Calculation of a GHG Emissions Rate for Transportation Network Companies in California

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Prepared for the 10th Annual PEMS Conference, March 12, 2021

Clean Miles Standard

SB 1014 requires CARB and CPUC to adopt and implement a program to reduce GHG emissions from transportation network companies (TNCs)

The new regulation will encourage zero-emission vehicles and VMT reduction strategies and account for automated vehicles in TNC fleets

- CARB establishes base year emissions

January 2020

January 2021

- CARB adopts annual targets via regulation

- Each TNC proposes GHG reduction plan every 2 years

January 2022

January 2023

- CPUC implements program & tracks compliance

CARB

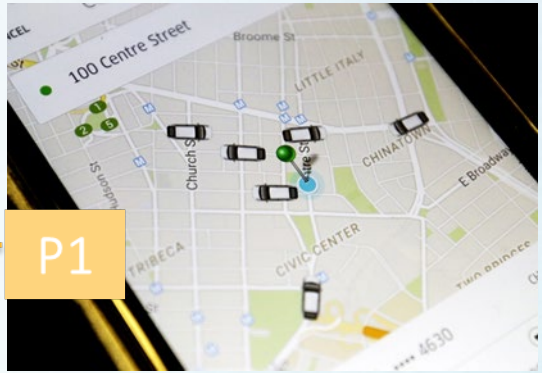
Periods Defined for TNC Miles

(not captured in rule)
sion not started

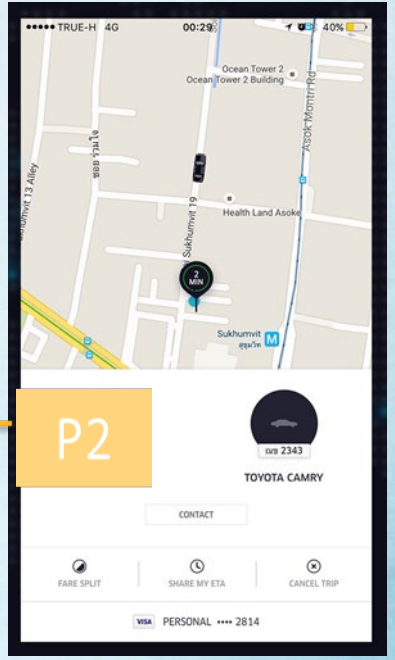
oking for riders

route to riders

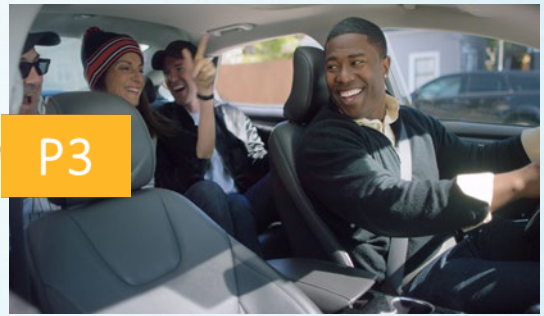
n vehicle



P1

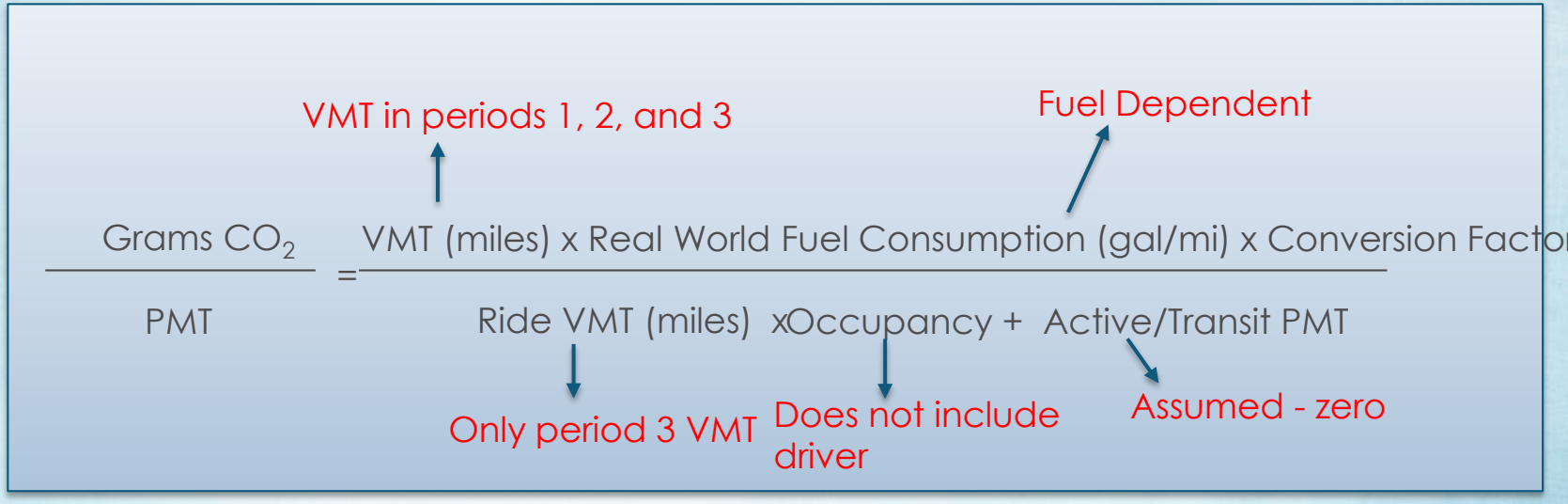


P2



P3

Methodology



- **Occupancy** affects only the denominator
- Increasing occupancy reduces
  - *TNC gCO2/PMT*

Deadheading affects only the numerator

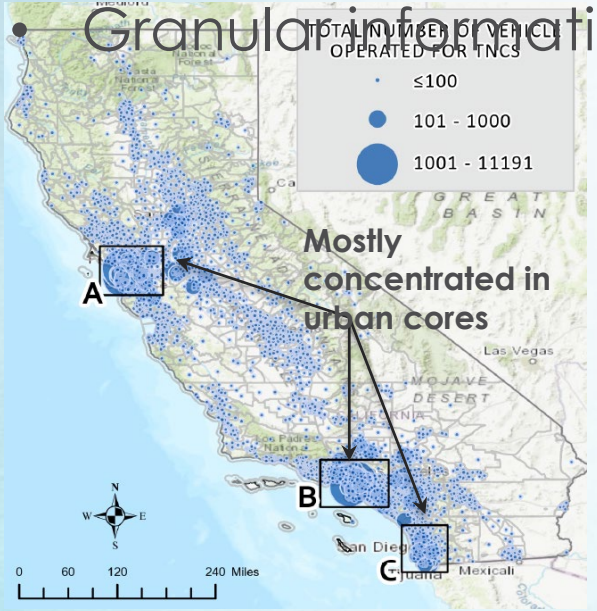
- Decreasing deadhead VMT reduces
  - *TNC gCO2/PMT*
  - *CA Fleet GHGs*

- **Fuel economy** Affects the numerator only
- Increasing fuel economy reduces
  - *TNC gCO2/PMT*
  - *CA Fleet GHGs*

CARB

Data from Transportation Network Companies

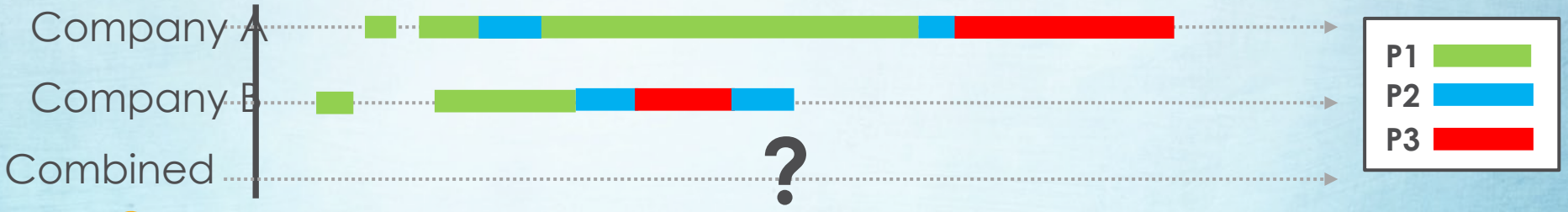
- CARB received approximately 1.4 billion trip records for 640k vehicles operating for TNCs (e.g., UBER, Lyft) – 25x the size of DMV data
- Granular information on each TNC trip was provided



	TNC Vehicles	CA Passenger Vehicles
Total number of vehicles	642,000	25.6 million
Total VMT	4.3 billion miles	343 billion miles
Passenger Trips	305 million	41.4 billion
Average Trip Length	13.9 miles	8.3 miles
Cars vs. Trucks	79% vs. 21%	63% vs. 37%
Avg. Model Year	2010.5	2009

Multi-Apping

- A common practice of drivers being available for service on multiple platforms at the same time.
- To avoid double counting, instances of multi-apping should be identified and removed accordingly (i.e., "combined")



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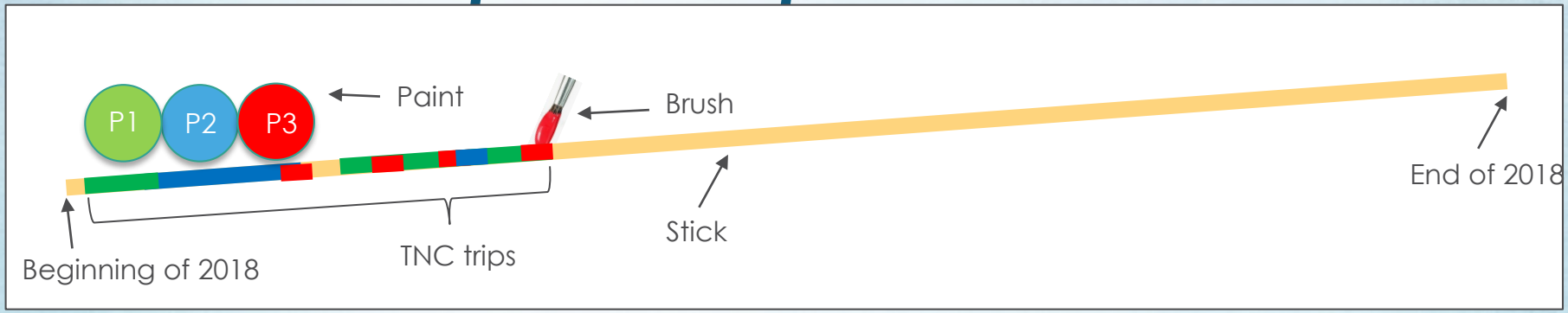
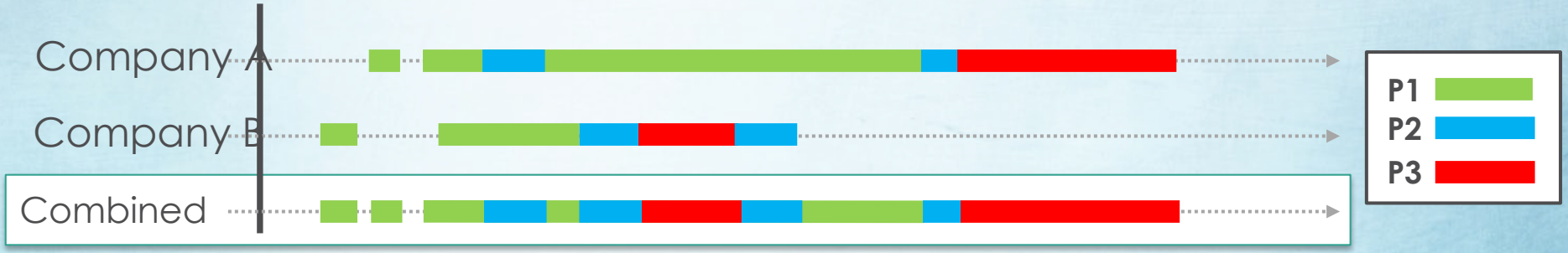
Trip Overlap Removal



"Stick Painting algorithm"



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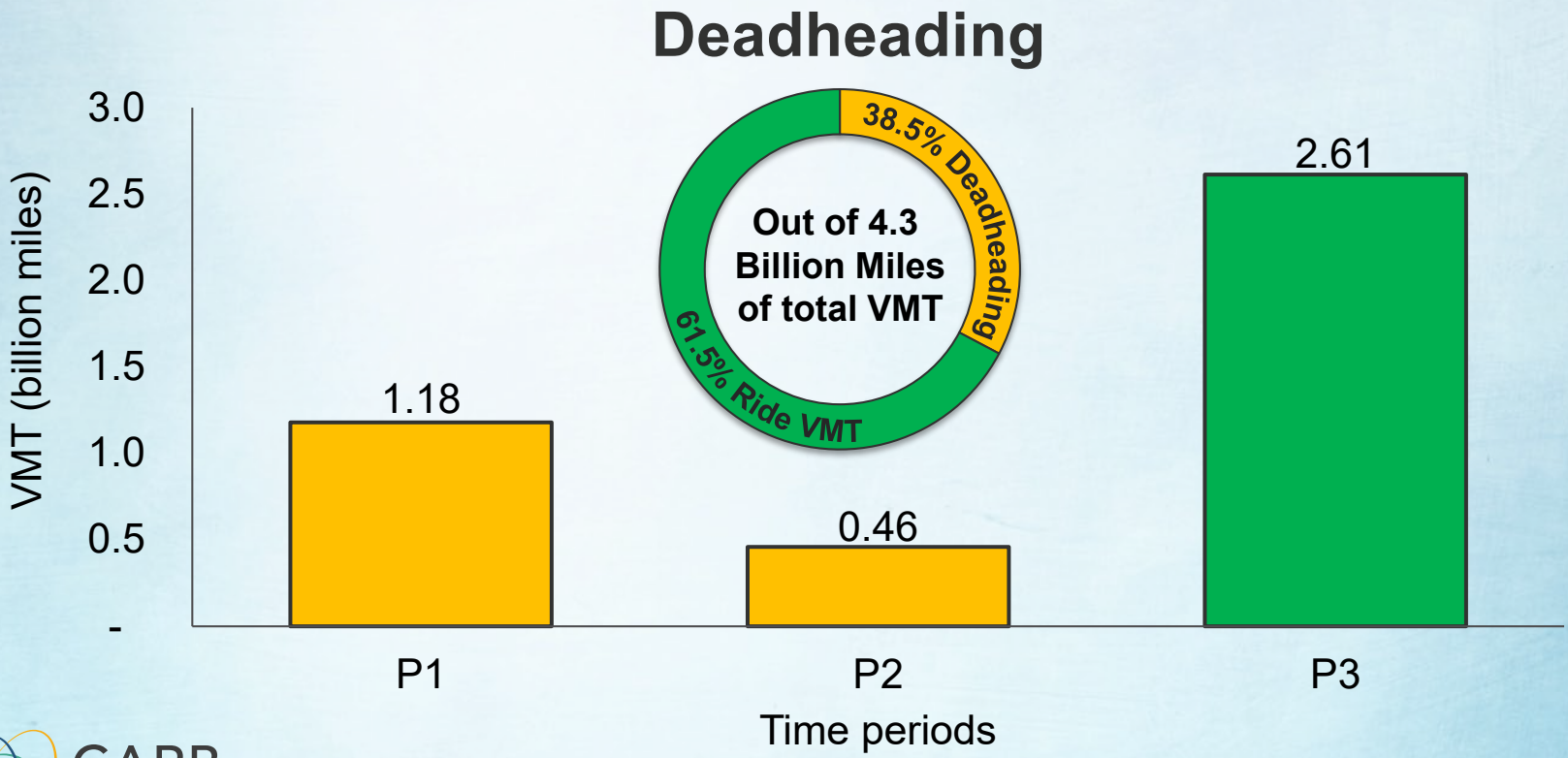
Overlap Removal Reduced the VMT in P1/P2 Periods

Trip Periods	VMT *Before Removal* (billion miles)	VMT *After Removal* (billion miles)	Percent Change
P1	1.321	1.179	-10.7%
P2	0.463	0.460	-0.7%
P3	2.618	2.613	-0.2%
All Periods	4.42	4.252	-3.4%

VMT By Time Period



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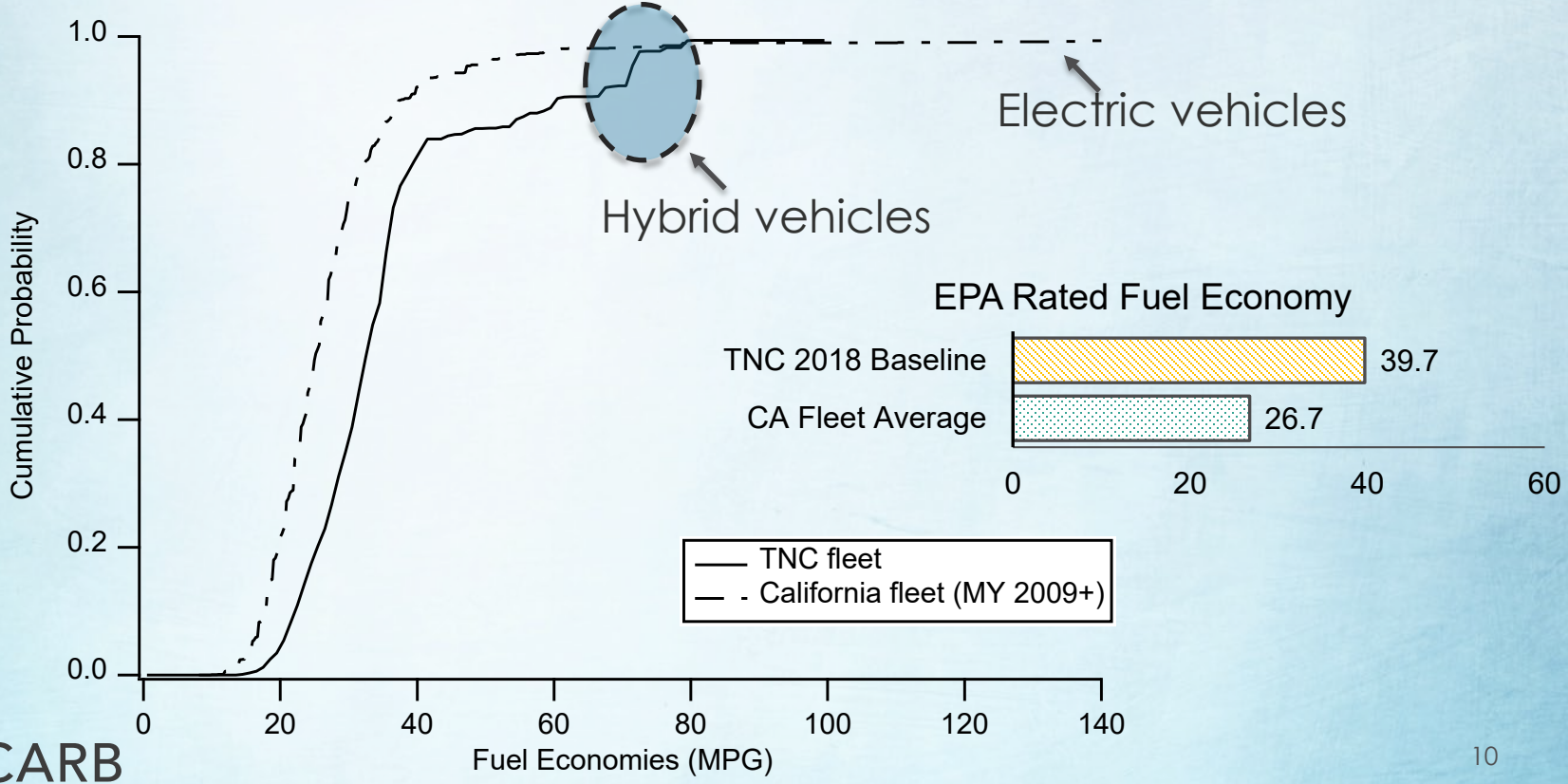
Rated Fuel Economies
TNC-wide vs. California LDV



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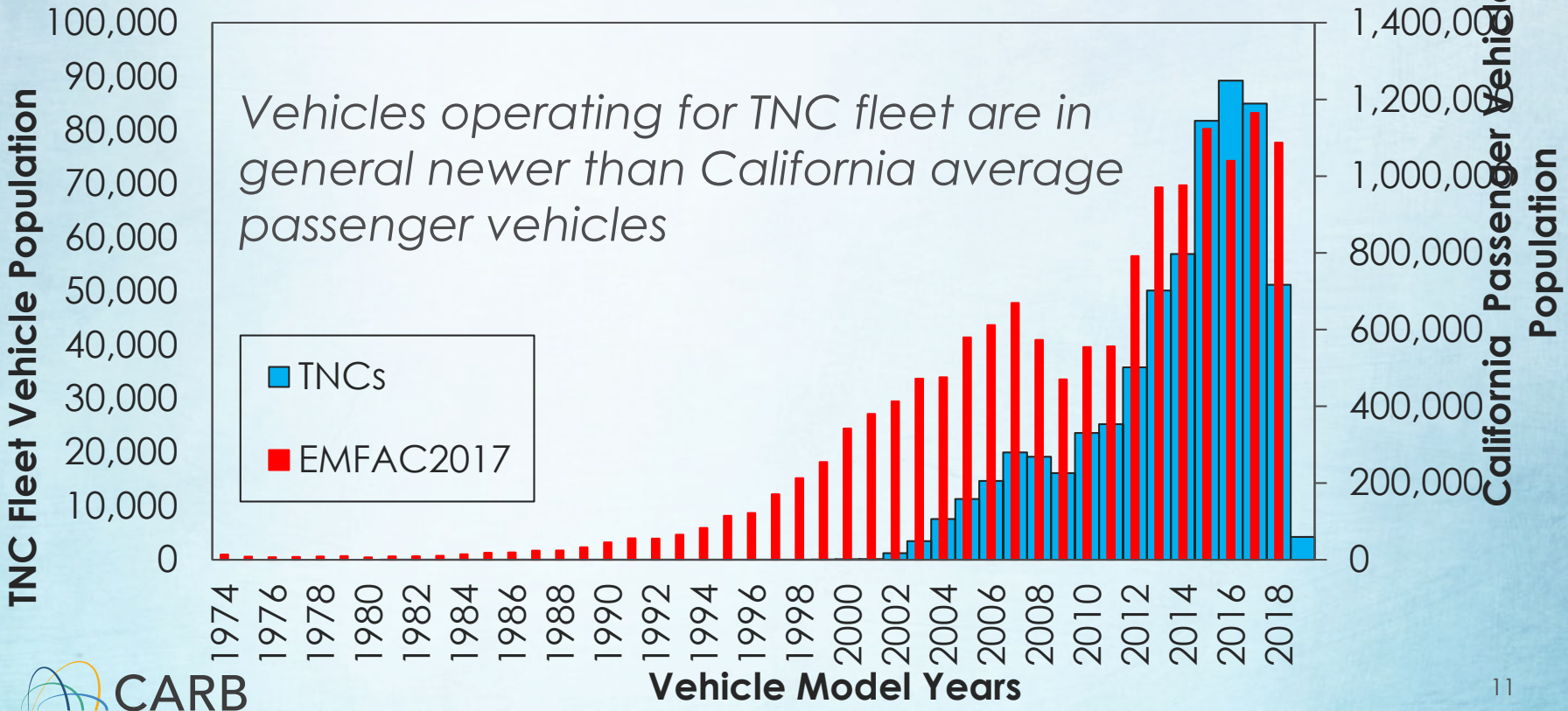
Model Year Distribution



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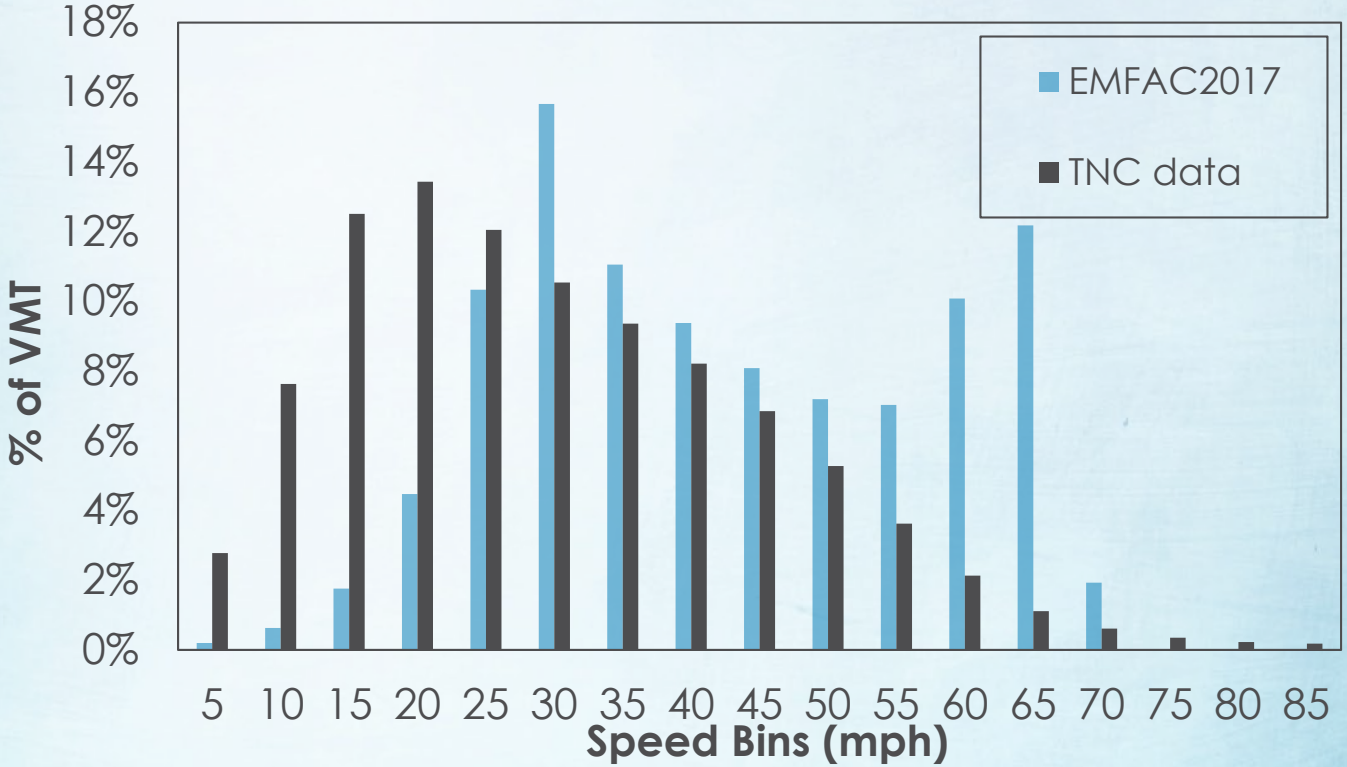
TNC Vehicles Drives Slower



- Average Speeds are lower for TNCs

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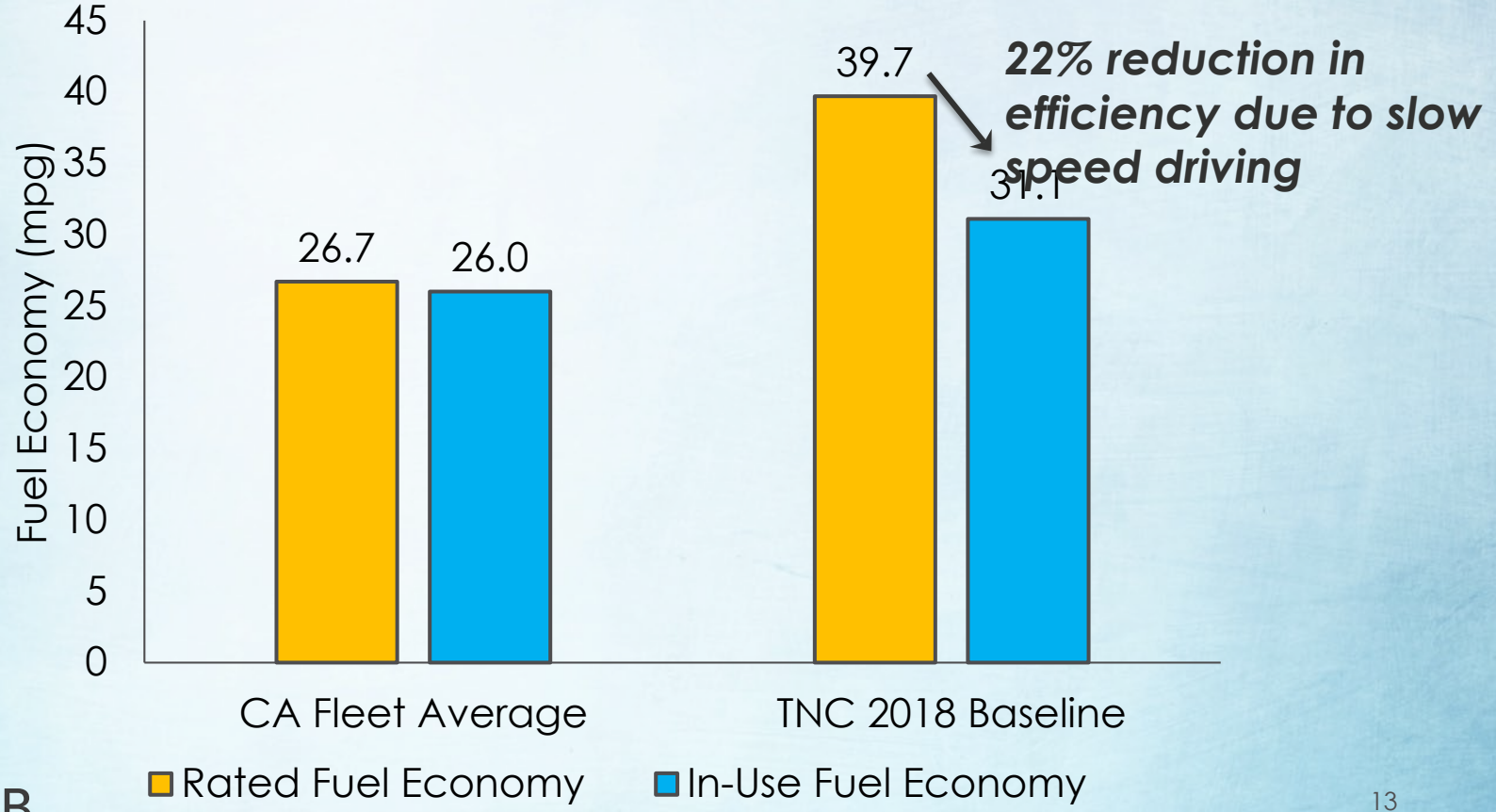
Rated vs. In-Use Fuel Efficiency



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Occupancy

- An in-house study to collect information from TNC vehicles
- Staff collected vehicle activity and engine data from 42 vehicles
- Analyzed 2,700 fares

Pooled Ride	Non-Pooled Ride
1.57±0.92	1.54±0.94
(336 fares)	(2,418 fares)

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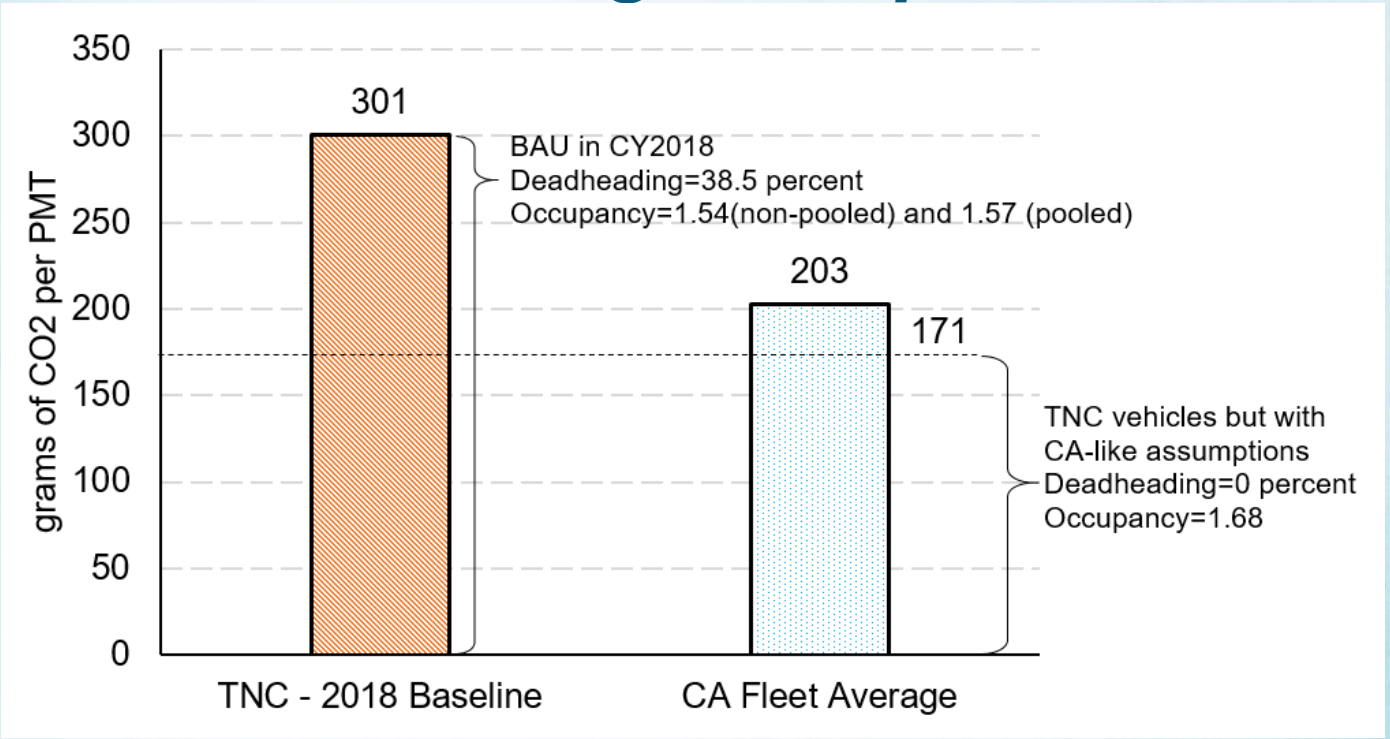
Base Year g CO2 per PMT



- Although TNC fleet has better in-use fuel efficiency, lower occupancy and higher deadheading VMT drives the emissions higher

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