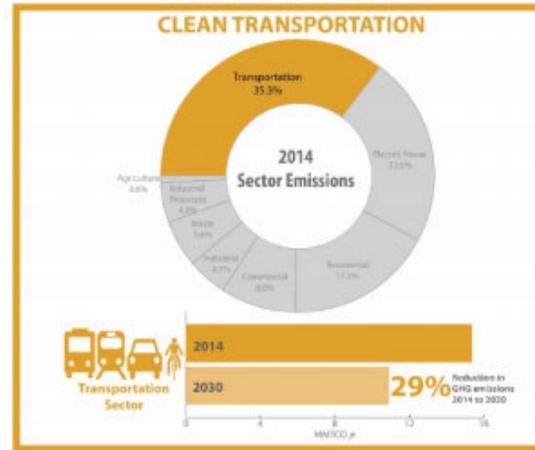
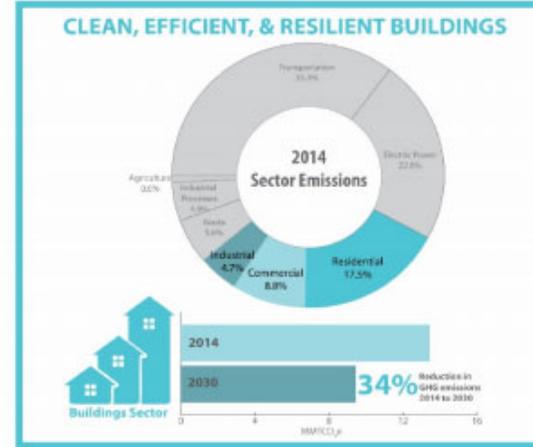
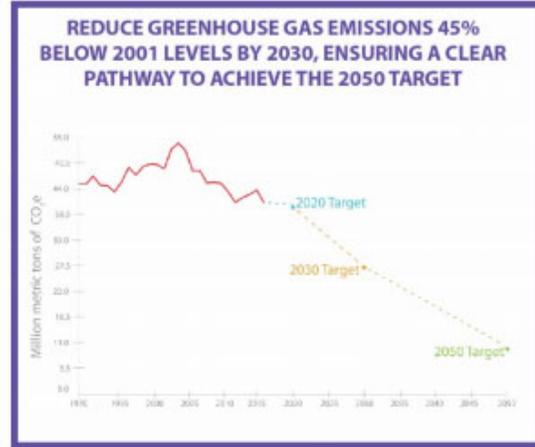
Environment				
Renewable Energy Capacity	Connecticut	Share of U.S.	Period	<a href="#">find more</a>
<a href="#">Total Renewable Energy Electricity Net Summer Capacity</a>	413 MW	0.2%	Oct-19	
Ethanol Plant Operating Capacity	0 million gal/year	0.0%	2018	
Renewable Energy Production	Connecticut	Share of U.S.	Period	<a href="#">find more</a>
<a href="#">Utility-Scale Hydroelectric Net Electricity Generation</a>	31 thousand MWh	0.2%	Oct-19	
<a href="#">Utility-Scale Solar, Wind, and Geothermal Net Electricity Generation</a>	12 thousand MWh	*	Oct-19	
<a href="#">Utility-Scale Biomass Net Electricity Generation</a>	63 thousand MWh	1.3%	Oct-19	
<a href="#">Small-Scale Solar Photovoltaic Generation</a>	43 thousand MWh	1.5%	Oct-19	
<a href="#">Ethanol Production</a>	0 thousand barrels	0.0%	2017	
Renewable Energy Consumption	Connecticut	U.S. Rank	Period	<a href="#">find more</a>
<a href="#">Renewable Energy Consumption as a Share of State Total</a>	6.2 %	39	2017	
<a href="#">Ethanol Consumption</a>	3,713 thousand barrels	32	2017	
Total Emissions	Connecticut	Share of U.S.	Period	<a href="#">find more</a>
<a href="#">Carbon Dioxide</a>	33.0 million metric tons	0.6%	2017	
Electric Power Industry Emissions	Connecticut	Share of U.S.	Period	<a href="#">find more</a>
<a href="#">Carbon Dioxide</a>	9,591 thousand metric tons	0.5%	2018	
<a href="#">Sulfur Dioxide</a>	1 thousand metric tons	0.1%	2018	
<a href="#">Nitrogen Oxide</a>	6 thousand metric tons	0.4%	2018	

## Analysis

Last Updated: July 18, 2019

# BUILDING A LOW CARBON FUTURE FOR CONNECTICUT

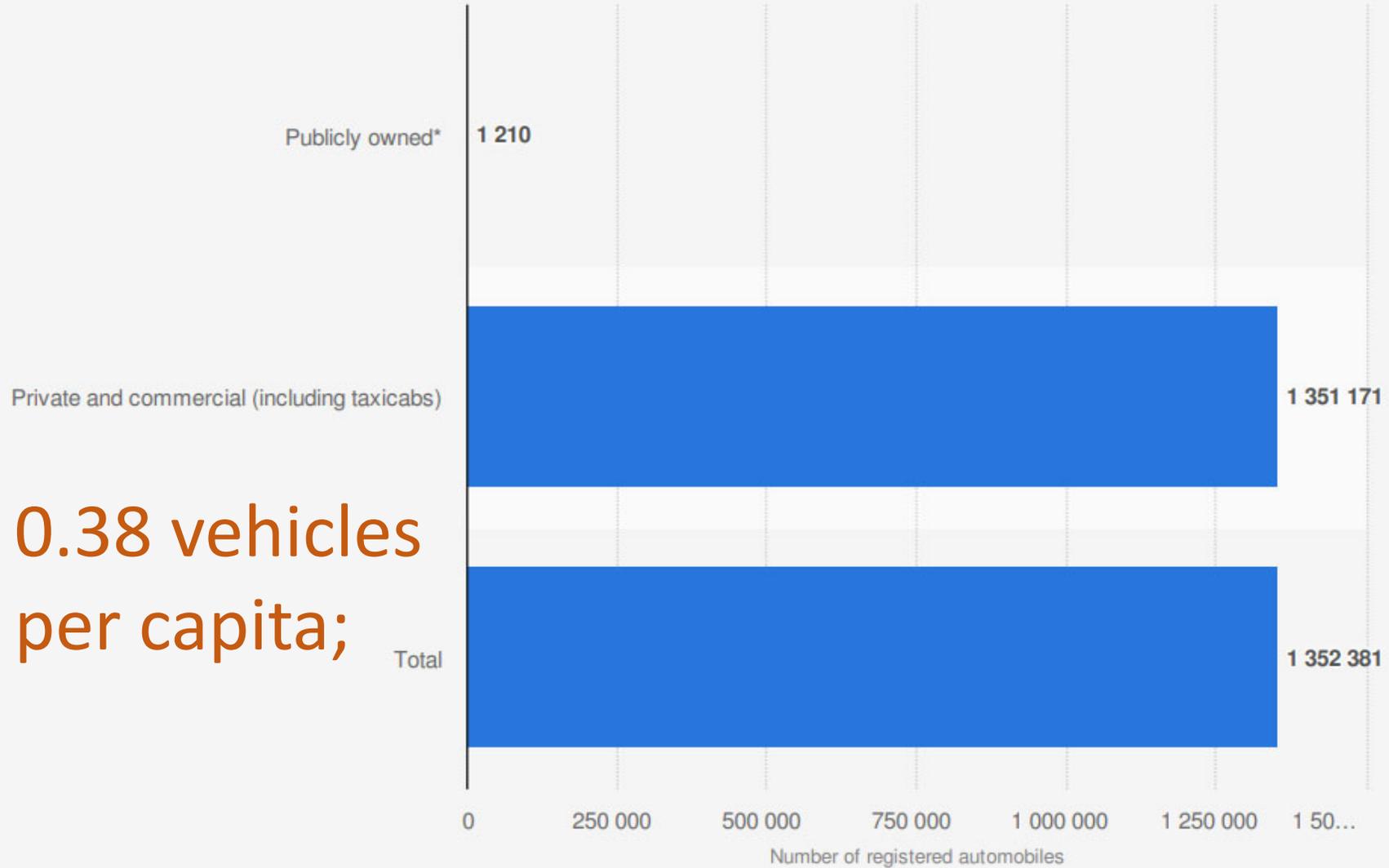
## ACHIEVING A 45% GHG REDUCTION BY 2030



RECOMMENDATIONS FROM THE GOVERNOR'S COUNCIL ON CLIMATE CHANGE

DECEMBER 18, 2018

## Number of registered automobiles in Connecticut in 2016, by type



### Sources

Federal Highway Administration (Office of Highway Policy Information); US Department of Transportation  
© Statista 2018

### Additional Information:

United States; US Department of Transportation; Federal Highway Administration