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# Introduction to the Business Case Analysis of Road Charging in California

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Agenda Item #9

TAC Meeting #5, May 29, 2015

Fresno, CA



# Agenda

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- ◆ **Introduction to Business Case Analysis**
- ◆ Fuel Tax Collection Background
- ◆ Utilities and Tax Revenue Collection Comparisons
- ◆ Vehicle Classification Frameworks



# Introduction to Business Case Analysis

$$\text{Net revenue} = \text{Gross revenue} - \text{leakage} - \text{cost of collection}$$

	Gross revenue	Leakage	Cost of collection
<b>Policy variables impacting outputs</b>	<ul style="list-style-type: none"> <li>◆ Subject vehicles</li> <li>◆ Per-mile rate</li> <li>◆ Treatment of out-of-state vehicles</li> <li>◆ Mileage exemptions</li> </ul>	<ul style="list-style-type: none"> <li>◆ Enforcement methods</li> <li>◆ Penalties</li> <li>◆ Operational concepts</li> </ul>	<ul style="list-style-type: none"> <li>◆ Methods of reporting &amp; paying road charges</li> <li>◆ Private account managers</li> <li>◆ Interoperability with other jurisdictions</li> </ul>
<b>Economic and technical variables impacting outputs</b>	<ul style="list-style-type: none"> <li>◆ Miles driven by subject vehicles</li> <li>◆ Gallons of fuel consumed (assuming fuel taxes credited)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Evasion rates</li> <li>◆ Negligence rates</li> <li>◆ System error rates</li> </ul>	<ul style="list-style-type: none"> <li>◆ Private account manager technology and business model evolution</li> <li>◆ Agency labor costs</li> </ul>



# Data Sources

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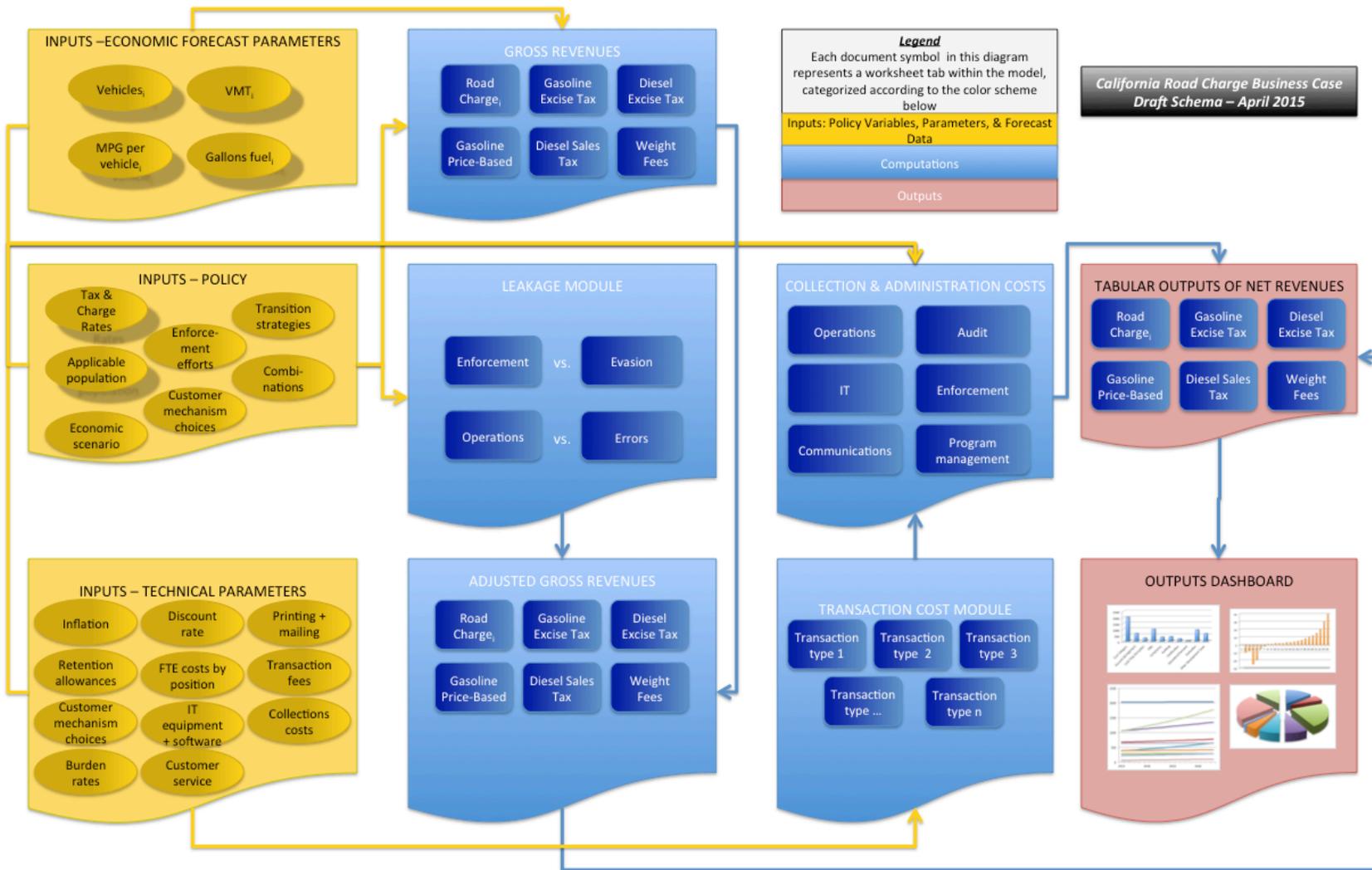
California State  
**Board of Equalization**



California Environmental Protection Agency  
 **Air Resources Board**



# Schema for Analysis



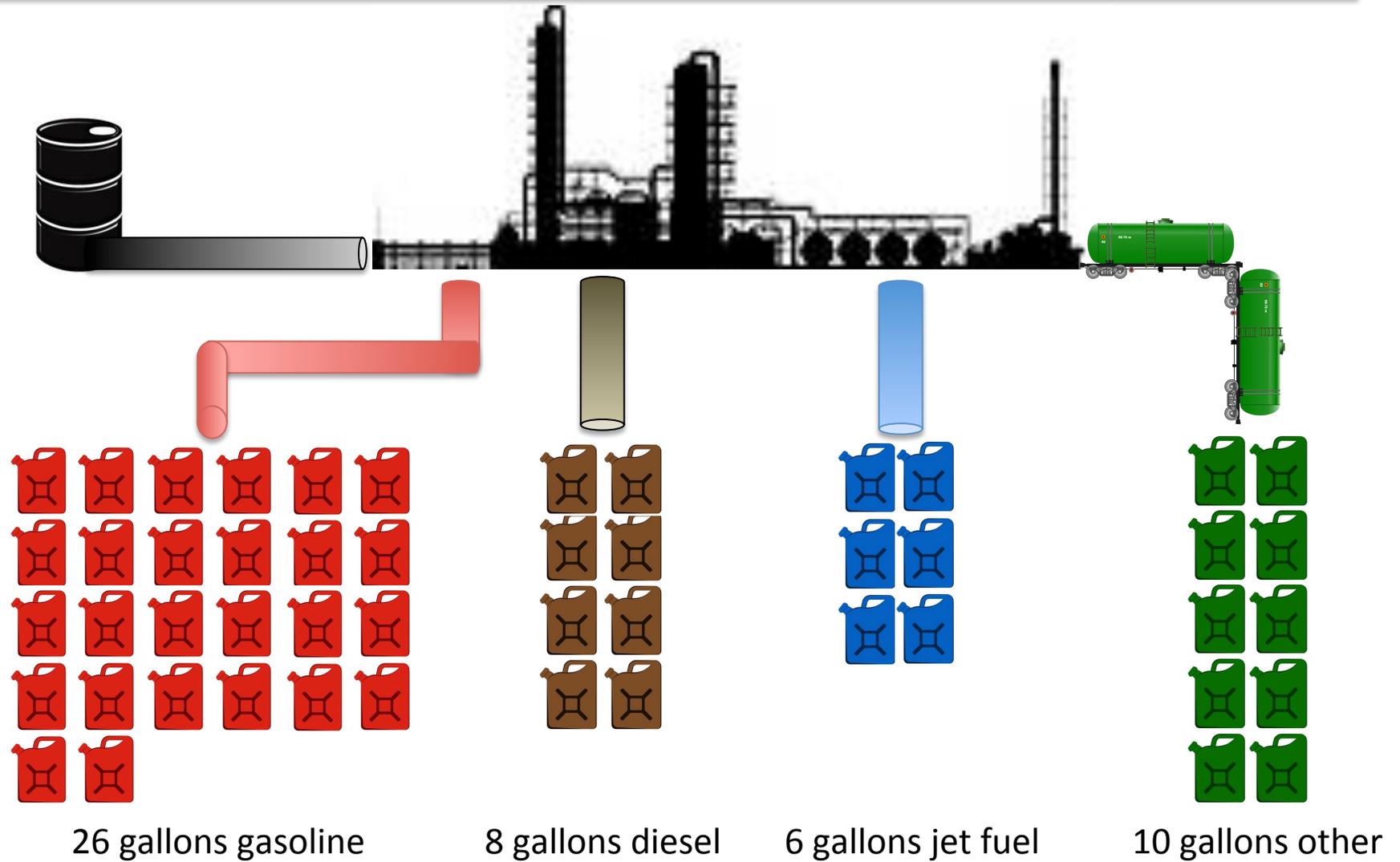
# Agenda

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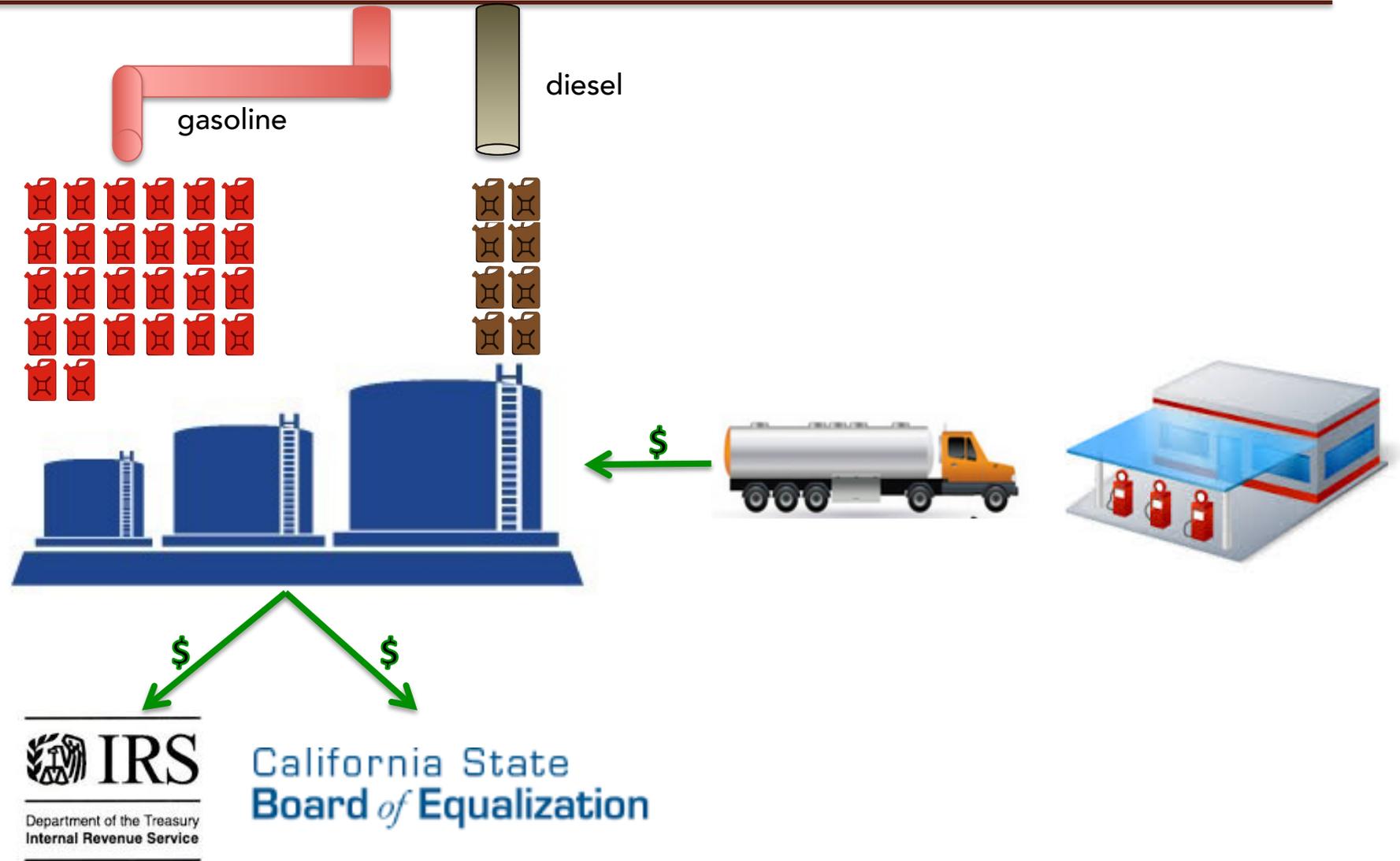
- ◆ Introduction to Business Case Analysis
- ◆ Fuel Tax Collection Background
- ◆ Utilities and Tax Revenue Collection Comparisons
- ◆ Vehicle Classification Frameworks



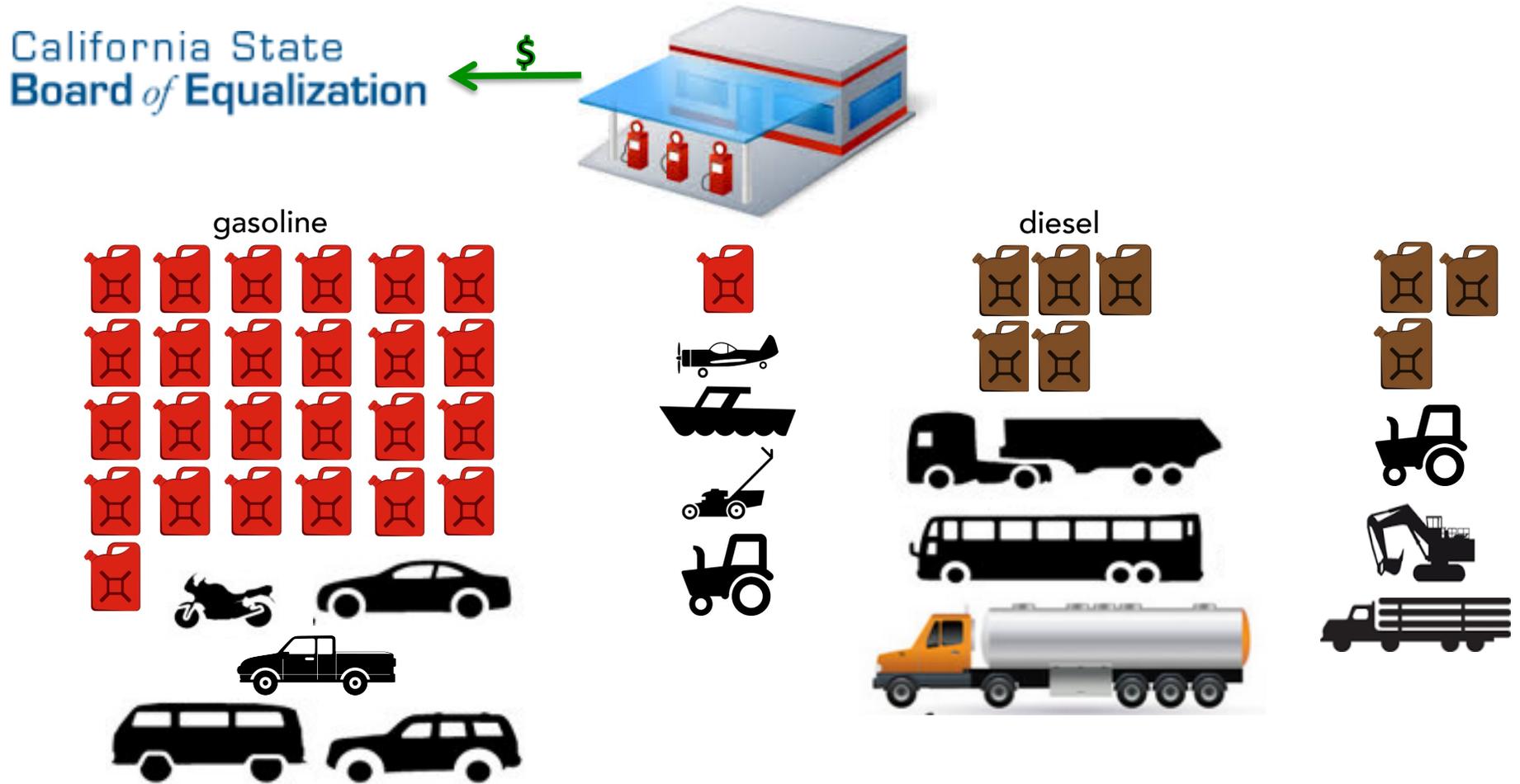
# Fuel Supply Chain



# Fuel Tax Chain



# Fuel Tax Chain (continued)



# Exemptions, Refunds, and Revenue Transfers

## Exemptions



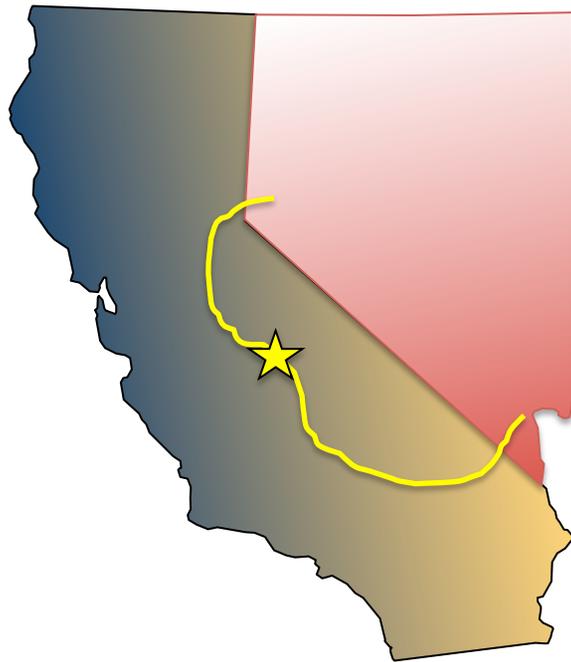
## Refunds



## Transfers



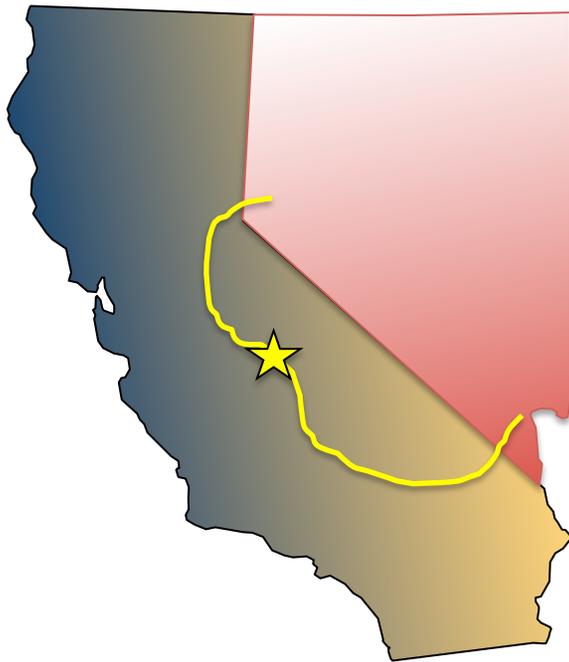
# International Fuel Tax Agreement (IFTA)



- ◆ Purchase 140 gallons in Nevada at \$0.27/gallon tax = \$37.80
- ◆ Reno – Fresno = 300 miles
  - ◇ 10 miles in Nevada
  - ◇ 290 miles in California
  - ◇ At 5 MPG, burn 60 gallons
- ◆ Fresno – Las Vegas = 400 miles
  - ◇ 350 miles in California
  - ◇ 50 miles in Nevada
  - ◇ At 5 MPG, burn 80 gallons
- ◆ Total fuel taxes owed
  - ◇ 60 miles in NV at 5 MPG = 12 gallons = \$3.24
  - ◇ 640 miles in CA at 5 MPG = 128 gallons = \$57.22
  - ◇ Total owed = \$60.46
  - ◇ Balance = \$22.66



## IFTA (continued)



- ◆ One transaction with base jurisdiction (Nevada) quarterly
- ◆ Keep records of all trips including mileage and fuel purchases by jurisdiction
- ◆ All participating jurisdictions forward tax return summaries to IFTA, Inc.
- ◆ IFTA, Inc. clearinghouse calculates amount owed by or due to each jurisdiction



# Fuel Tax Collection Costs

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- ◆ Administrative and collection activities
  - ◇ Processing returns, payments, and refunds
  - ◇ Auditing taxpayer records
  - ◇ Enforcement
- ◆ 2014-2015 costs for California agencies:
  - ◇ BOE: \$27.8 million
  - ◇ Controller: \$4.6 million
- ◆ Costs equal about 0.6% of excise tax revenue collected in California
  - ◇ Nationally, fuel tax collection costs average just below 1%
  - ◇ Weight fees cost about 0.9% of revenue collected



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- ◆ **Utilities and Tax Revenue Collection Comparisons**
- ◆ Vehicle Classification Frameworks



## Other Utilities and Tax Revenue Collection Costs

Revenue source	Cost of collection
Fuel tax (average across 50 states)	0.9%
Manual toll collection	11-20%
All-electronic toll collection	5-10%
New Zealand road user charges	4%
Oregon weight-mile tax	<5%
San Diego Water Utility	5-7%
Fresno Water Utility	3%
Pasadena Light & Power	6.5%



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- ◆ **Vehicle Classification Frameworks**

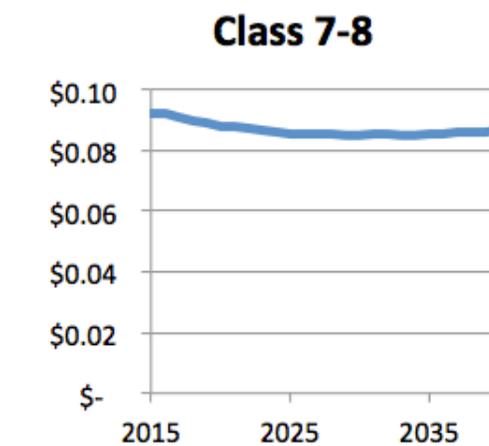
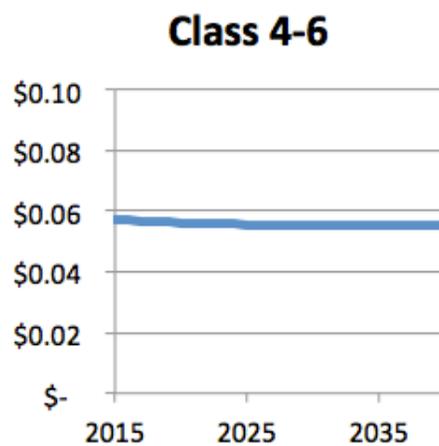
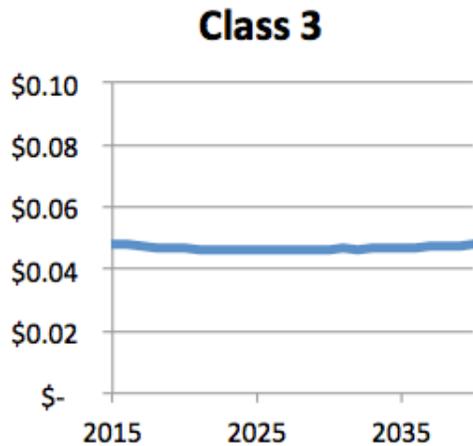
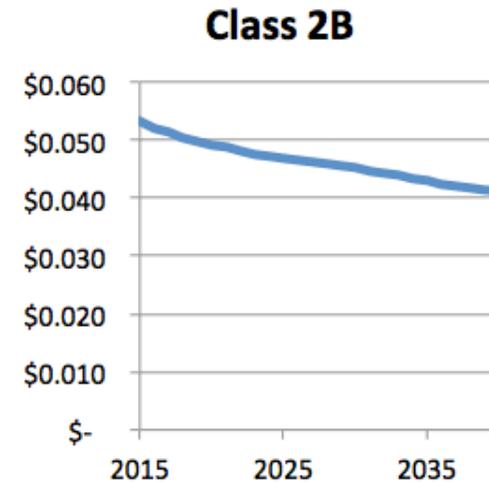
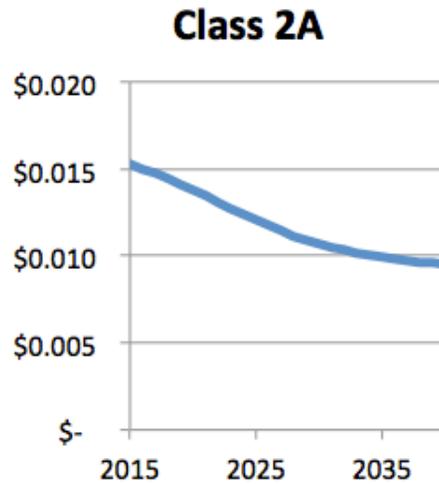
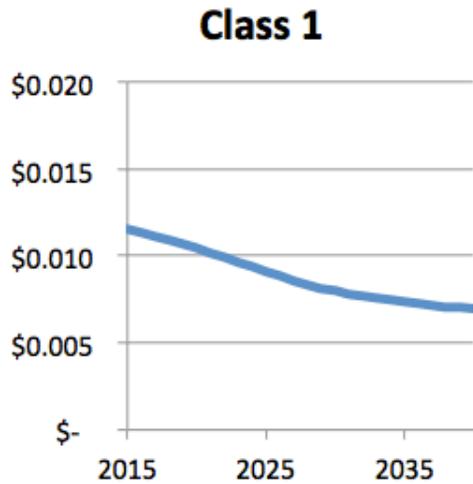


# Vehicle Classification - Weight

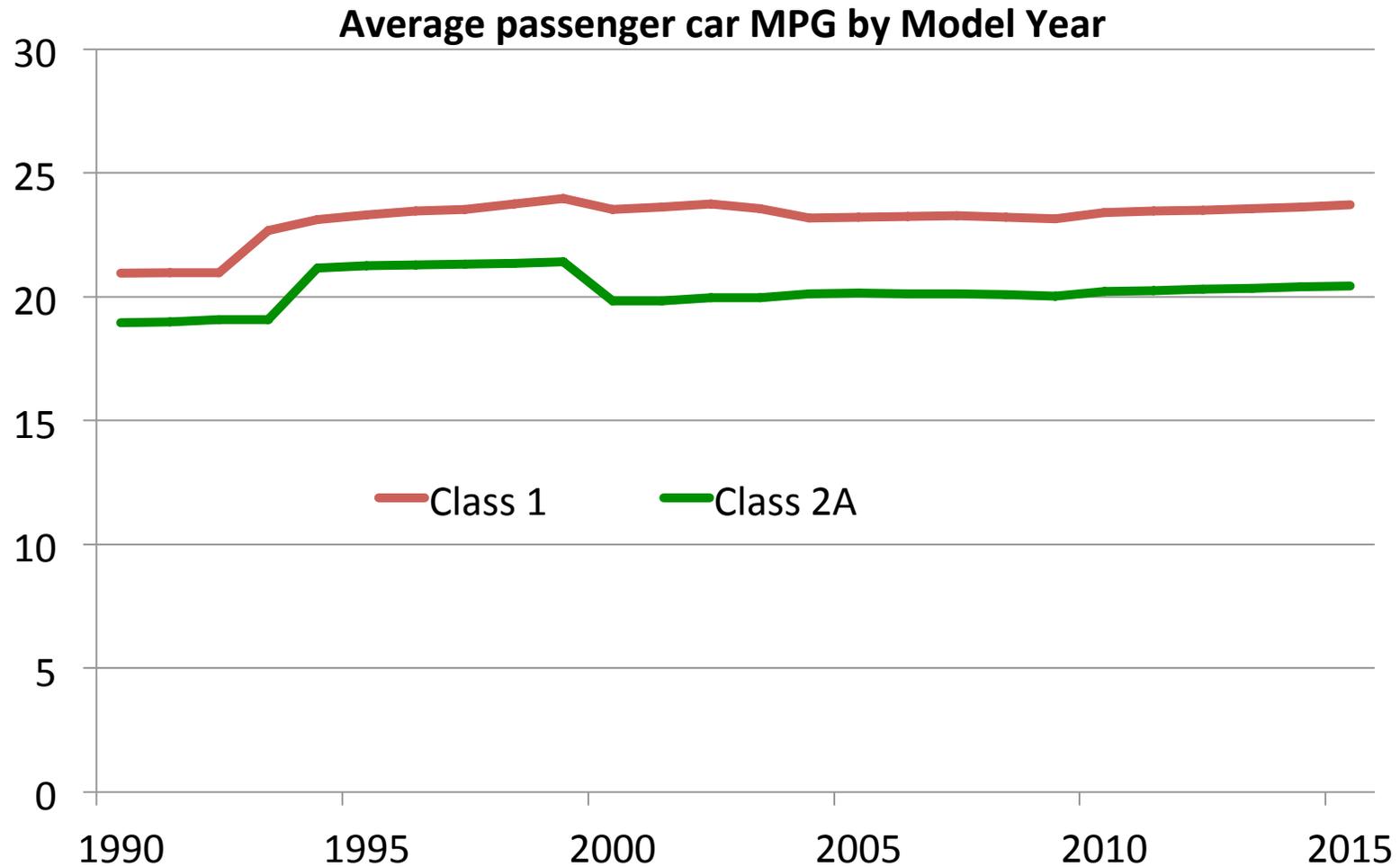
<b>Class 1 - 6,000 &amp; Less</b>     Minivan    Cargo Van    SUV    Pickup Truck
<b>Class 2 - 6,001 to 10,000</b>     Minivan    Cargo Van    Full-Size Pickup    Step Van
<b>Class 3 - 10,001 to 14,000</b>     Walk-in    Box Truck    City Delivery    Heavy-Duty Pickup
<b>Class 4 - 14,001 to 16,000</b>    Large Walk-in    Box Truck    City Delivery
<b>Class 5 - 16,001 to 19,500</b>    Bucket Truck    Large Walk-in    City Delivery
<b>Class 6 - 19,501 to 26,000</b>     Deverage Truck    Ginglo Auto    School Bus    Rack Truck
<b>Class 7 - 26,001 to 33,000</b>     Refuse    Furniture    City Transit Bus    Truck Tractor
<b>Class 8 - 33,001 &amp; Over</b>     Cement Truck    Truck Tractor    Dump Truck    Sleeper



# Forecast Revenue per Mile by Weight Class

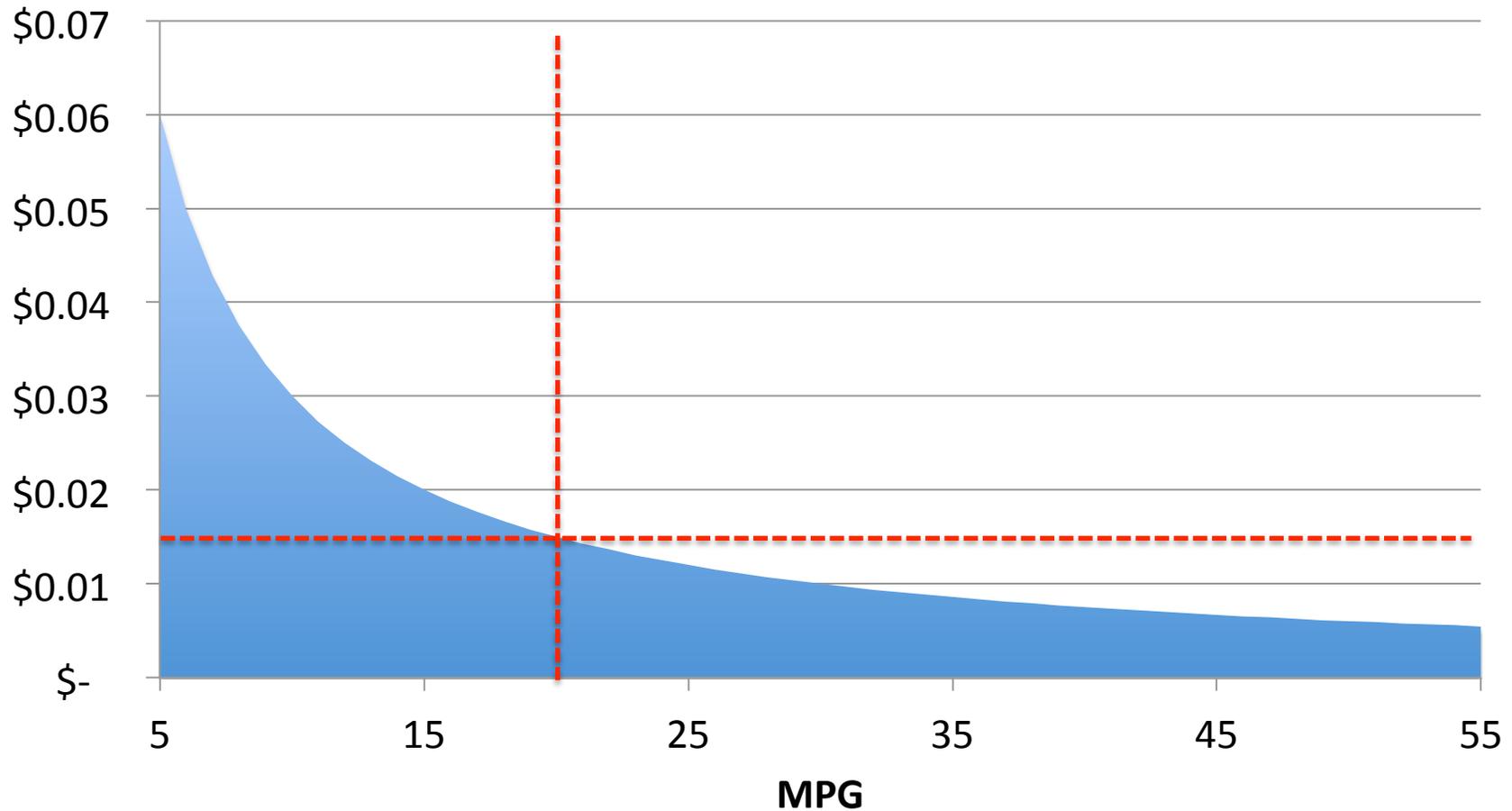


# Vehicle Classification - Age



# Vehicle Classification – Fuel Economy

Per-mile cost of California gasoline excise tax, by MPG



# Vehicle Classification – Fuel Type

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- ◆ Gasoline, ethanol, methanol, E-85, M-85, and gasohol
- ◆ Diesel, biodiesel, and other organic oils
- ◆ Natural gas (liquid or compressed)
- ◆ Battery electricity
- ◆ Hybrids, such as:
  - ✧ Gasoline-electric cars
  - ✧ Plug-in gasoline-electric cars
  - ✧ Diesel-LNG (“dual fuel”) trucks



# Vehicle Classification – Commercial

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## Commercial vehicles in California

- ◆ Anything used to transport persons for hire and/or designed to transport property
- ◆ Includes most pickups
- ◆ Includes some station wagons and SUVs (if used for hire or to carry property for profit)
- ◆ Includes most vehicles over 10k pounds

## Non-commercial vehicles in California

- ◆ Motorcycles
- ◆ Passenger cars, including all sedans, unless for hire
- ◆ Station wagons and SUVs not used for hire or to carry property for profit
- ◆ Motorhomes
- ◆ Vanpool vehicles
- ◆ Agricultural equipment
- ◆ Military equipment



# Example 1

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- ◆ Make: Ford
- ◆ Model: F-150
- ◆ Weight: 8,200 lbs. GVWR (Class 2A truck)
- ◆ Age: 2008
- ◆ Fuel Economy: 15
- ◆ Fuel Type: Gasoline
- ◆ Commercial



## Example 2

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- ◆ Make: Honda
- ◆ Model: Accord Hybrid
- ◆ Weight: ~4,500 lbs. GVWR (Passenger Car)
- ◆ Age: 2015
- ◆ Fuel Economy: 47
- ◆ Fuel Type: Gasoline Hybrid
- ◆ Non-Commercial



## Example 3

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- ◆ Make: Freightliner
- ◆ Model: Cascadia Evolution
- ◆ Weight: 60,600 lbs. GVWR (Class 8)
- ◆ Age: 2015
- ◆ Fuel Economy: 4-6
- ◆ Fuel Type: Diesel
- ◆ Commercial



# Summary of Vehicle Classification Dimensions

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