CALIFORNIA
AIR RESOURCES BOARD

Clean Miles Standard Workshop

Preliminary Regulation Structure and Targets

May 15, 2020

Webinar Participant Guide

Before we get started:

- All participants are muted by default
- Questions during the workshop should be posted to the GoToWebinar Questions box
    - Questions will be seen by webinar organizer
- During the Q&A session, questions will be posted on-screen and addressed

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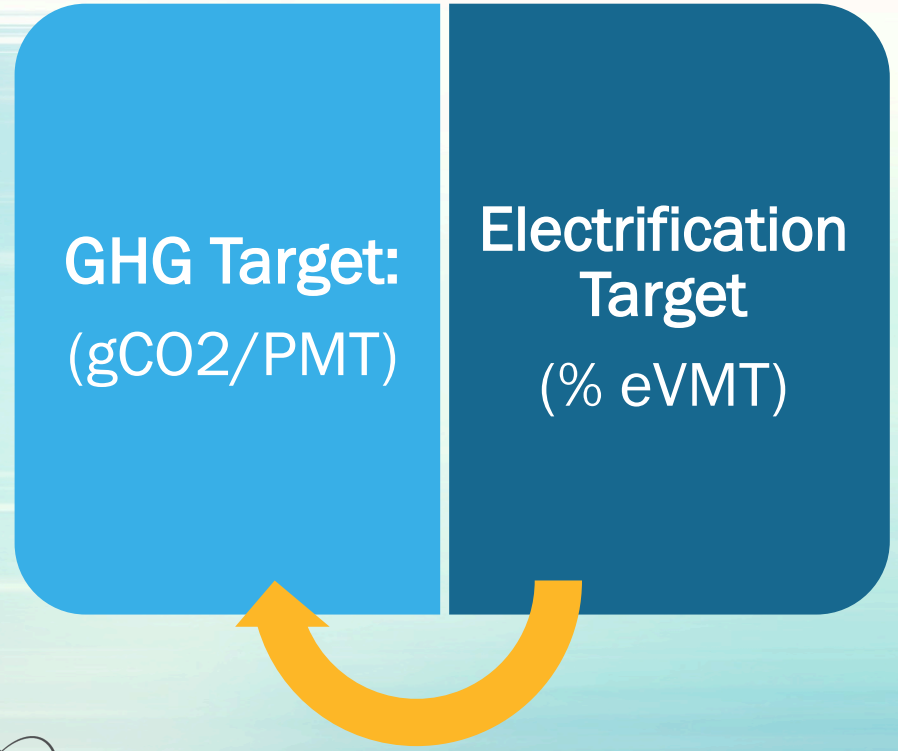
Workshop Topics

- Quick Background
- Preliminary Electrification Targets
  - Methodology
  - Assumptions
- Evaluating Impact on Low Income Drivers
- Continued work on the Greenhouse Gas (GHG) Targets
  - Occupancy Assumptions
- Other Requirements and Considerations
  - Requirements for Small Companies
  - Data Reporting
  - Maximum Vehicle Age
- Next Steps

Background: SB 1014 Metrics and Goals



Key goals:
Reduce GHG, promote electrification in transportation network companies (TNCs)

Applicable to:
Passenger service on TNC platforms

Align with:
SB 350, SB 375, ZEV Action Plan

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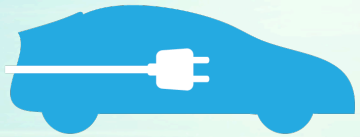
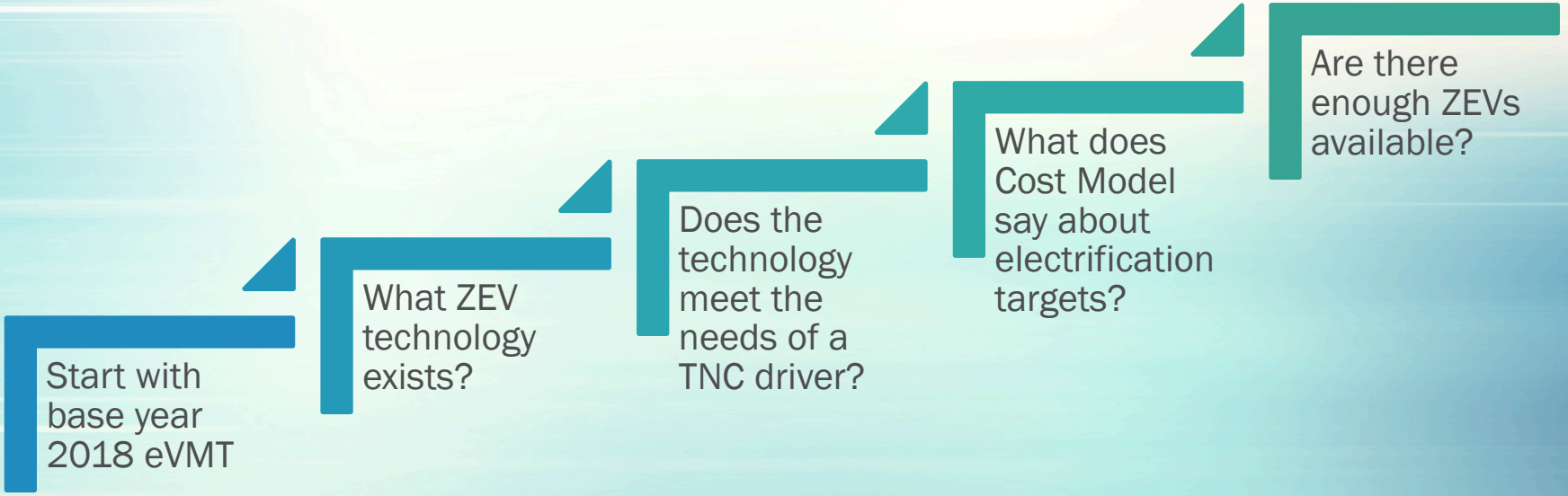
Background: SB 1014 Deadlines

Preliminary Electrification Targets (% eVMT)



Fraction of vehicle miles traveled by battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV)

Electrification Targets - Methodology



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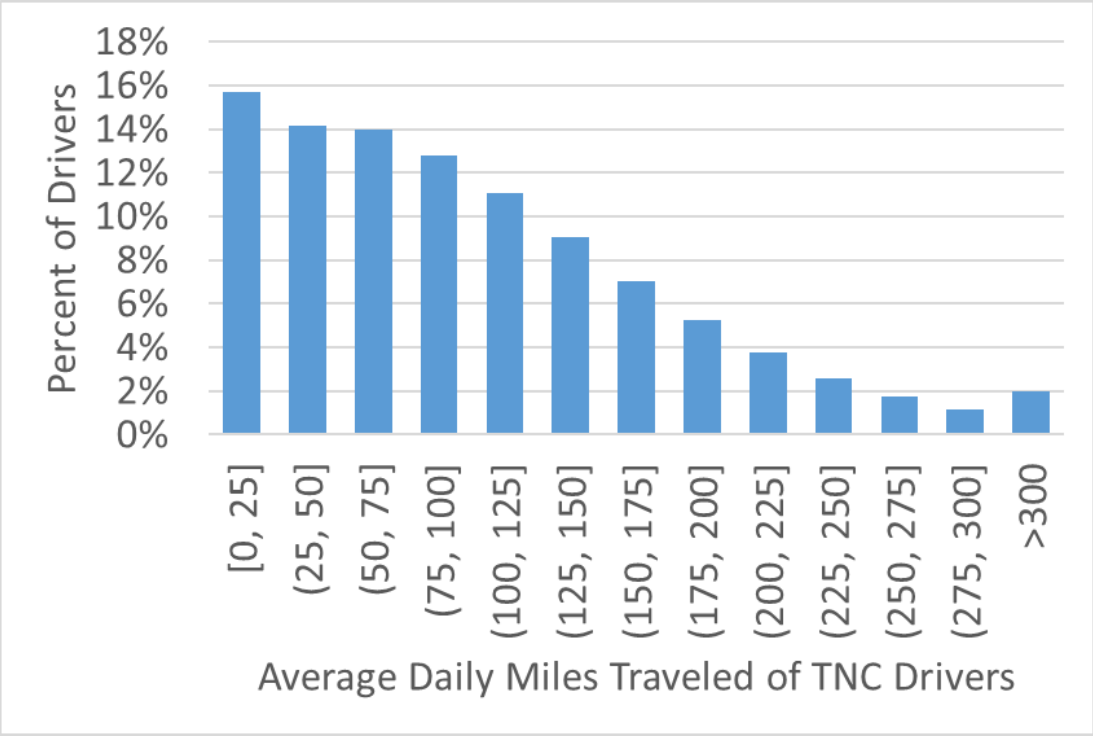
What ZEV technology exists?

By 2023, multiple models of EVs with range 250+ miles

- 44% of MY 2019 available ZEV ranges are 250+ mi
- Example 2020 vehicle model ranges (miles):
  - Chevrolet Bolt: 259
  - Tesla Model 3: 215 - 330
  - Hyundai Kona: 258
  - Toyota Mirai: 312
- When CMS period (2023+): used and new 250+ ZEVs

Does the technology meet the needs of a TNC driver?



- ✓95% of the drivers travel less than 250 mi/day
- ✓90% of drivers travel less than 200 mi/day
- ✓TNC drivers willing to charge 90 minutes per day (survey)

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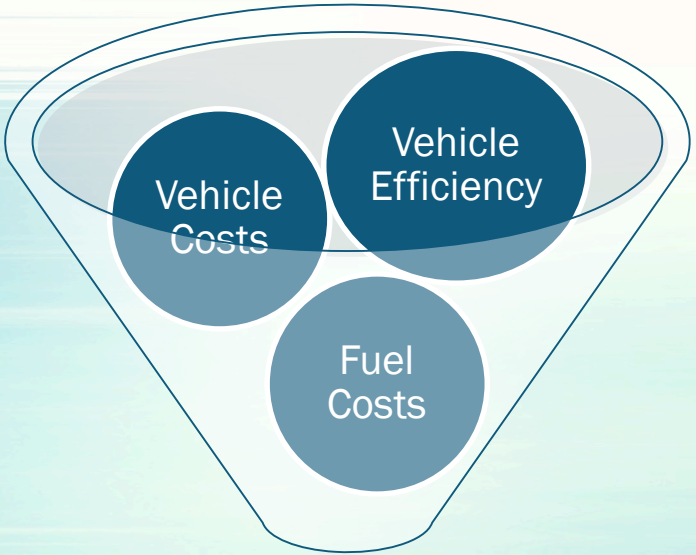
Setting the Electrification Target Based on Cost



Cost Model

Cost Model Output

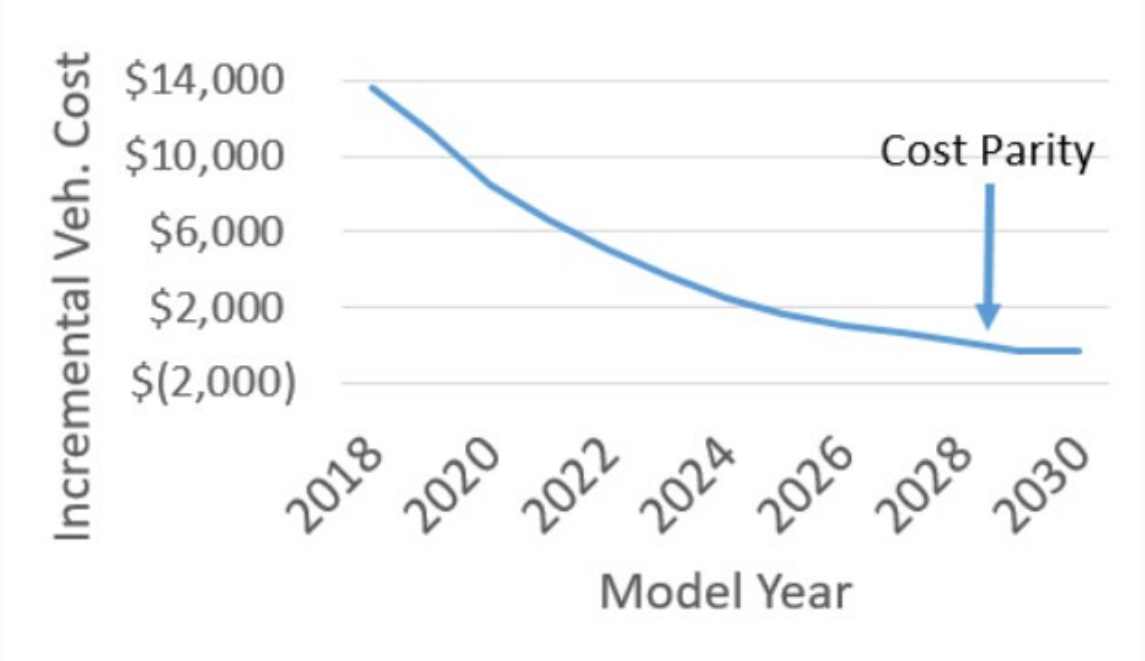
% eVMT Target

Check number of available ZEVs

Selected Cost Model Input Parameters

Input Values	Outcome Impacts
Incremental costs of ZEVs by model year (MY) and age	High
Vehicle efficiencies by MY and vehicle type	Medium
Costs projections of gasoline, Level 2 (L2) and DCFC electricity, and hydrogen	Medium
Maintenance and insurance cost savings projections	Low
ZEV incentive amount, L2 charger installation costs	High/Low

Example of Passenger Car: Cost Projections for Battery-Electric



Source: CARB, ICCT: Update on EV Costs in US through 2030

- Does not include Federal vehicle incentives
- ~80% of 2018 TNC VMT is from passenger cars

Simulating the BAU TNC Fleet

- TNC growth assumptions for each calendar year (CY)
- Future TNC fleet simulations
  - Sampled from 2018 fleet with replacement
  - Vehicles inherit same age, VMT, and fuel type
  - Adjust future vehicle efficiency with LEVIII standards

Example	In 2018	In 2023
Model Year	2017	2022
Vehicle Age	1	1
Vehicle Type	Passenger car	Passenger car
Efficiency	31 mpg	40 mpg
Technology	ICE	ICE
VMT per year	6,000 mi	6,000 mi

Cost Modeling of "BEV Switchers"

- One year of amortized **costs** for:
  - Incremental capital cost price of a similar BEV
  - Home charger costs
- One year of cost **savings** for fuel & maintenance
- Two strategies modeled with one-year amortized net costs:
  - Strategy 1: Individual driver breaks even
  - Strategy 2: Drivers save additional money before switching
    → Savings scale $35/wk in early years to $10/wk in later years
- Cost Model switches drivers with lowest net costs

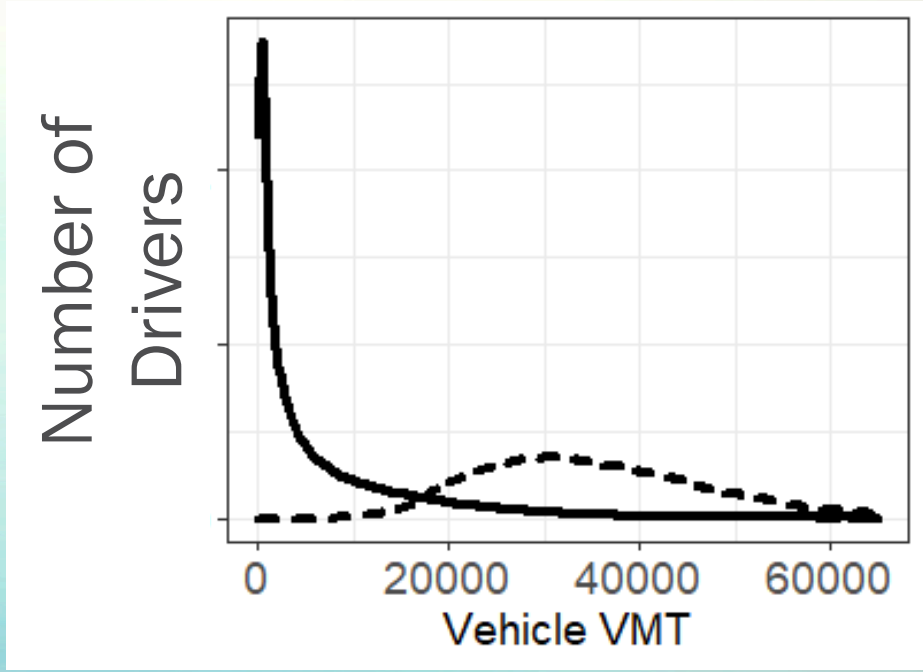
First BEV Switcher Characteristics

Those who switch to BEV first are combination of:

- *High Annual VMT*
- *Poor Fuel Economy*
- *Old Vehicles*

Example: 2025

Solid Line: ICE Dashed Line: BEV



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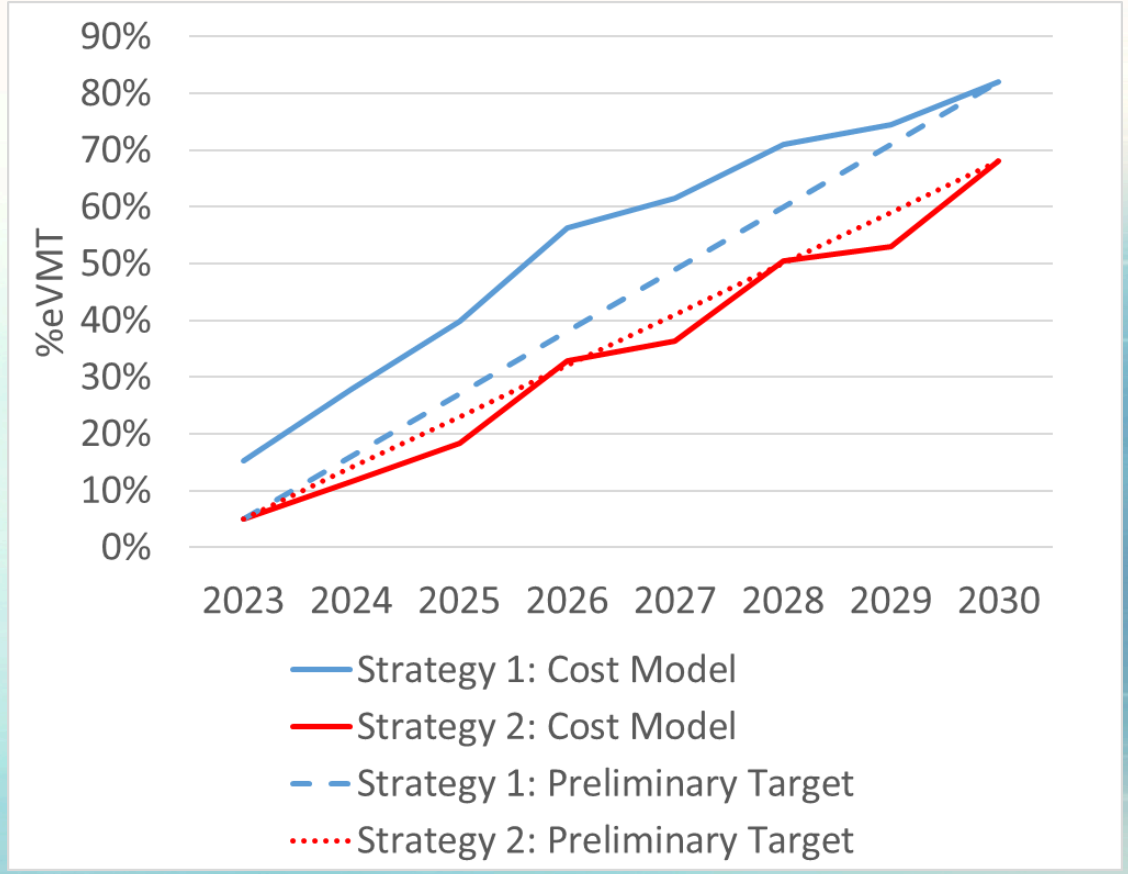
Preliminary Electrification Targets

- Strategy 1:
  Individual Driver Breaks Even
- Strategy 2:
  Individual Driver Breaks Even but also Earns Extra $35/week



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Preliminary Electrification Targets

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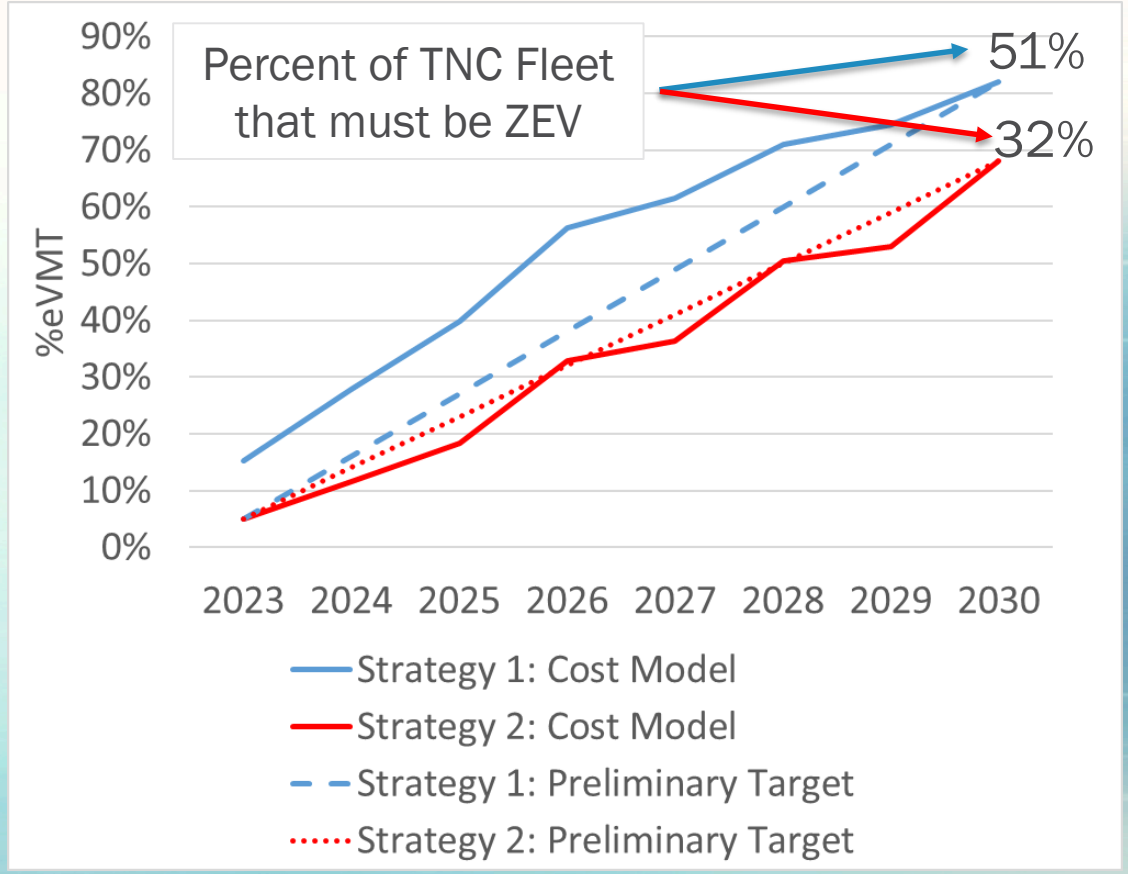

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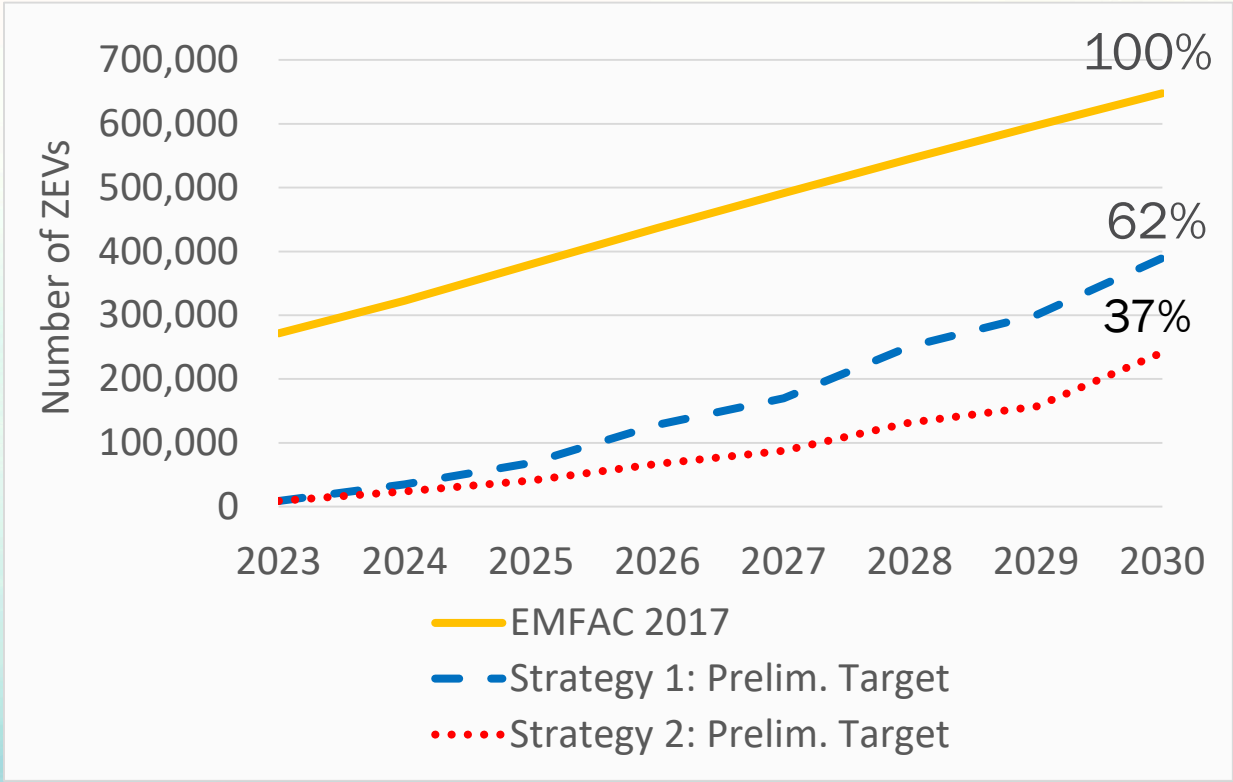
Are There Enough ZEVs in the CA Fleet?

- Number of ZEVs available from the ZEV Regulation
  - Based on EMFAC 2017
  - No PHEVs



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Alternative Scenario:

100% Electrification by 2030

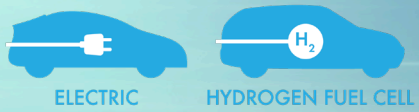
Considerations:

- Driver socioeconomic status

- Home charging access

- High average driver turnover

- ZEV availability in CA



Evaluating Impact to Lower Income Drivers

Seeking driver socioeconomic status

- Currently using driver registration ZIP code as a surrogate

Setting eVMT target with conservative cost assumptions

Evaluating incentive programs available for purchasing fuel efficient vehicles and BEVs

- Are there programs that already apply to drivers now?

Evaluating Impact to Lower Income Drivers

	Percentage of drivers
SB 535 Disadvantaged Communities	29 %
AB 1550 Low-income Communities	53%
SB 535 or AB 1550	56%

Incentives Available to Drivers

- Clean Vehicle Rebate Program (New Vehicle Purchase)
  - All TNC drivers eligible (rental companies have a cap)
- Clean Vehicle Assistance Program (New/Used Financing)
  - Statewide and Regional Programs
- Clean Cars for All (New/Used)
  - 4 Air Districts (Sacramento, Bay Area, San Joaquin Valley, South Coast)
- Regional and local incentives by air districts and utilities
- One-Stop-Shop (OSS) Program Outreach

Greenhouse Gas Target Metric

$$\frac{\text{g } CO_2}{\text{PMT}} = \frac{\text{Total VMT}_{\text{Period 1,2,3}} \times CO_2 \text{ per mile}}{\text{Total VMT}_{\text{Period 3}} \times \text{Occupancy}}$$

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Setting the GHG Target

Fuel Efficient Vehicles (in progress)

- Evaluating TNC drivers switching to hybrids

Occupancy (Period 3)

- Proposing to provide default occupancy values for compliance
- Still evaluating pooling in setting target (in progress)

Deadheading (Periods 1 + 2)

- Staff is proposing not to include deadheading in setting the target but it can be used for compliance

Fuel Consumption Values for Compliance

Proposing to use “look up table” for fuel consumption based on vehicle category, model year and fuel type

Model Year	PC/LDT	Gasoline (gCO2/mi)	Diesel (gCO2/mi)	Hybrid (gCO2/mi)	Plug-in Hybrid (gCO2/mi)
2010					
…					
2030					

Values based on VMT-weighted 2018 TNC base year fleet and projecting to 2030.

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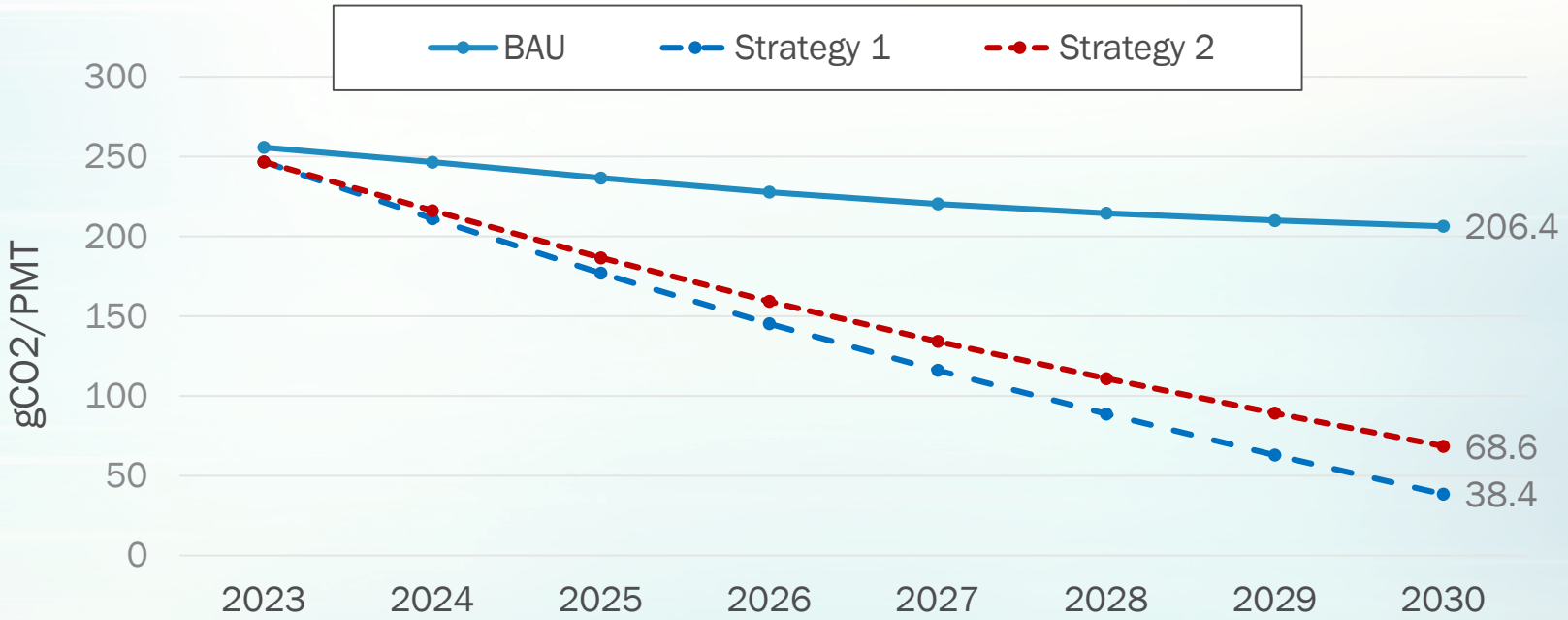
Occupancy Values for Compliance

For gCO_2/PMT equation, proposing to use trip-weighted occupancy. Example structure shown here:

Occupancy
Non-pooled = 1.5
Pool Unmatched = 1.5
Pool Matched = 2.5

Considering a credit to build early pool demand

GHG Results Based on Preliminary Electrification Targets Presented Today



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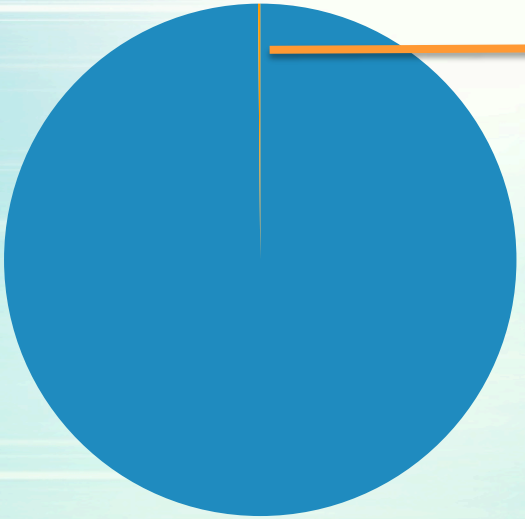
Other Requirements Being Considered

Small TNCs



0.14% of **Uber + Lyft**

Small TNC total:	5.9 million miles
Highest Small TNC:	2.9 million miles
Uber + Lyft:	4.2 billion miles

Annual VMT threshold for exemption:

5 million miles per TNC

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Small TNC Requirements

TNCs with less than **5 million** annual VMT are exempt from:

- GHG and eVMT targets
- 2-year plan submittal
- Annual compliance report

Small TNCs are not exempt from:

- Continued annual data-reporting requirements

As small TNCs grow, full requirements would take effect beginning the first calendar year exceeding

5 million VMT

(with some flexibility)

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Data Reporting Requirements

Additional Required Fields

- Vehicle Make / Model / Model Year
- Passenger Car vs. Light Truck
- Fuel/Technology Type (gasoline, diesel, hybrid, plug-in hybrid, battery electric, fuel cell)
- Pool-matched Y/N
- Occupancy

Maximum Vehicle Age Requirement

Statewide maximum vehicle age limit of 10 or 15 years?

- TNCs already limit vehicle age to 15 years in California
- Makes vehicle age enforceable
- Prevent backsliding

2018 TNC vehicle age:

5 years or younger:	70%
10 years or younger:	90%
15 years or younger:	99%

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Process

2Q 2020

- Public workshops
- Complete analyses & decisions

3Q 2020

- July – Public Workshop
- August – SRIA

4Q 2020

- Finalize regulatory proposal
- Board hearing

Request for Alternatives

Pursuant to SB 617[1] and the California Environmental Quality Act (CEQA)[2], CARB welcomes public input on alternatives to the proposed regulation targets discussed in this workshop.

In particular, CARB encourages public input on alternative Clean Miles Standard approaches that:

- May yield the same or greater benefits than those associated with the proposed regulation targets, or
- May achieve the goals at lower cost.

[1] Under SB 617 http://www.dof.ca.gov/research/economic_research_unit/SB617_regulation/view.php
See also the Department of Finance's implementing regulations Cal. Code Regs., tit. 1, § 2000-2004
[2] CEQA and ARB's Certified Regulatory Program (Cal. Code Regs., tit. 14, § 15251(d); Cal. Code Regs., tit. 17, § § 60000–60008)

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Request for Alternatives

Please ensure that your submission discusses the alternative's ability to fulfill the purposes of the regulation structure and targets as ARB has presented it.

- To submit an economic alternative for ARB to consider for analysis in its SRIA
  - Please submit proposed GHG/PMT and eVMT targets used each year as the alternative, as well as the associated cost/benefit information and their sources, to enable comparison of economic impacts. Please also submit a clear description of the basis for any cost calculations.
- To submit an environmental alternative for ARB to consider for analysis under CEQA
  - Please state the potentially significant adverse environmental impact(s) your alternative is seeking to address, and discuss how your proposed alternative would avoid or substantially lessen that impact while meeting most of the draft staff proposal's basic purposes.

Requesting Stakeholder Feedback

Please submit comments and/or an economic alternative by **June 15, 2020** to cleancars@arb.ca.gov.

THANK YOU

cleancars@arb.ca.gov