

# Climate Change and Transportation: Overview of Law and Policy

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**Transportation  
Research Board**

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# About Van Ness Feldman

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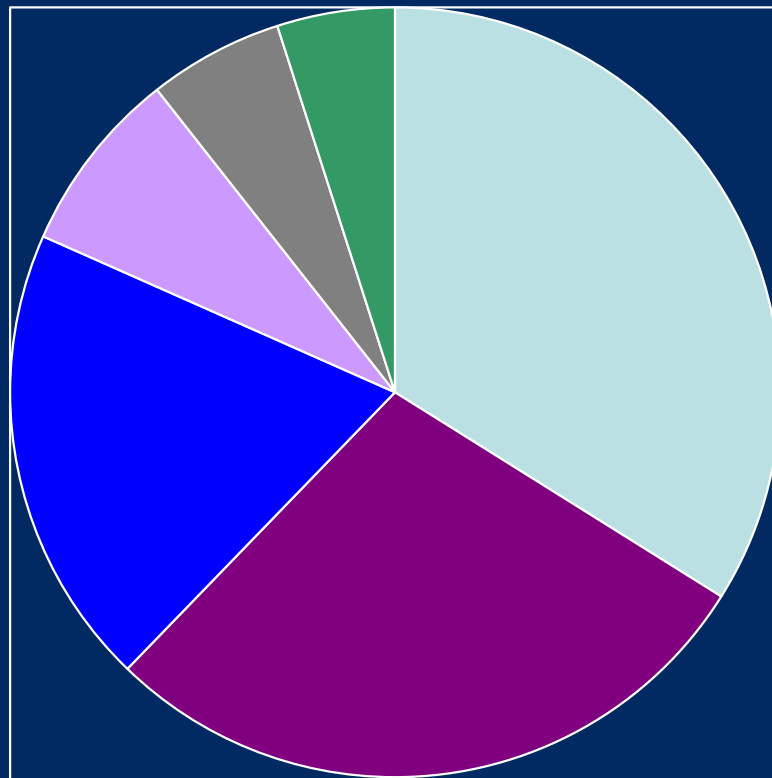
- Energy, environmental, and natural resources law firm
- Climate change and emissions trading practice
- Transportation sector clients
  - Manufacturers of light- and heavy-duty vehicles
  - “Cleantech,” biofuels manufacturers
- Climate change and energy policy research
  - Pew Center on Global Climate Change
  - National Commission on Energy Policy
  - Center for American Progress

# Overview

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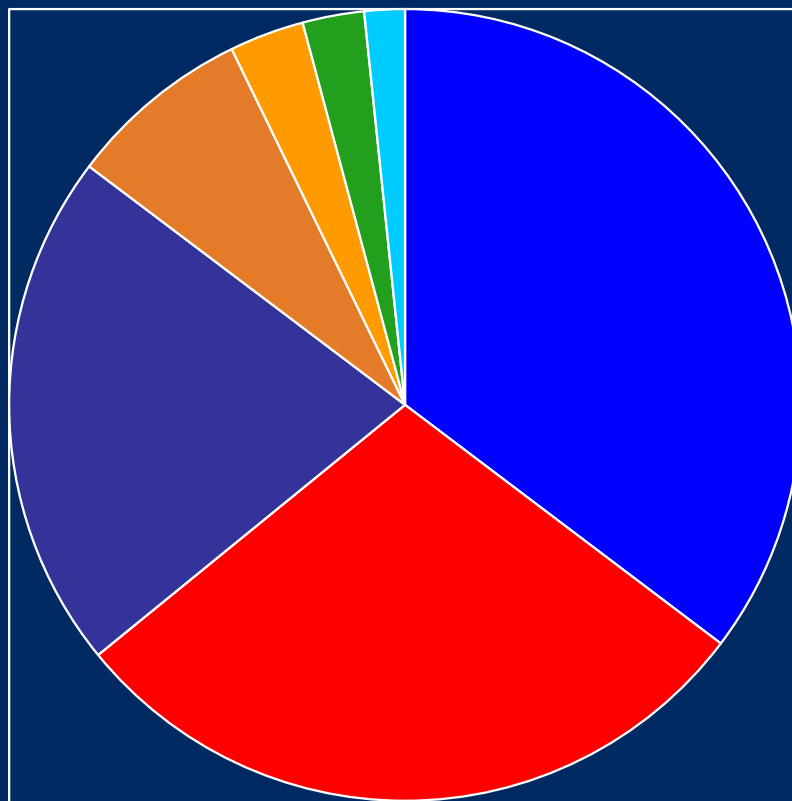
- US transportation sector contribution to greenhouse gas emissions
- Policy approaches for mitigating transportation sector emissions
- Current federal law initiatives
- Policy conundrums
  - Multiplying vehicle policies
  - Can cap-and-trade move the transportation sector?
  - Particular challenges for transportation planners

# Contribution of the Transportation Sector to US GHG Emissions



- **Electric Power Industry 33%**
- **Transportation 28%**
- **Industry 20%**
- **Agriculture 8%**
- **Commercial 6%**
- **Residential 5%**

# Sources of GHG Emissions in the Transportation Sector



- Passenger Cars 35%
- Light-Duty Trucks 28%
- Medium- & Heavy-Duty Trucks 20%
- Commercial Aircraft 7%
- Rail 3%
- Ships & Boats 2%
- Pipelines 2%

# Approaches for Mitigating Vehicle Emissions

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- Decrease vehicle miles traveled
- Increase efficiency of fuel consumption (lower-emitting vehicles)
- Decrease carbon content of transportation fuel

# Federal Policies for Mitigating Vehicle Emissions

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- Decreasing vehicle miles traveled
  - Fuel taxes
  - Pay-at-the-pump insurance
  - Transit
- Increasing efficiency of fuel consumption
  - Fuel economy standards
  - Vehicle emission standards
  - Subsidies
    - for purchase of low-emitting vehicles
    - for manufacturing of low-emitting vehicles
- Decarbonizing fuel
  - Renewable fuel standard
  - Low carbon fuel standard

# Federal Fuels Policy

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- EISA 2007 Renewable Fuels Mandate
  - 36 billion gallons of ethanol by 2022
- Issue: GHG emissions from ethanol production
- Replace with “Low Carbon Fuel Standard”?
  - Requirement to reduce “carbon intensity” of fuel
  - Take into account “life-cycle” emissions
    - Ex: indirect emissions from land-use changes, electricity production
  - Life-cycle calculations can be complex

# Vehicles Policies (Part I)

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- EISA 2007 required new CAFE standard
  - 35 mpg by 2020
  - Attribute-based approach
- Bush Administration proposed a rule
  - Has announced it will not finalize
- *What will Obama Administration do?*

# Vehicle Policies (Part II)

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- California vehicle emissions standard (AB 1493)
  - Equivalent to:
    - 26.4 mpg in 2009
    - 39.9 mpg by 2016
  - 14 states committed to adopt
- Two legal hurdles
  - Need for Clean Air Act waiver
    - Rejected by Bush Administration
      - Absence of “compelling and extraordinary conditions”
    - *Obama Administration will revisit*
  - Court challenge: California standard is a state “fuel economy” standard, which is preempted by CAFE
    - Court cases in multiple states

# Vehicle Policies (Part III)

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- *Massachusetts v. EPA* (April 2007)
  - Based on petition for EPA vehicle GHG emission standards
- Supreme Court held that EPA has authority to regulate carbon dioxide
- November 2008 Advance Notice of Proposed Rulemaking
  - Outlined possible vehicle emission standards
- *What will Obama Administration do?*

# Vehicle Policy Conundrum

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- Possible vehicle policies
  - Federal CAFE standard
  - State vehicle emission standards
  - Federal vehicle emission standards
- Could vary in stringency, design
- *What will Obama Administration and Congress do?*

# Cap-and-Trade Proposals

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- Goal of most proposals: economy-wide cap on GHG emissions
  - Cap on emissions
  - Distribute allowances equal to the cap
  - Cannot emit without an allowance
- Issue: How to regulate transportation section emissions?
  - Hundreds of millions of sources of emissions in sector

# Solution?

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- Proposal: “Upstream” emissions cap
  - Require refiners to surrender allowances for emissions associated with use of fuel
  - Generates incentives
    - Reduced VMT (through higher fuel prices)
    - Increased use of low-emitting vehicles (through higher fuel prices)
    - Decarbonization (allowance surrender requirement)
- Issue:
  - Administratively feasible – Yes
  - Environmentally effective -- ?

# Effectiveness of a Carbon Price

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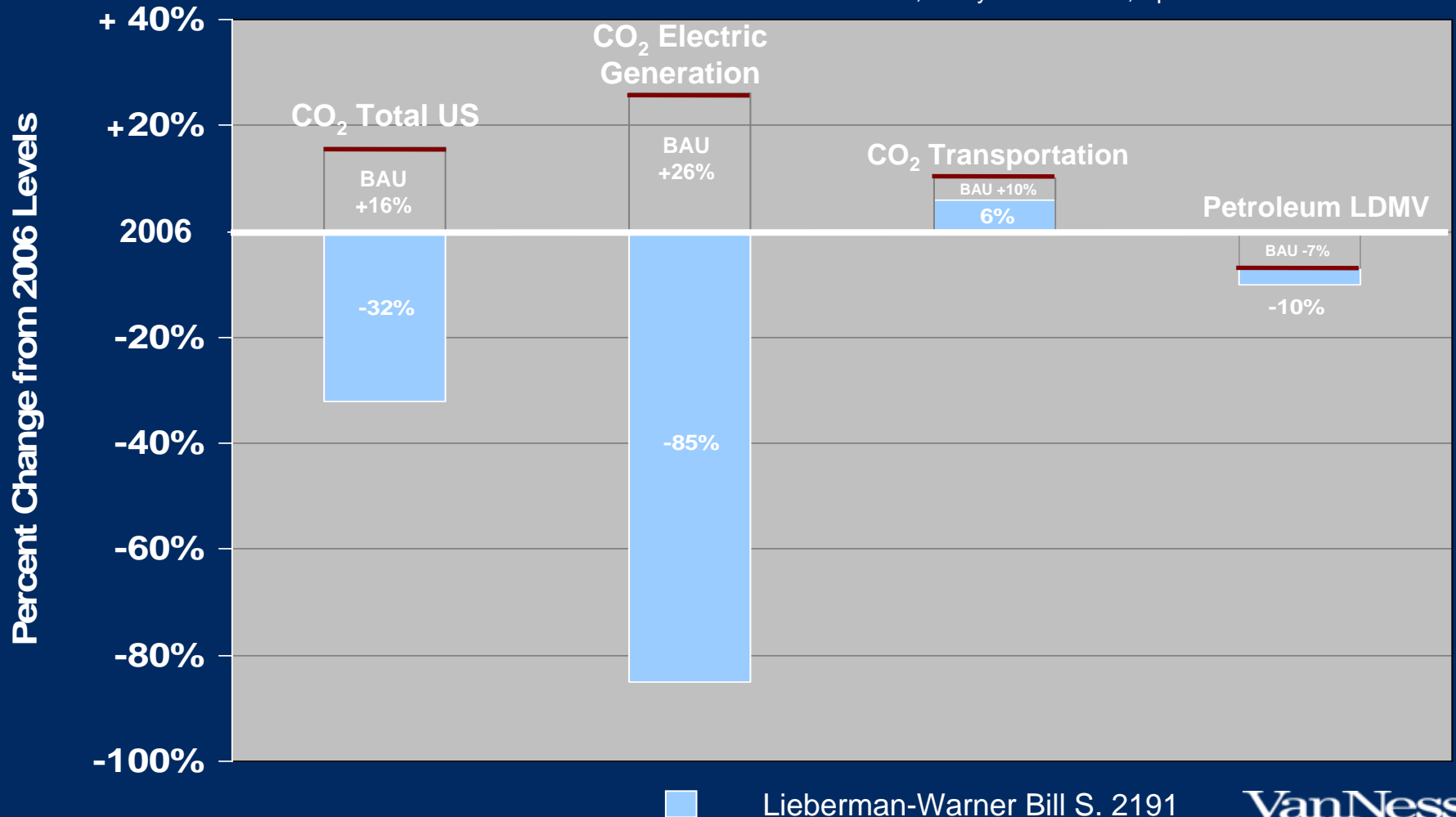
- Lieberman-Warner bill allowance prices
  - \$30/ton CO<sub>2</sub>e in 2020
  - \$60/ton CO<sub>2</sub>e in 2030
- Level of carbon price necessary to stabilize vehicle GHG emissions at 2005 levels
  - \$397/ton CO<sub>2</sub>e
  - Equivalent to \$3.49 per gallon tax on gasoline (or \$375/MWH for coal-fired power)

Note: Preliminary computation assumes elasticity of -0.20; linear function.

# Impact of S.2191 Lieberman/Warner bill in 2030

Percent increase/decrease of energy-related CO<sub>2</sub> emissions and petroleum use from 2006 level

Source: EIA, Analysis of S.2191, April 2008.



Lieberman-Warner Bill S. 2191

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# Particular Challenges for Transportation Planners

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- Infrastructure implications of unconventional vehicles and fuels
  - Electrification
    - Plug-in hybrids, short range electric vehicles
    - Smart grid?
  - Alternative fuels
    - Different distribution systems?
- Funding implications
  - Infrastructure funding comes from gasoline taxes
  - Implications of climate policy
    - Greater use of alternative fuels
    - Less use of transportation fuel altogether

For more information

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