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<td><strong>Docket Number:</strong></td>
<td>22-IEPR-03</td>
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<tr>
<td><strong>Project Title:</strong></td>
<td>Electricity Forecast</td>
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<tr>
<td><strong>Document Title:</strong></td>
<td>Presentation - Transportation Demand Scenarios</td>
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<tr>
<td><strong>Description:</strong></td>
<td>I.D. Quentin Gee, Transportation Scenarios</td>
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<tr>
<td><strong>Filer:</strong></td>
<td>Raquel Kravitz</td>
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<td><strong>Organization:</strong></td>
<td>California Energy Commission</td>
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Main Approach for 2050 Scenarios

• Timeframe: 2022-2050
• Three scenarios
  1. Reference Scenario
     ➢ Existing policies understood as the current “floor”
  2. Policy-Compliance Scenario
     ➢ Outcomes from likely policies in development
  3. Mitigation Scenario
     ➢ Aggressive, more speculative policies and outcomes
• CEC will assess annual vehicle stock, annual vehicle miles traveled, and vehicle energy across scenarios
• E3 will take CEC’s results and determine GHG impacts
Reference Scenario Framework

• A baseline scenario with a CEC adopted, managed demand forecast, extended to 2050
• Builds from 2021 mid-case vehicle energy demand forecast
  - Same vehicle attributes and VMT assumptions, extended to 2050
  - Example existing regulations and incentives:
    - Hybrid and Zero-Emission Truck and Bus Voucher Program
    - Clean Vehicle Rebate Program
    - Advanced Clean Trucks
    - Advanced Clean Cars I
Policy-Compliance Scenario Framework

• Reference scenario adjusted by energy demand associated with an increasing ZEV stock aligned to recent policy proposals
• ZEV stock adjusted to comply with CARB’s proposed standards
  ➢ Advanced Clean Cars II (ACC II) sales requirements
  ➢ 100% new LD ZEV sales in 2035
    ▪ 12.4% sales in 2021
  ➢ Advanced Clean Fleets (ACF) requirements
    ▪ Multiple ZEV targets depending on vehicle class, approaching 100% sales in different years
Mitigation Scenario Framework

- Reference scenario adjusted by energy demand associated with a highly accelerated ZEV stock
- ZEV stock adjusted to comply with more aggressive CARB scenarios
  - 2020 Mobile Source Strategy (2020 MSS) for light-duty vehicles
    - More aggressive early-stage ZEV adoption rates
  - 100% new LD ZEV sales in 2035
  - 2020 MSS for medium- and heavy-duty vehicles
Policy Considerations

- Less clarity on light-duty policy needs
  - Likely continued needs for incentives
  - Some uncertainty due to a rapidly shifting market and consumer preferences

- MDHD
  - Additional need for incentives
  - Accelerated vehicle retirements

- Aviation fuel remains a GHG concern
Light-Duty Stock Results

Reference Scenario

Policy-Compliance Scenario

Mitigation Scenario

ZEV Stock
2035  5.4M
2050  9.7M

ZEV Stock
2035  12.8M
2050  31.1M

ZEV Stock
2035  14.6M
2050  31.1M
Scenario Comparison for ZEVs
MDHD Stock Results

Reference Scenario

Policy-Compliance Scenario

Mitigation Scenario

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<tr>
<th>Year</th>
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Transportation Energy Demand from Combustion Fuels

![Graph showing transportation energy demand from combustion fuels from 2022 to 2050 with three lines representing Reference, Policy-Compliance, and Mitigation scenarios. The y-axis represents quadrillion Btu, and the x-axis represents years from 2022 to 2050. The Reference line starts at a higher energy demand and shows a gradual decrease, the Policy-Compliance line starts lower and also shows a decrease, and the Mitigation line starts lower and shows the steepest decrease among the three.]
Transportation Energy Demand from Electricity