



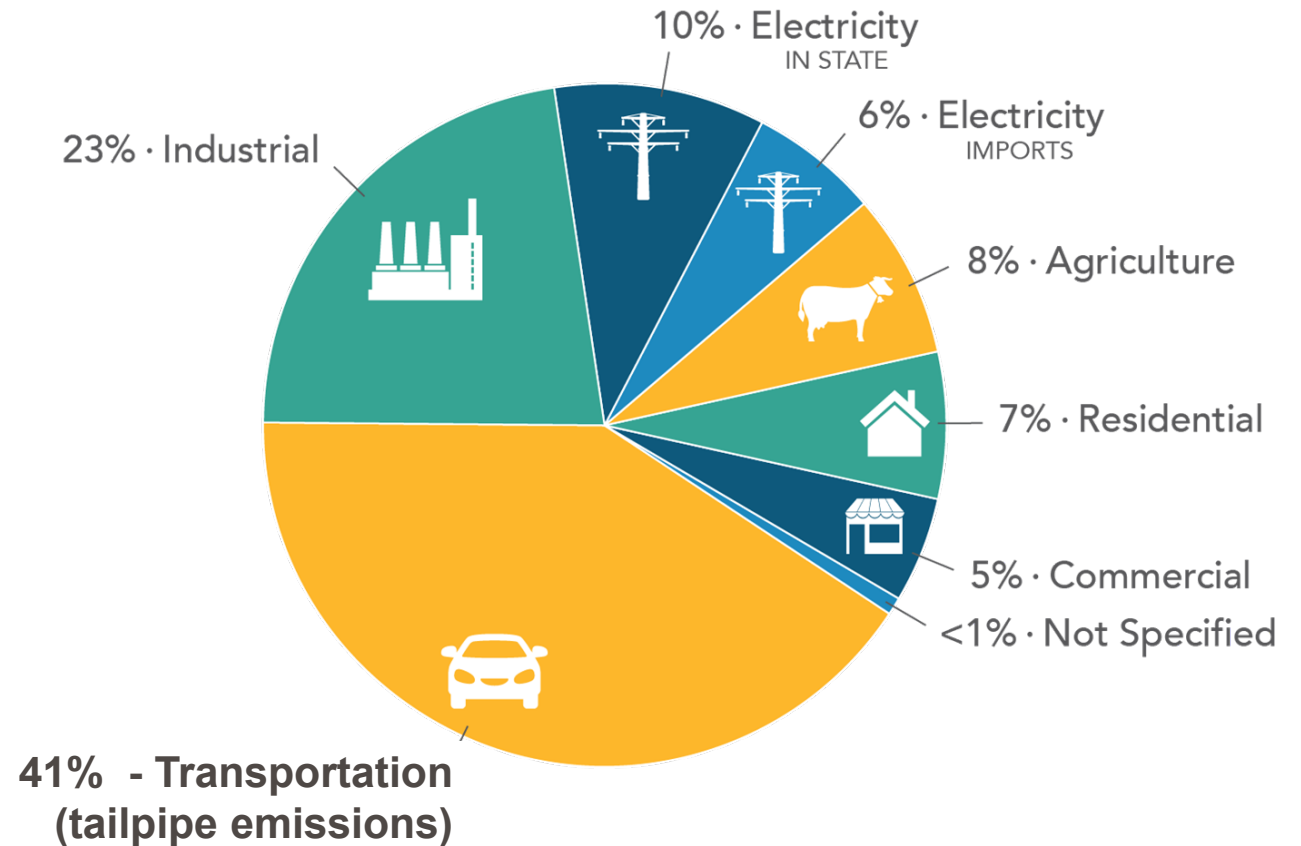
Supporting California's GHG Reduction Goals

Ellen Greenberg, FAICP
Brenda Powell-Jones

California Department of Transportation

California's Climate Actions: Focus on Transportation

- ❑ Statute
- ❑ Executive Orders
- ❑ Environmental Review (CEQA)
- ❑ Cap & Trade Program
- ❑ Climate Planning
 - CARB Scoping Plan
 - Mobile Source Strategy
- ❑ Climate & Environment Budget and Investments



(Source: CARB, 2018. ["California GHG inventory for 2016--by economic sector."](#))

A Fundamental Question: DoT focus for GHG Reduction

Table 1. Caltrans and California GHG Emissions

Source Category	MMT of CO ₂ -equivalent emissions per year
All California emissions (CARB 2017 inventory) ^a	424
Vehicle travel on the State Highway System (2017) ^b	89
Embodied emissions from Caltrans project materials (2017) ^c	2.5
Caltrans GHG Inventory (2017) ^d	0.12

Sources: a) CARB 2017 GHG inventory. b) On-road vehicle total from CARB 2017 GHG inventory; split of SHS vs. non-SHS travel based on VMT totals as described in Section 2. c) Material usage data from Caltrans 2017 Contract Cost Data; emission factors from literature as described in Section 2. d) Caltrans data submitted to The Climate Registry.

Table from “Caltrans Greenhouse Gas Emissions and Mitigation Report” Final Report August 2020 prepared by ICF for Caltrans Division of Transportation Planning

GHG Reduction Opportunities - Caltrans

- VMT Reduction
- Zero-Emission Vehicles
 - Fleet
 - Workplace
 - Freight
 - Public Charging Infrastructure
 - Partnerships including Zero Emission Transit
- Materials and construction methods
- Business operations

GHG Considerations - Caltrans

California State Requirements

- Reduction Targets
 - 1990 Levels by 2020 (AB32)
 - 40% below by 2030 (SB32)
 - 80% below by 2050 (EO S-3-05/ B-30-15)
- Scoping Plan Outlines Strategies for Multi Sector Reduction Goals
 - VMT=Proxy for GHG emissions related to Transportation
 - Estimated that goal for 14.3% total VMT/capita reduction compared to existing needed by 2050 to achieve 2050 GHG reduction target.
 - Caltrans implementation of SB743

GHG Considerations - Caltrans

- California Environmental Quality Act- Driver of Emissions Modeling
 - Project Level Analysis
 - Mobile Source Emissions for Construction and Operational (use of the State Highway System/based on Vehicle Miles Travelled)
 - Results of modeling used to determine significant impacts and need for mitigation
 - Construction Emissions Estimated for all projects in Environmental Phase / Environmental Document- Use of Excel based Road Construction Emissions Model
 - Capacity Increasing Projects Modeled with customized tool (CT-EMFAC) based off CARB data
 - FHWA ICE tool used for some projects in early planning for informational purposes.

Complexities of GHG reduction strategies

- Uncertainty related to Mitigation (GHG reduction) measures
 - Effectiveness vs Cost
 - Need for improved ability to determine when adequate level of mitigation has been achieved
- Many tools available to quantify/ estimate GHG emissions- no one size fits all
- Collaboration with regional and local partners needed for strategies such as VMT reduction

Research Needs

- Establishment of standardized methods to evaluate or quantify GHG reduction measures
 - Enhance post project implementation data collection/monitoring.
 - many studies related to active transportation benefits rely on extrapolated data.
- Improved data related to VMT and Induced travel
- Research on effective VMT reduction measures

Resources

- California 2017 Climate Change Scoping Plan
<https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2017-scoping-plan-documents>
[2017 sp vmt reductions jan19.pdf \(ca.gov\)](https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2017-sp-vmt-reductions-jan19.pdf)
- Caltrans Greenhouse gas Emissions and Mitigation Report <https://transplanning.onramp.dot.ca.gov/caltrans-greenhouse-gas-emissions-and-mitigation-report#overlay-context=caltrans-greenhouse-gas-emissions-and-mitigation-report>
- Caltrans SB 743 Implementation <https://dot.ca.gov/programs/transportation-planning/office-of-smart-mobility-climate-change/sb-743>
- link to Caltrans Division of Environmental Analysis – GHG emissions tools
<https://dot.ca.gov/programs/environmental-analysis/air-quality/greenhouse-gas-ghg-climate-change>



Contacts:

Ellen.Greenberg@dot.ca.gov
Brenda.Powell-Jones@dot.ca.gov