Attachment A
Reference No.: 7
February 5, 2021

The Impact of ZEVs on SB1 Revenue: A Scenario Analysis

Presented to the California Transportation Commission's Road User TAC

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Acknowledgements

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Methods

- Projected state-generated revenue dedicated to transportation (the SB1 package of taxes/fees)
- Used spreadsheet models and readily available data
- Developed 6 hypothetical COVID-19 recovery scenarios

The CA taxes & fees projected* (SB1 package)

Fuel taxes	
Gasoline excise tax	Base excise of 30¢/gallon + swap excise of 17.3¢/gallon (effective 7/1/2019)
Diesel excise tax	36¢ per gallon
Diesel swap sales tax	5.75% on purchase price
Vehicle fees (annual)	
Transportation Improvement Fee (TIF)	$25 - $175; rate depends on vehicle value
Road Improvement Fee (RIF)	$100 per ZEV (effective 7/1/2020)

* Rates as of January 1, 2020. The model adjusts these over time as described in the legislation.

Creating the 6 scenarios

- The scenarios were designed to reflect a range of possible futures (not to predict what will happen)
- The scenarios assume high, medium, and low trajectories through 2040 of:
  - Annual state VMT
  - Light-duty vehicle fleet size
  - Heavy-duty diesel fleet size
  - Light-duty ZEV fleet size
  - Light-duty ZEV vehicle values

High/medium/low trajectories for the variable inputs

Input	High	Medium	Low
Annual state VMT	VMT increases linearly to reach 90% of pre-COVID-10 levels by January 2021, increases linearly to predicted pre-COVID-19 levels by January 2022, and increases linearly to 120% of predicted levels based on pre-COVID-19 conditions by the end of 2040.	VMT remains at August 2020 levels until April 2021, then increases linearly so to the predicted pre-COVID-19 level by April 2023, and remains at predicted pre-COVID-19 VMT through 2040.	VMT remains at August 2020 levels until March 2025, increases linearly to reach 90% of pre-COVID-19 levels December 31, 2030, and remains at 90% of predicted pre-COVID-19 VMT through 2040
Light-duty vehicle fleet size	Light-duty fleet increases by 1.9% annually (highest year-to-year growth rate during 2008-2017)	Light-duty fleet increases by 0.8% annually (mean year-to-year growth rate from 2018-2019)	Light-duty fleet size declines linearly to 0.66 vehicles per person by 2040.
Heavy-duty diesel fleet size	The diesel % of heavy-duty fleet declines logarithmically to 40% by 2030 and 0% by 2034. After 2034, the heavy-duty fleet remains 0% diesel.	Diesel % of heavy-duty fleet declines logarithmically to 55% by 2030 and 50% by 2040.	The diesel % of the heavy-duty fleet follows EIA projections, reaching 73% in 2040.
Light-duty ZEV fleet size	The number of light-duty ZEVs increases at an exponential rate so that they constitute 75% of light-duty registered vehicles by 2040.	Light-duty ZEV fleet size increases exponentially such that the state of California reaches its goals of 1.5 million ZEVs by 2025 & 5 million ZEVs by 2030. After 2030, the ZEV fleet grows 1 million per year.	Light-duty ZEV fleet size increases by 94,112 vehicles per year (the annual rate of growth from 2018-2019).
Light-duty ZEV vehicle values	ZEV values start at EIA projections in 2020 and converge linearly to EIA projections for light-duty ICE vehicles by 2040.	ZEV values start at EIA projections in 2020 and converge linearly to EIA projections for light-duty ICE vehicles by 2035. After 2035, ZEV values follow EIA projections for light duty-vehicles.	ZEV values start at the EIA projections in 2020, converge linearly to EIA projections for light-duty ICE vehicles by 2030, and follow EIA projections to 2040.

Building the recovery scenarios from the variable input trajectories

Scenarios	Annual state VMT	Light-duty fleet size	Heavy-duty diesel fleet size	Light-duty ZEV fleet size	ZEV vehicle values
1. High-carbon: high VMT + large fleet + low ZEV	High	High	High	Low	High
2. High VMT + large fleet + high ZEV	High	High	Low	High	Low
3. All medium	Medium	Medium	Medium	Medium	Medium
4. High VMT + medium fleet + high ZEV	High	Medium	Low	High	Low
5. Medium VMT + large fleet + high ZEV	Medium	Medium	Low	High	Low
6. Low carbon: low VMT + small fleet + high ZEV	Low	Low	Low	High	Low

Note: See table on earlier slide for definitions of the high, medium, and low trajectories for each input.

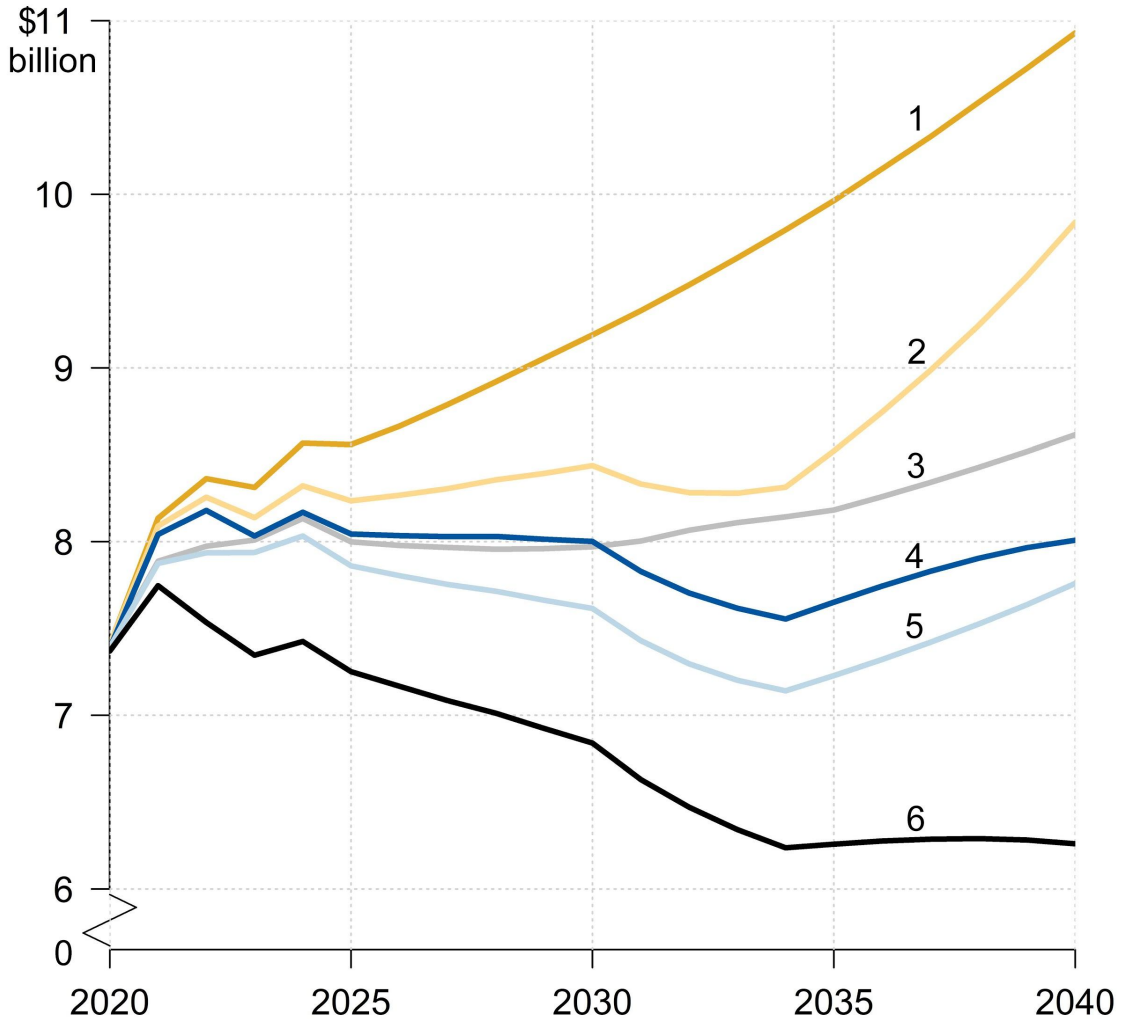
Total revenue, all scenarios (billions of 2020$)

Range of projected revenue in 2040:

$6.5B - low-carbon scenario (#6)
$10.9B - high-carbon scenario (#1)

Range of cumulative projected revenue 2020 to 2040:

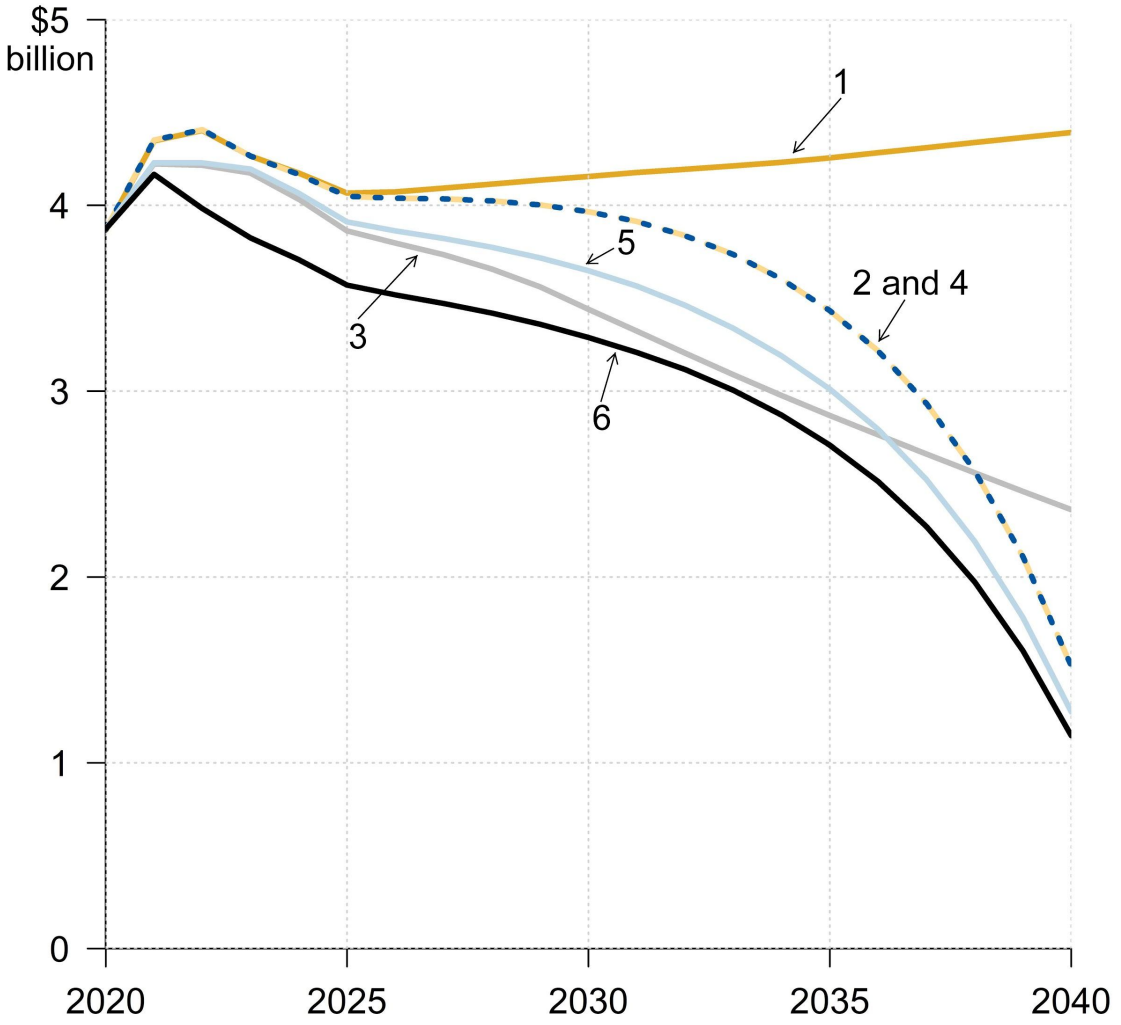
$153B - low-carbon scenario (#6)
$195B - high-carbon scenario (#1)



Gas excise tax revenue, all scenarios (billions of 2020$)

Range of gax excise revenue in 2040:

- $1.14 billion (#6)
- $4.40 billion (#1)

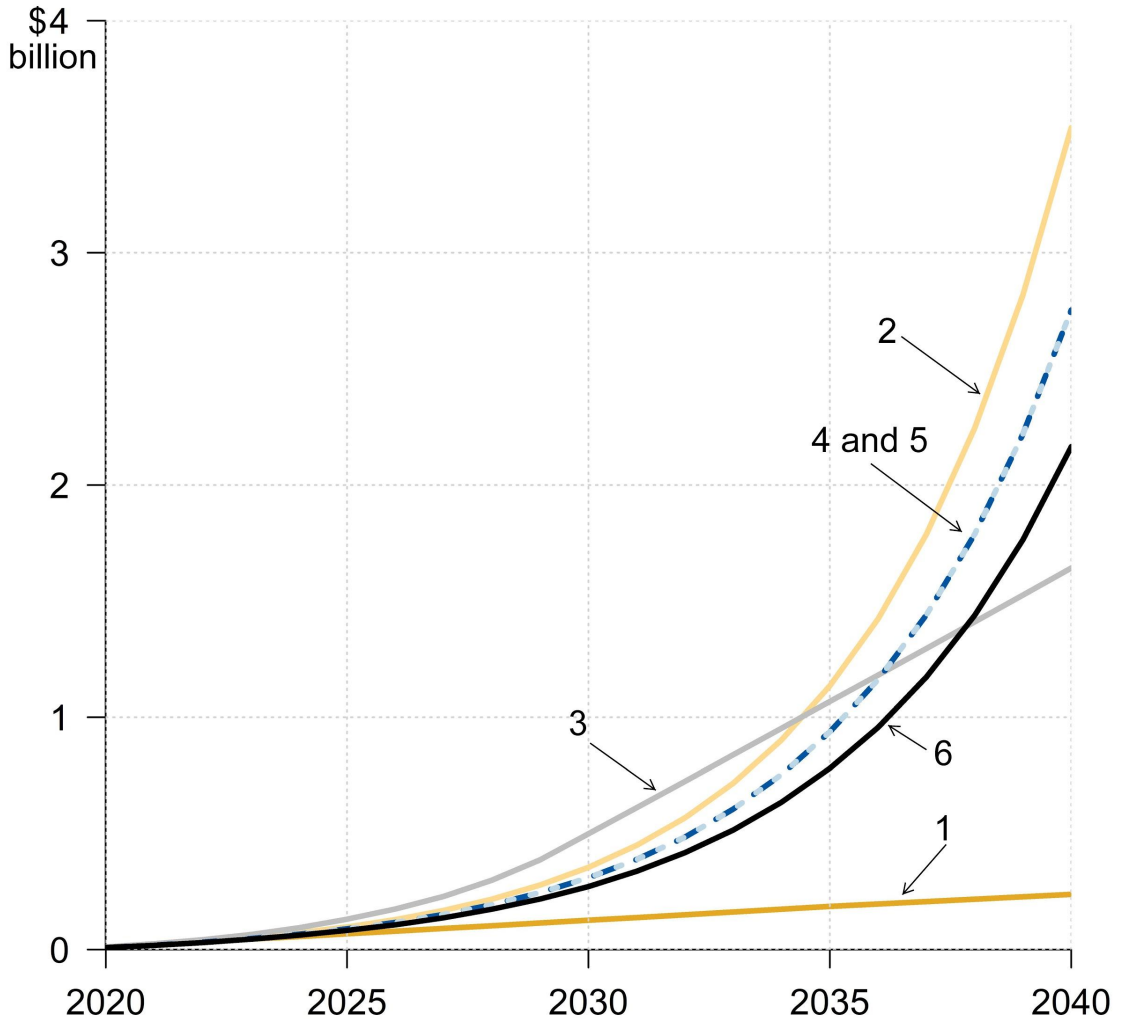


RIF revenue, all scenarios (billions of 2020$)

Range of RIF in 2040:

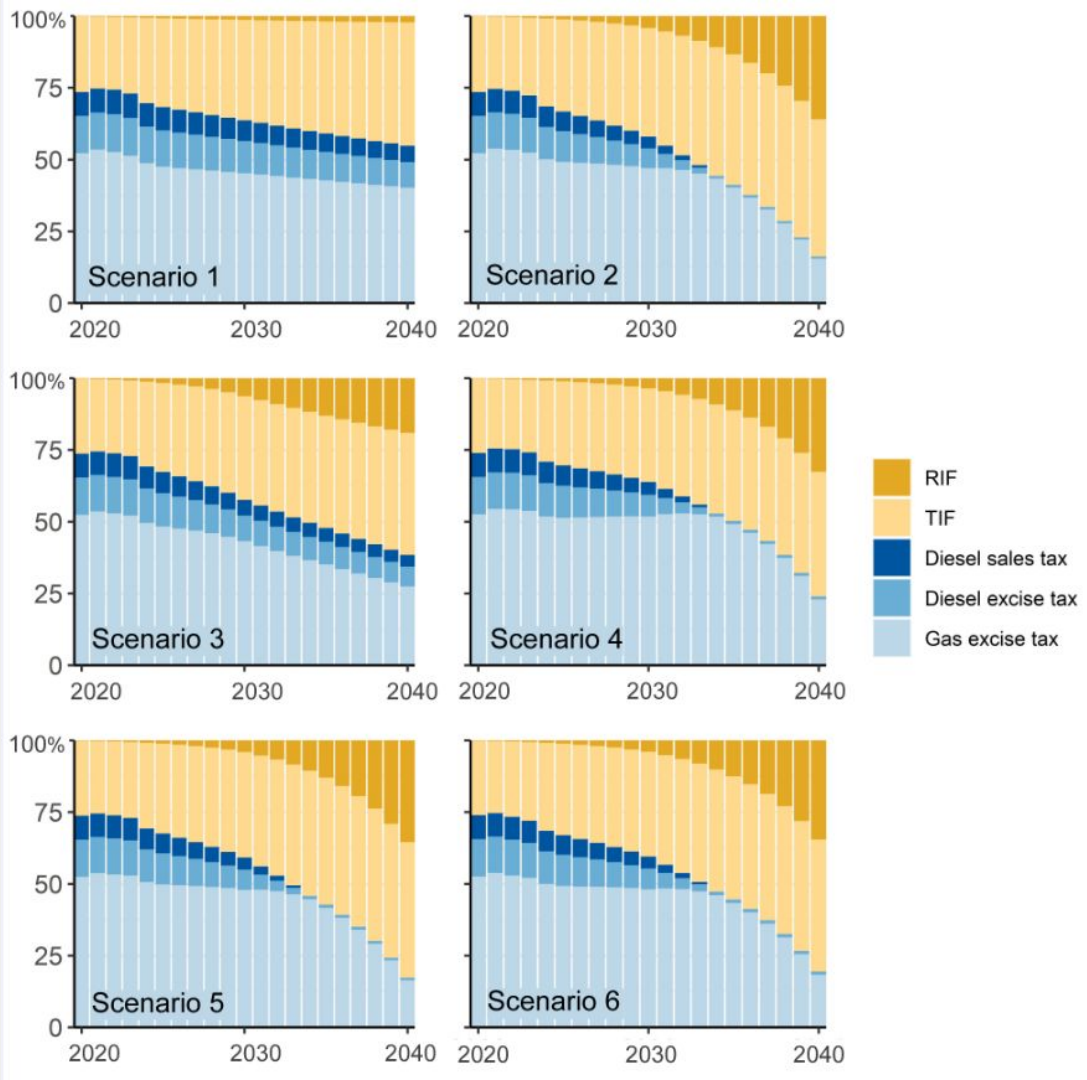
$0.24 billion (#1)

$2.16 billion (#6)



Total revenue, by source, for each scenario

- Taxes on fuels currently generate about 75% of total revenue, but by 2040 that falls considerably in all scenarios
- Vehicle fees (RIF + TIF) grow in importance over time, generating >50% of revenue between 2033 and 2035 for all but the high-carbon scenario (#1)
- TIF generates more revenue than the RIF, and by 2040 generates ~ 45% of total revenue
- RIF revenue range in 2040 from 2% to 36% of total revenue



Resources

The Impact of the COVID-19 Recovery on California Transportation Revenue: A Scenario Analysis through 2040 (December 2020)

Earlier MTI reports in this series:

The Impact of COVID-19 on California Transportation Revenue (May 2020)
The Impact of ZEV Adoption on California Transportation Revenue (July 2019)
The Future of California Transportation Revenue (October 2018)

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