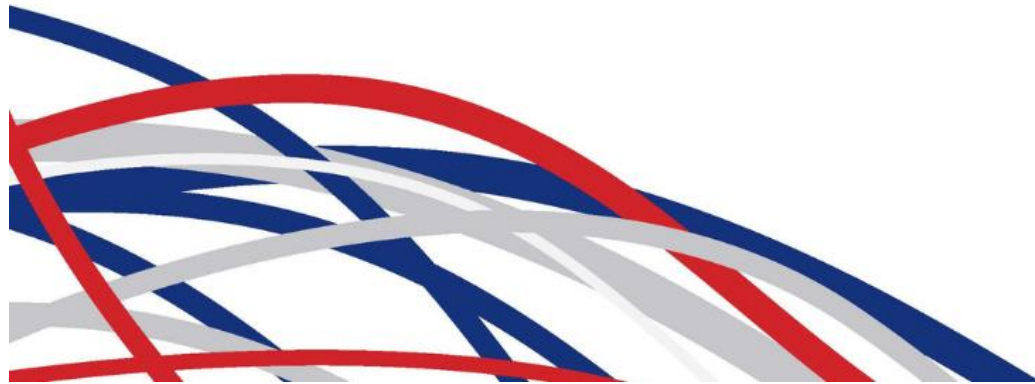


TRANSPORTATION:
LIGHT-DUTY VEHICLES

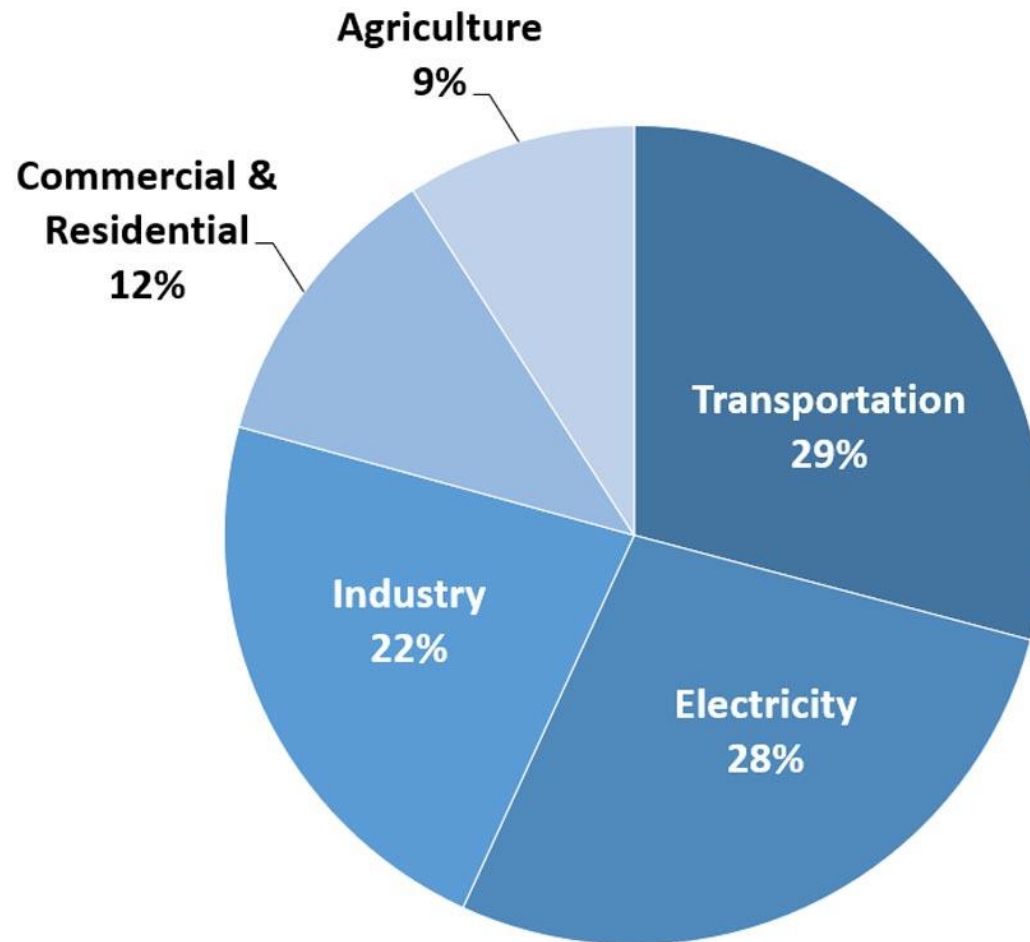
Professor Amy L. Stein
University of Florida
Levin College of Law

**LEGAL
PATHWAYS TO
DEEP DECARBONIZATION
IN THE UNITED STATES**

MICHAEL B. GERRARD AND JOHN C. DERNBACH,
EDITORS

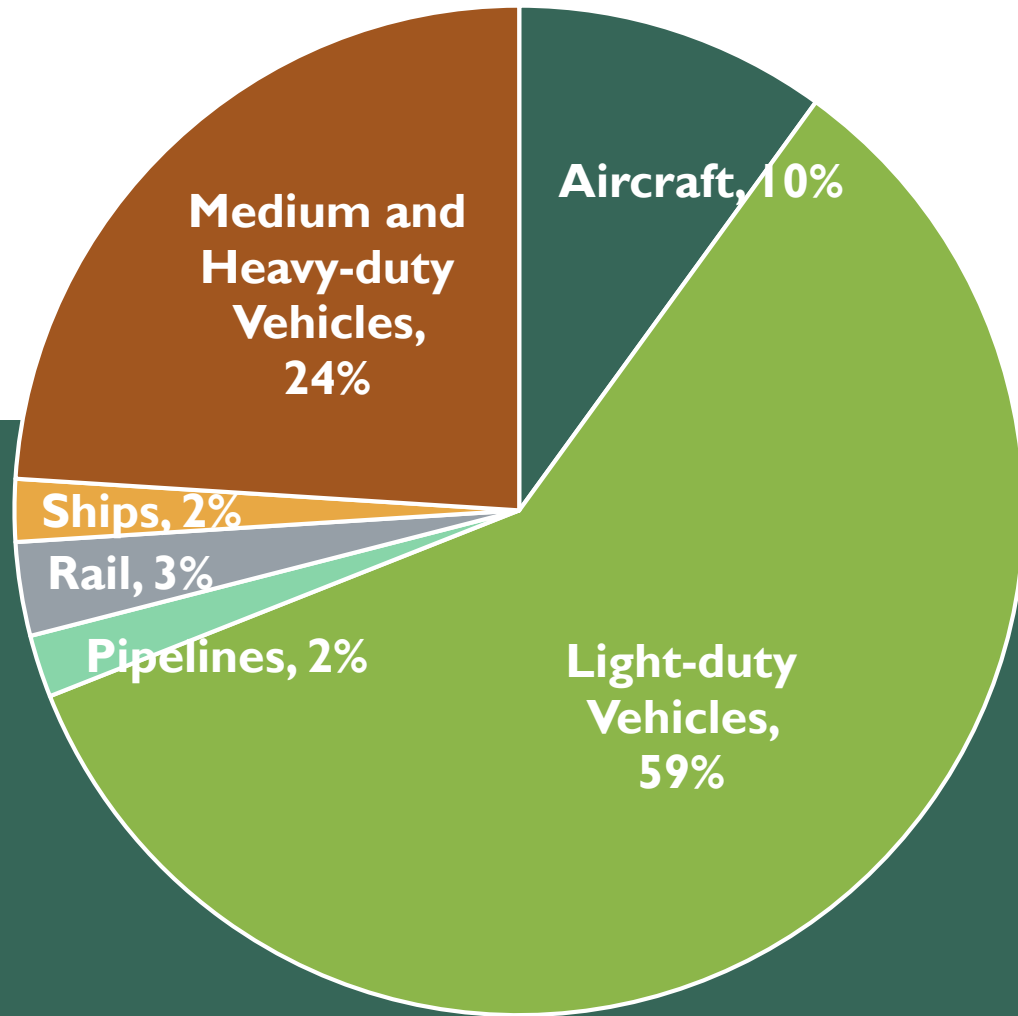


Total U.S. Greenhouse Gas Emissions by Economic Sector in 2017



THE
TRANSPORTATION
SECTOR IS THE
LARGEST
CONTRIBUTOR OF
GHG EMISSIONS

TRANSPORTATION GHG EMISSIONS



**LIGHT-DUTY VEHICLES ARE
THE LARGEST SOURCE OF
TRANSPORTATION GHG
EMISSIONS**

U.S. Environmental Protection Agency (2019). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017

DDPP GOALS

Reduce greenhouse
gases by at least 80%
from 1990 levels by 2050

- DDPP Transportation
Goal #1:
 - Increase fuel
economy standards in
excess of 100 mpg

- DDPP Transportation
Goal #2:
 - Deploy 300 million
alternative fuel
vehicles



GOAL #1

INCREASE FUEL ECONOMY STANDARDS IN EXCESS OF 100 MPG



GOAL #1: INCREASE FUEL ECONOMY STANDARDS

BIFURCATED LEGAL AUTHORITY

Clean Air Act

Emissions

EPA

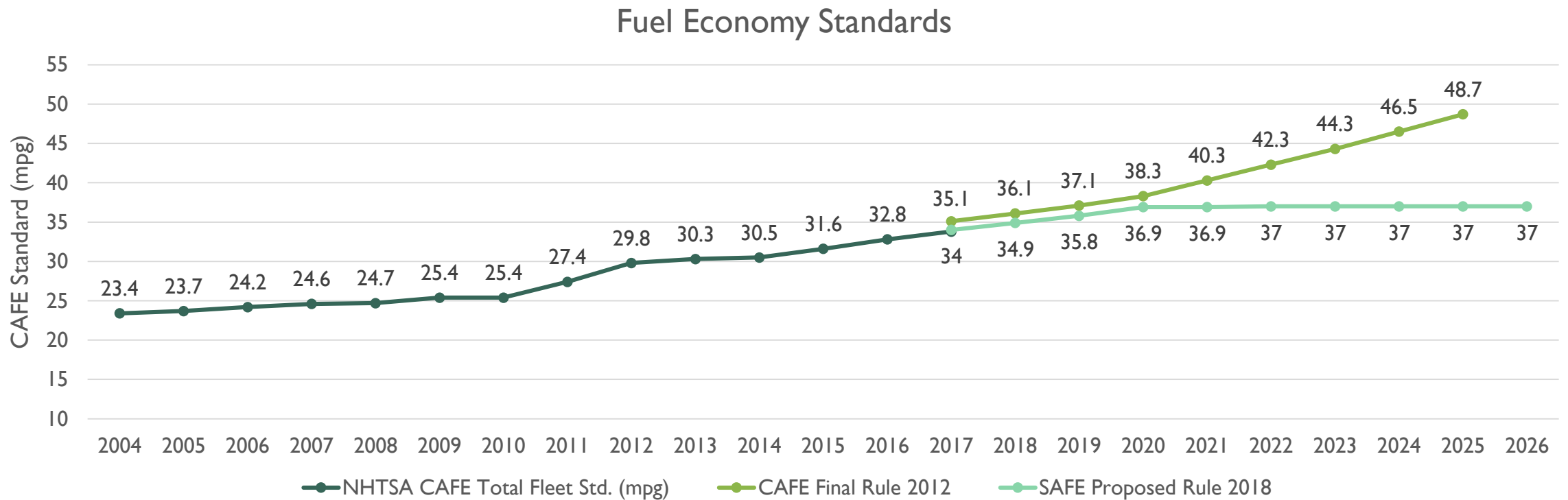
Energy Policy
and
Conservation
Act

Fuel
Economy
Standards

NHTSA

GOAL #1: INCREASE FUEL ECONOMY STANDARDS

HISTORIC FUEL ECONOMY STANDARDS

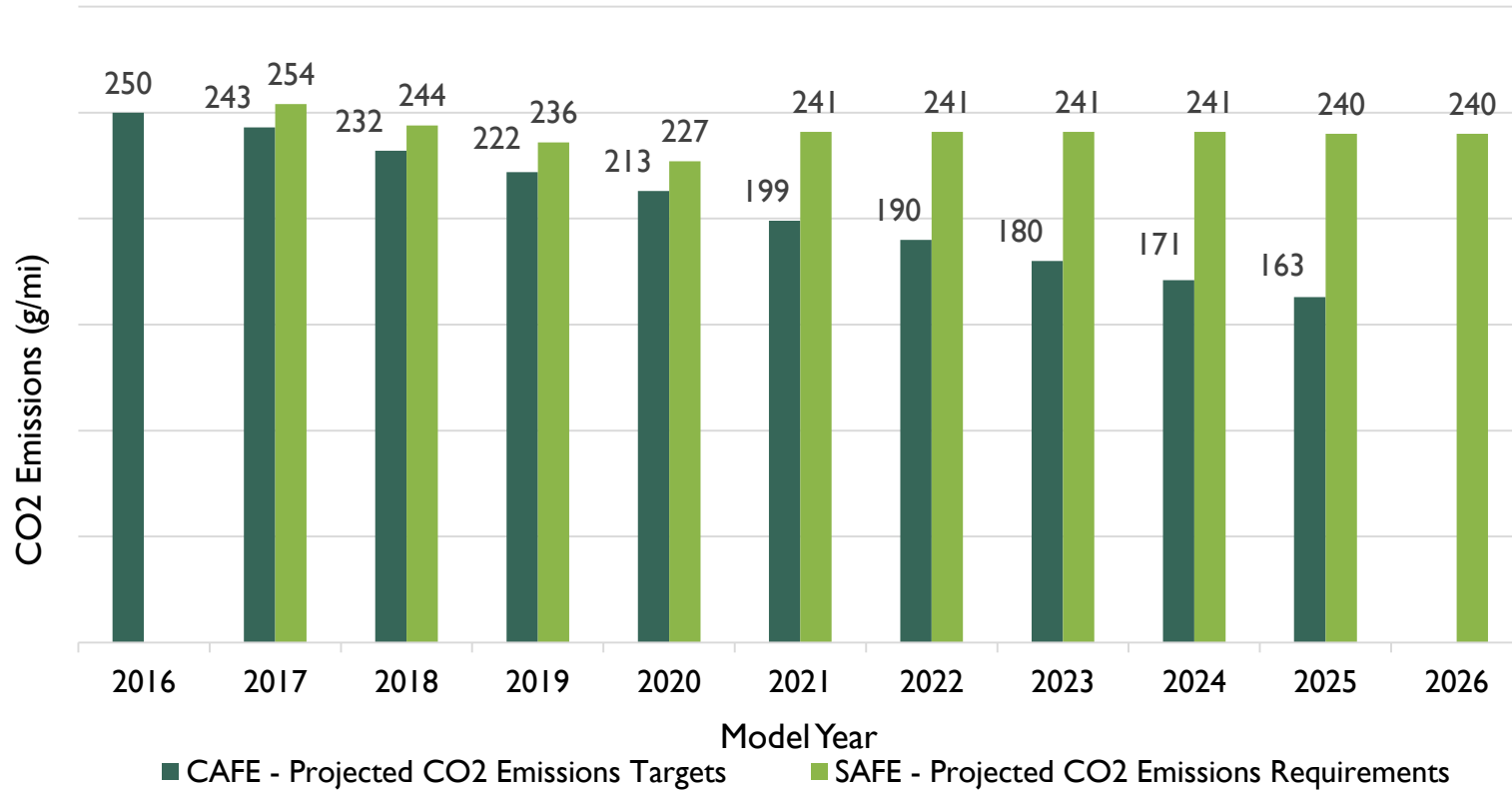


https://one.nhtsa.gov/cafe_pic/CAFE_PIC_fleet_LIVE.html (using all MY years, Total Fleet, Fleet Standards)

<https://www.govinfo.gov/content/pkg/FR-2012-10-15/pdf/2012-21972.pdf> (CAFE Final Rule 2012)

<https://www.govinfo.gov/content/pkg/FR-2018-08-24/pdf/2018-16820.pdf> (SAFE Proposed Rule 2018)

Estimated CO₂ Emission Standards under CAFE and SAFE Rules

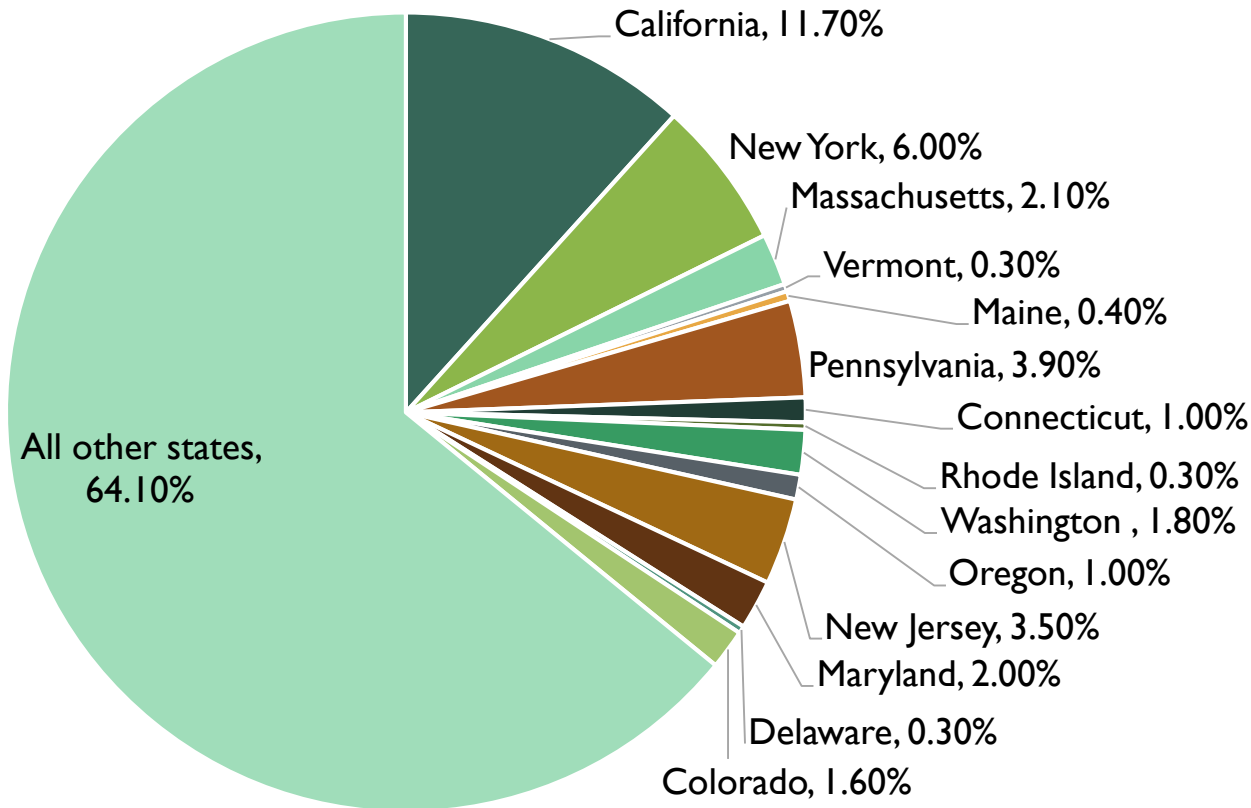


**GOAL #1:
INCREASE FUEL
ECONOMY
STANDARDS**

GOAL #1: INCREASE FUEL ECONOMY STANDARDS

FEDERALISM 101

ZEV State Shares of U.S. New LDV Sales



**STATES THAT HAVE
ADOPTED THE CA
EMISSIONS
STANDARDS
REFLECT 46% OF
NEW LDV SALES**

States that have Adopted California's Vehicle Emissions Standards under Section 177 of the Federal Clean Air Act, CALIFORNIA AIR RESOURCES BOARD (last updated Sept. 27, 2019) <https://ww2.arb.ca.gov/resources/documents/states-have-adopted-californias-vehicle-standards-under-section-177-federal>



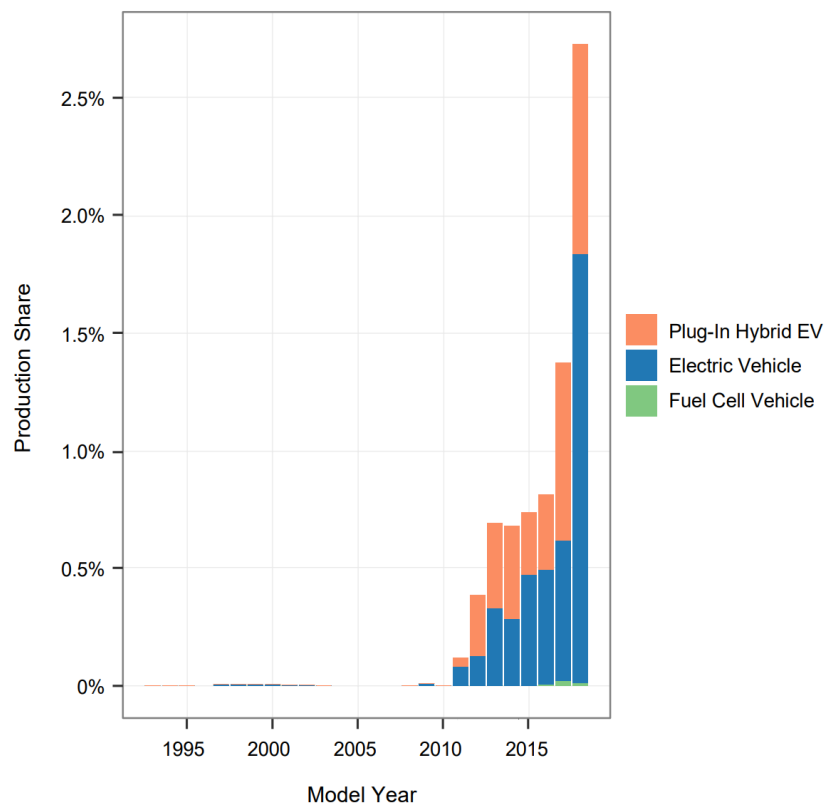
GOAL #2

DEPLOY 300 MILLION ALTERNATIVE FUEL VEHICLES

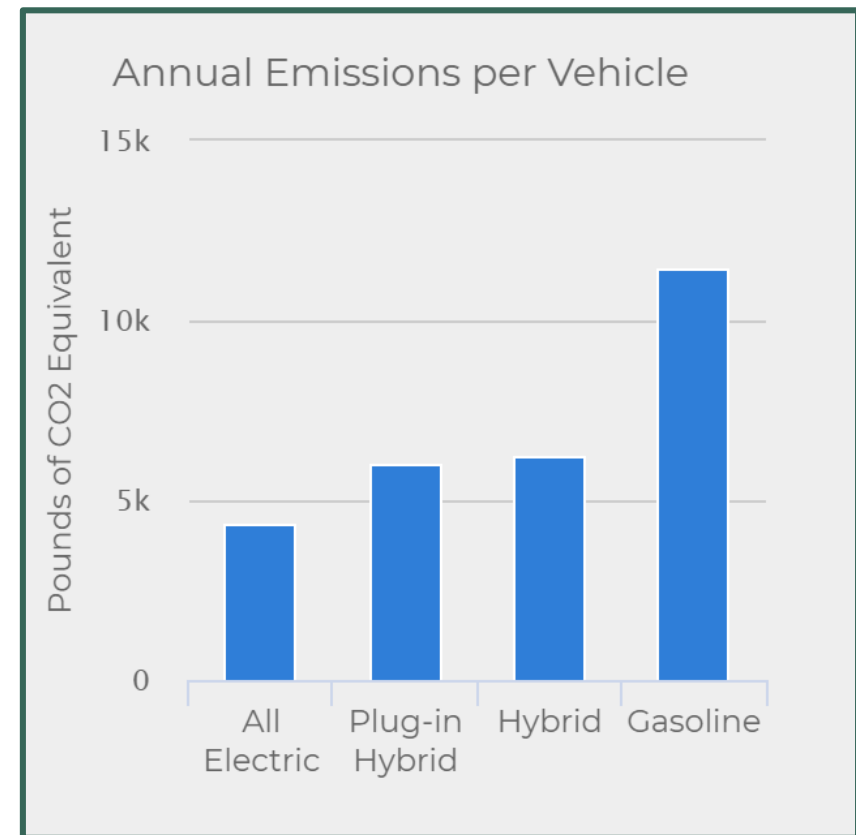


GOAL #2: DEPLOY 300 MILLION ALTERNATIVE FUEL VEHICLES

Figure 4.13. Production Share of EVs, PHEVs, and FCVs, Model Year 1995-2017¹¹



The 2018 EPA Automotive Trends Report: Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975, EPA (last visited Nov. 21, 2019)
<https://nepis.epa.gov/Exe/ZyPDF.cgi/PI00W5C2.PDF?Dockey=PI00W5C2.PDF>



Emissions from Hybrid and Plug-In Electric Vehicles: National Average, U.S. DEPT. OF ENERGY (last visited Nov. 21, 2019)
https://afdc.energy.gov/vehicles/electric_emissions.html

GOAL #2: DEPLOY 300 MILLION ALTERNATIVE FUEL VEHICLES

PATHWAY #1: REDUCE COSTS

2020 Ford Fusion:
\$23,170



2020 Ford Fusion Energi:
\$34,595



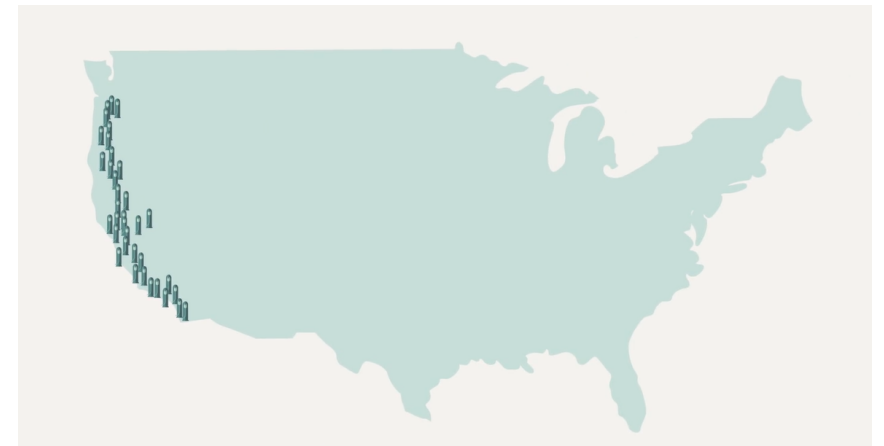
GOAL #2: DEPLOY 300 MILLION ALTERNATIVE FUEL VEHICLES

PATHWAY #2: FACILITATE INFRASTRUCTURE DEVELOPMENT

- Workplace Charging
- Home Charging
- Charging Corridors



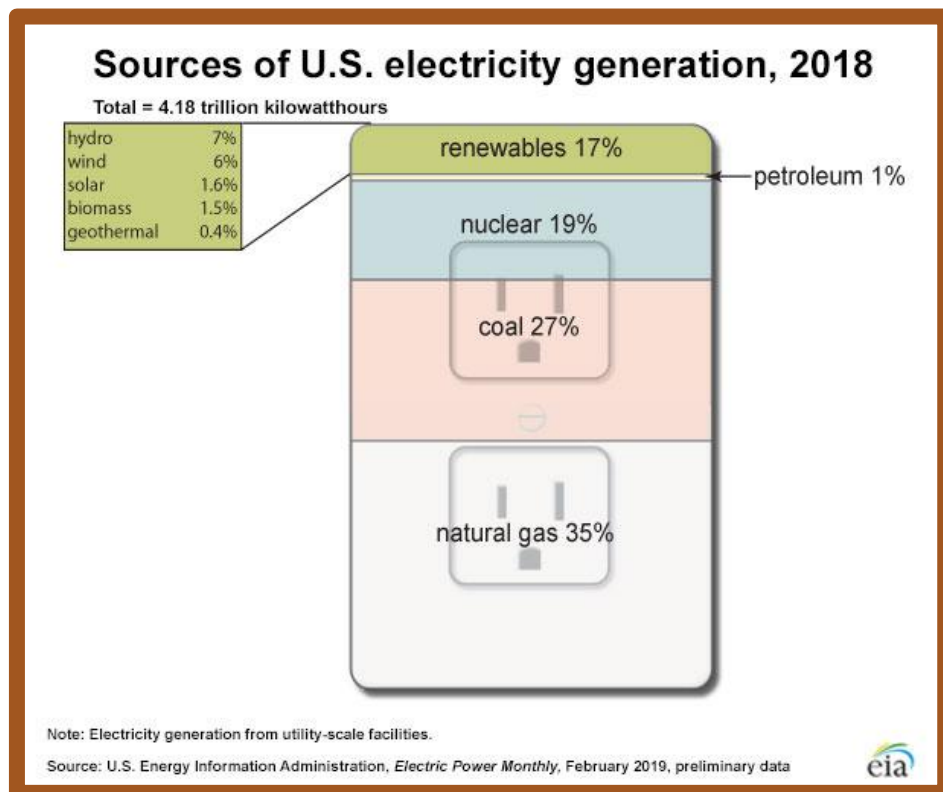
- *ChargePoint Electric Vehicle Charging Corridors: United States of America, UNITED NATIONS: CLIMATE CHANGE, <https://unfccc.int/climate-action/momentum-for-change/ict-solutions/chargepoint-electric-vehicle-charging-corridors>*



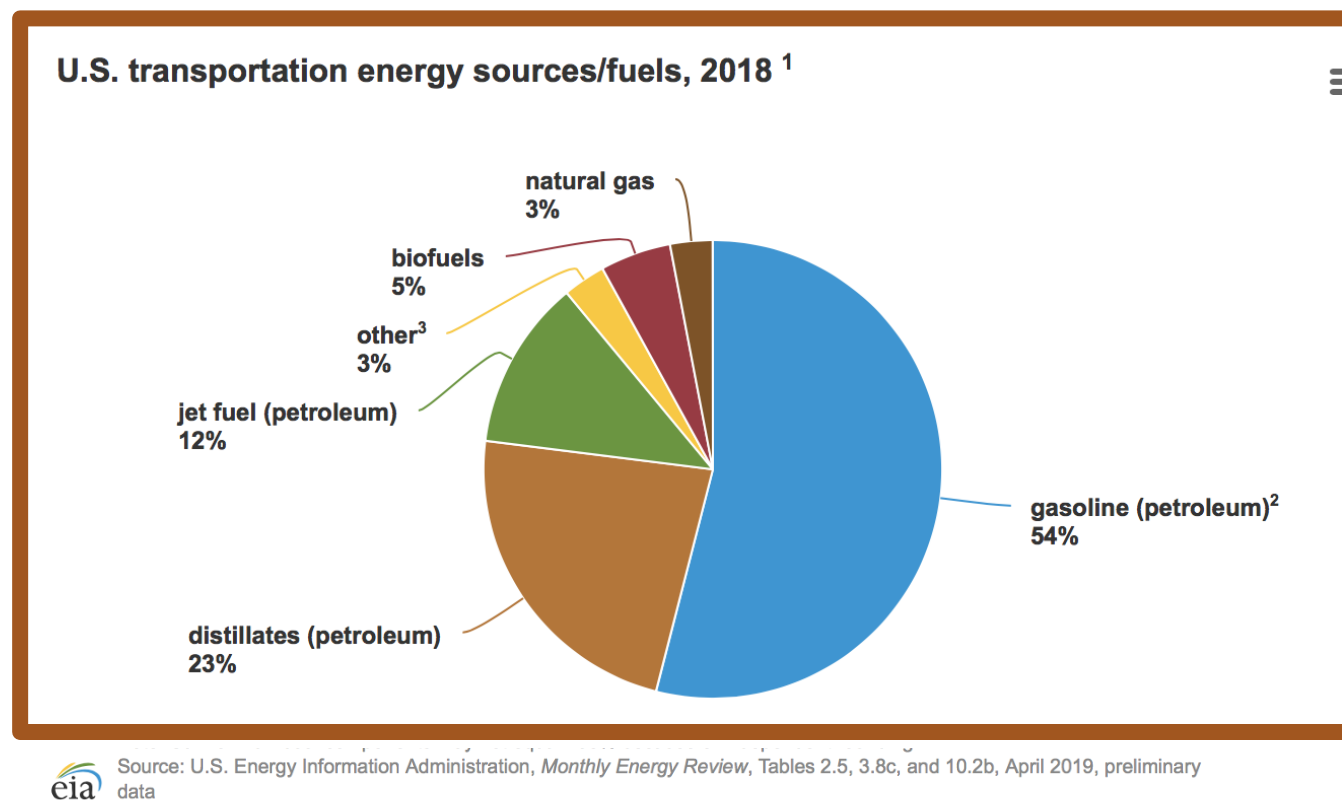
GOAL #2: DEPLOY 300 MILLION ALTERNATIVE FUEL VEHICLES

PATHWAY #3: INTEGRATE ELECTRICITY AND TRANSPORTATION SECTORS

- Very little oil is used for electricity



- Very little electricity is used for transportation



GOAL #2: DEPLOY 300 MILLION ALTERNATIVE FUEL VEHICLES

PATHWAY #4: EDUCATE DRIVERS



ACTION ITEMS

- Maintain 54.5 mpg fuel economy standard for 2025 and ramp up by 2050
- View EVs as grid assets (rise in EVs=rise in electricity demand, V2G programs)
- Work with electric utilities to capitalize on charging patterns and rates
- Maximize EV climate impacts through cleaner electricity resources
- Investments (e.g. infrastructure, education, and battery technologies)
- Harness government purchasing power for EVs
- Plan ahead (provide funding for pilot studies on distribution grid pressures from EVs, secure lithium supply, prepare for lithium battery disposal)
- Think creatively (battery recycling, resale markets, Cash for Clunkers-type program, smart city design, autonomous vehicles, EV-Ready building codes, decouple highway revenues from gas taxes)



UF

THANK YOU

Questions or Comments?

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Light-Duty Vehicle Chapter *available at*
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3211512