

RED STICKER OFF-HIGHWAY RECREATIONAL VEHICLE (OHV) WORKSHOP

APRIL 18, 2017



Outline

- ▶ **Background**
- ▶ Red Sticker Assessment Findings
- ▶ Proposed Path Forward
- ▶ Next Steps

Red Sticker Program Background

- ▶ OHV exhaust emissions standards were first adopted in 1994
 - ▶ Controlled OHVs qualify for green registration sticker
- ▶ In 1998 CARB established the Red Sticker program
 - ▶ Temporary solution to address industry concerns over the availability of emissions compliant OHVs
 - ▶ Allows OHVs with **uncontrolled** emissions to be certified
- ▶ Red Sticker OHVs are subject to limited use restrictions
 - ▶ Riding calendar restricts use on public land during summer in ozone non-attainment areas
 - ▶ Year-round use on public land in attainment areas and on private land statewide

Types of OHVs



Controlled Emissions

JUN 2011
00W 00W
CALIFORNIA OFF HIGHWAY
GREEN STICKER

ALL-TERRAIN VEHICLES (ATV)

SIDE BY SIDES

OFF-HIGHWAY MOTORCYCLES (OHMC)

UTILITY VEHICLES

SAND CARS / DUNEBUGGIES

SNOWMOBILES¹



Uncontrolled Emissions

JUN 2011
00W 00W
CALIFORNIA OFF HIGHWAY
RED STICKER

OHMC

ATV

¹ Federally regulated (exempt from CARB standards)

Directive to Reduce Emissions from Red Sticker OHVs

- ▶ Regulation to control evaporative emissions from OHVs proposed in 2013
 - ▶ Required stringent control of reactive organic gas (ROG)
 - ▶ Emissions benefit of 9.9 tons per day (tpd¹) ROG in 2035
- ▶ Red Sticker OHVs excluded from adopted regulation
 - ▶ Reduced benefit of rule by 3.3 tpd¹ ROG in 2035
- ▶ Board directed staff to return by December 2015 with a solution to reduce emissions from Red Sticker OHVs
 - ▶ Began assessment of Red Sticker program in 2014
 - ▶ Additional time needed to conduct technical assessment

¹ *Estimated summertime emissions benefit*

Assessing the Red Sticker Program

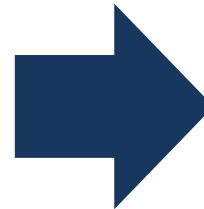
ORIGINAL PURPOSE OF PROGRAM

Delay 1998 exhaust standards to ensure OHV availability

Ease transition from 2- to 4-stroke technology

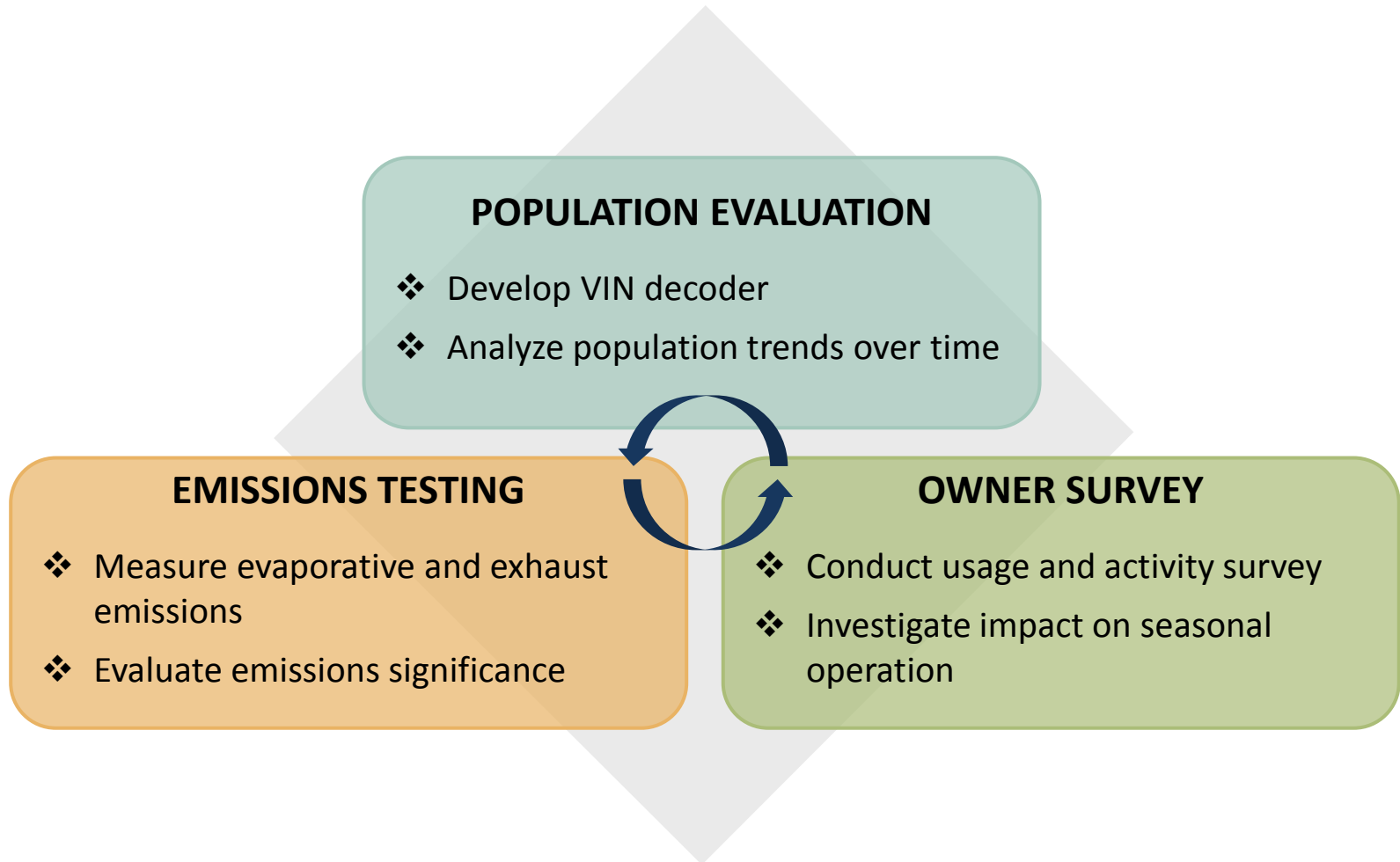
Limit summertime exhaust emissions from OHVs in ozone non-attainment areas

Provide exemption for competition OHVs



**Red Sticker
Assessment**

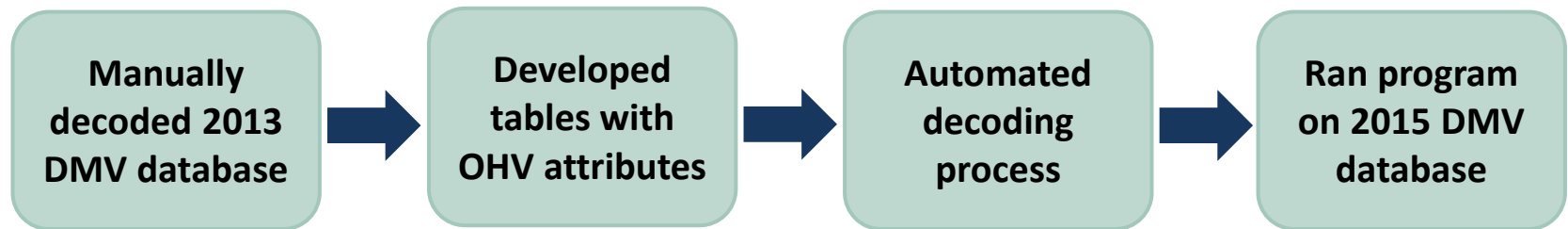
Red Sticker Assessment Components



Population Evaluation Methodology

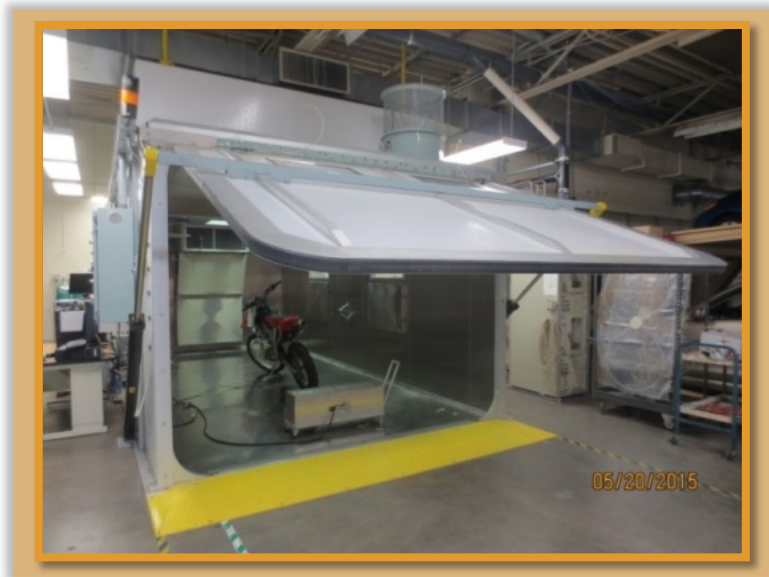
- ▶ Enhanced ability to analyze OHV population and certification data
 - ▶ Digitized Executive Orders (EO) into single database
 - ▶ Developed VIN decoder for DMV registration data
- ▶ Evaluated population and certification trends

VIN Decoder Development



Emissions Testing Methodology

- ▶ Conducted exhaust and evaporative emissions testing
 - ▶ 2- and 4-stroke OHMCs of common displacement ranges
 - ▶ 18 new and in-use OHMCs selected based on DMV data
- ▶ Evaluated significance of Red Sticker emissions



Sealed Housing for Evaporative Determination (SHED)



Motorcycle / ATV Dynamometer (Exhaust)

Owner Survey Methodology

- ▶ Conducted statewide OHMC owner survey
- ▶ Online survey hosted by UC Davis
- ▶ Nearly 3,000 respondents
- ▶ State Parks provided 2,274 day use passes as incentive
- ▶ Questions developed with extensive input from industry



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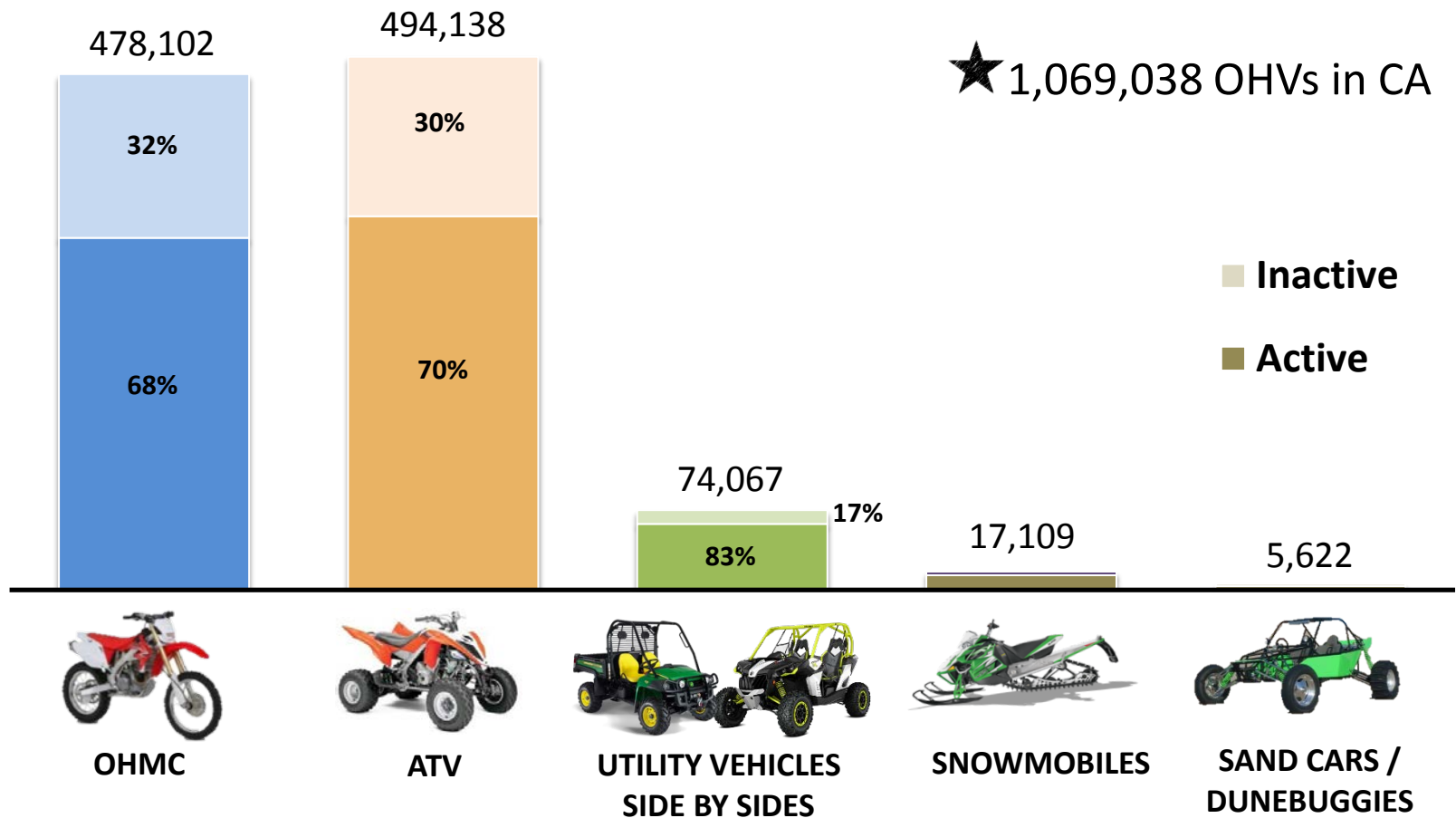
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Population of OHVs in California

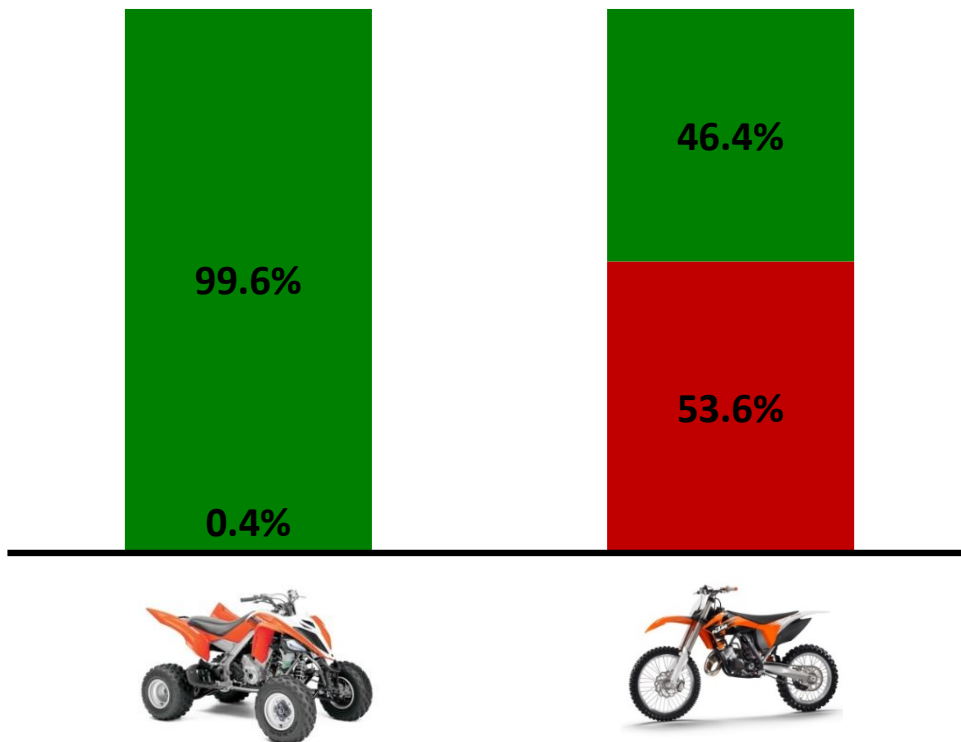


Source: 2015 DMV database

OHMCs sold Today are Predominately Red Sticker

Sticker Type of Vehicles Sold Since 2012¹

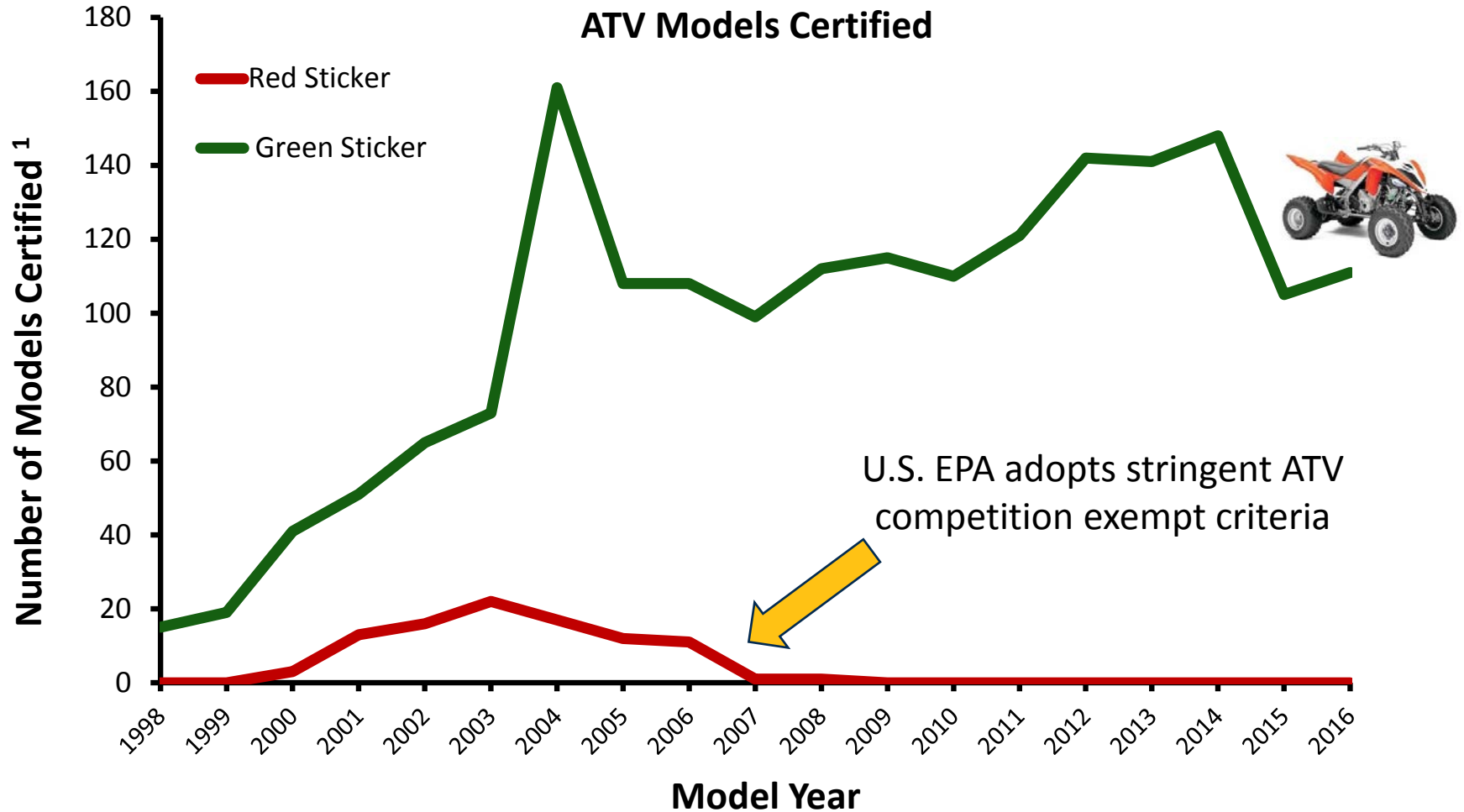
■ Red Sticker ■ Green Sticker



- ▶ Red Sticker ATVs have transitioned to Green Sticker
- ▶ More Red Sticker OHMCs are sold than Green Sticker

¹Source: 2015 DMV database

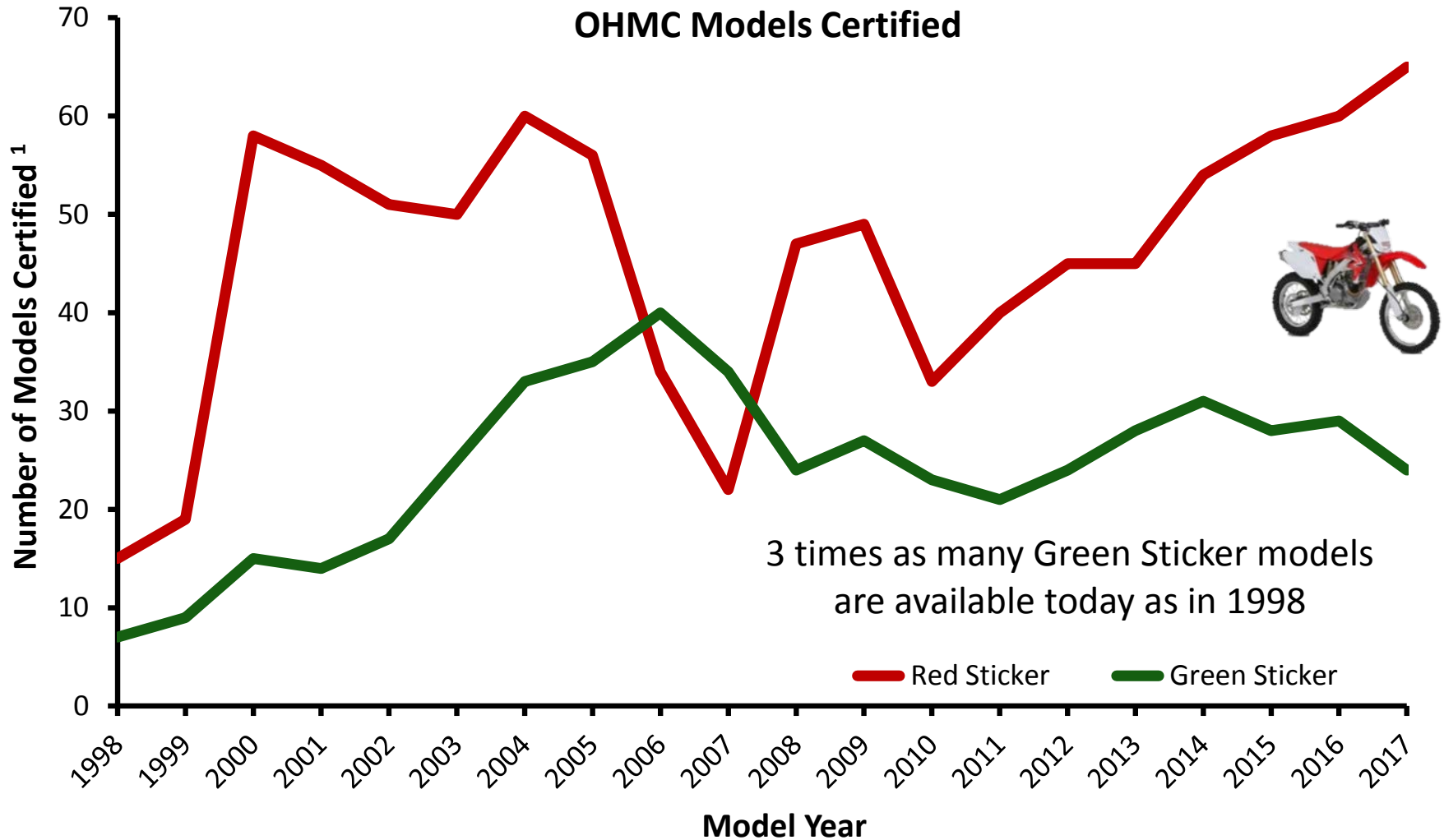
ATV Models have Transitioned to Green Sticker



¹ # of models certified by top 5 ATV manufacturers



OHMC Models have not Transitioned to Green Sticker



¹ # of models certified by top 5 OHMC manufacturers

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Provide exemption for competition OHVs

Red Sticker OHMCs are Primarily 4-Stroke

- ▶ In 1998, when the Red Sticker program was adopted, 40% of OHVs were 4-stroke¹
- ▶ In 2012-2016, 71 % of Red Sticker OHMCs registered were 4-stroke²
 - ▶ Overall, during this time period 85% of all OHMCs registered were 4-stroke
- ▶ Today, 2-stroke OHMCs are still used in cross-country competitive events, while motocross is primarily 4-stroke

¹ Source: 1998 OHV Final Statement of Reasons

² Source: 2015 DMV Database

Assessing the Red Sticker Program

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OHMCs Produce Evaporative and Exhaust Emissions

Red Sticker program developed to limit exhaust emissions



Exhaust (Operation)

Red Sticker program does not consider evaporative emissions



Running Loss (Operation)

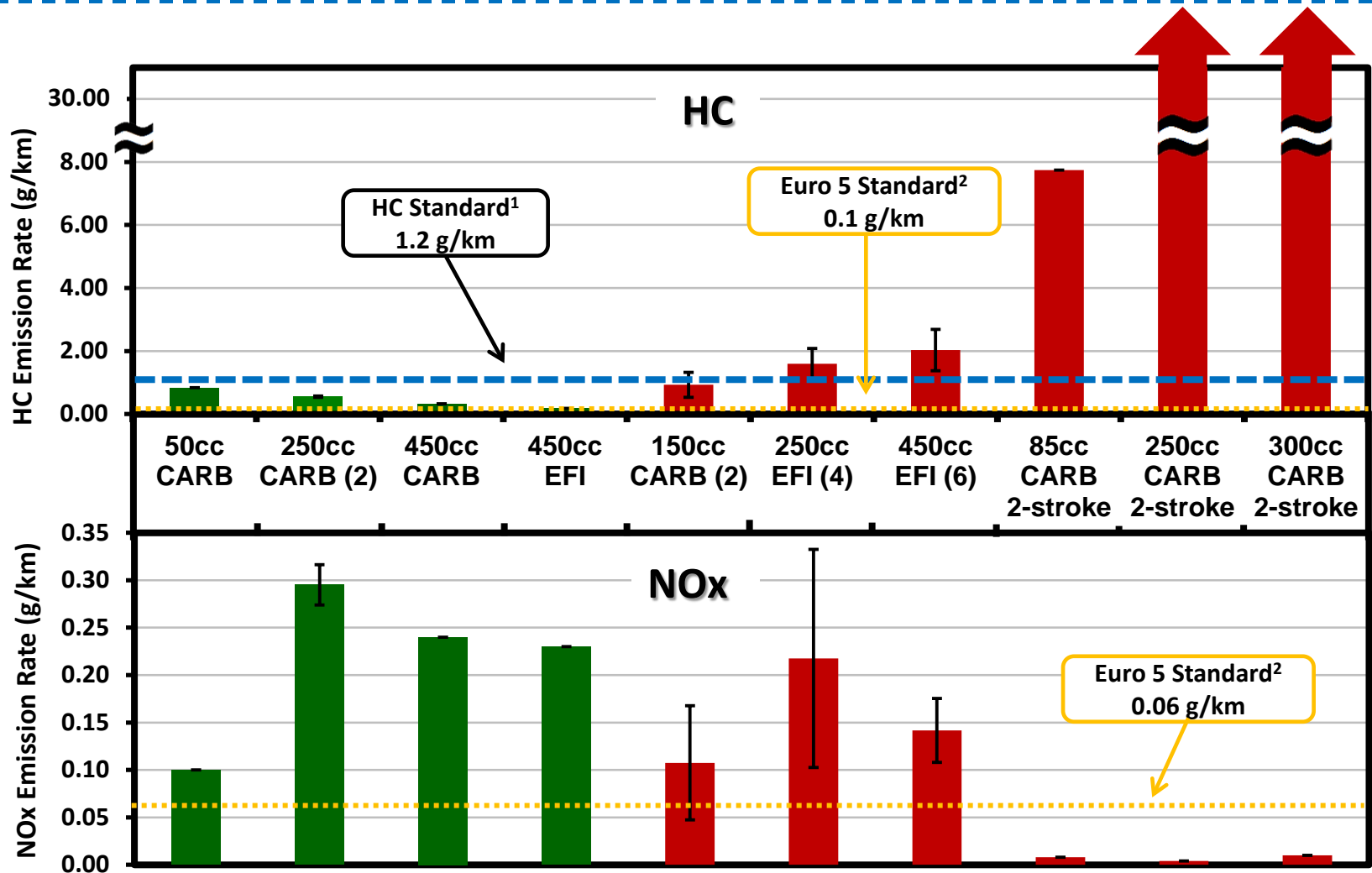


Hot Soak (Immediately After Operation)



Diurnal (Storage)

Red Sticker OHMCs Exceed Exhaust Emissions Standards



¹HC standard applies to CA Green Sticker OHVs (1994+)

²European on- and off-highway motorcycle standard

Red Sticker Exhaust Emissions are Significant

HC emissions from operating one 2016 2-stroke¹ OHMC for one mile is equivalent to driving approximately:

795 miles on a
2016 Ducati XDiavel³

137 miles on a
2016 KTM 450 XC-W²

3,658 miles in a
2016 passenger car⁴

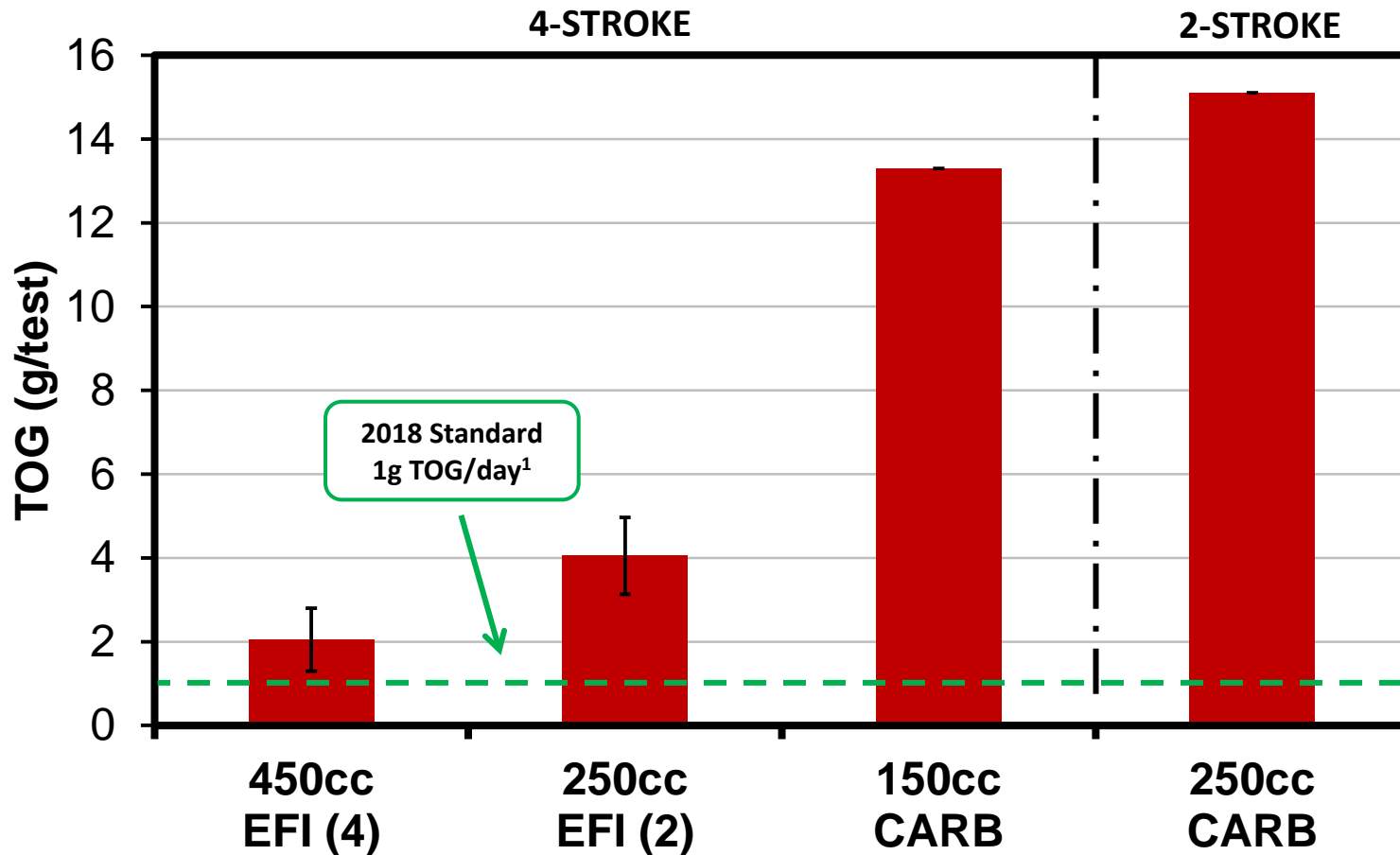
¹ RV2013 emissions factor (34.2 g/mi HC)

² 2016 KTM 450XC-W Certification (0.25 g/mi HC)

³ 2016 Ducati XDiavel Certification (0.04 g/mi HC)

⁴ 2014 EMFAC light-duty passenger vehicle emissions (0.009 g/mi HC)

Red Sticker OHMCs Exceed Evaporative Emissions Standards

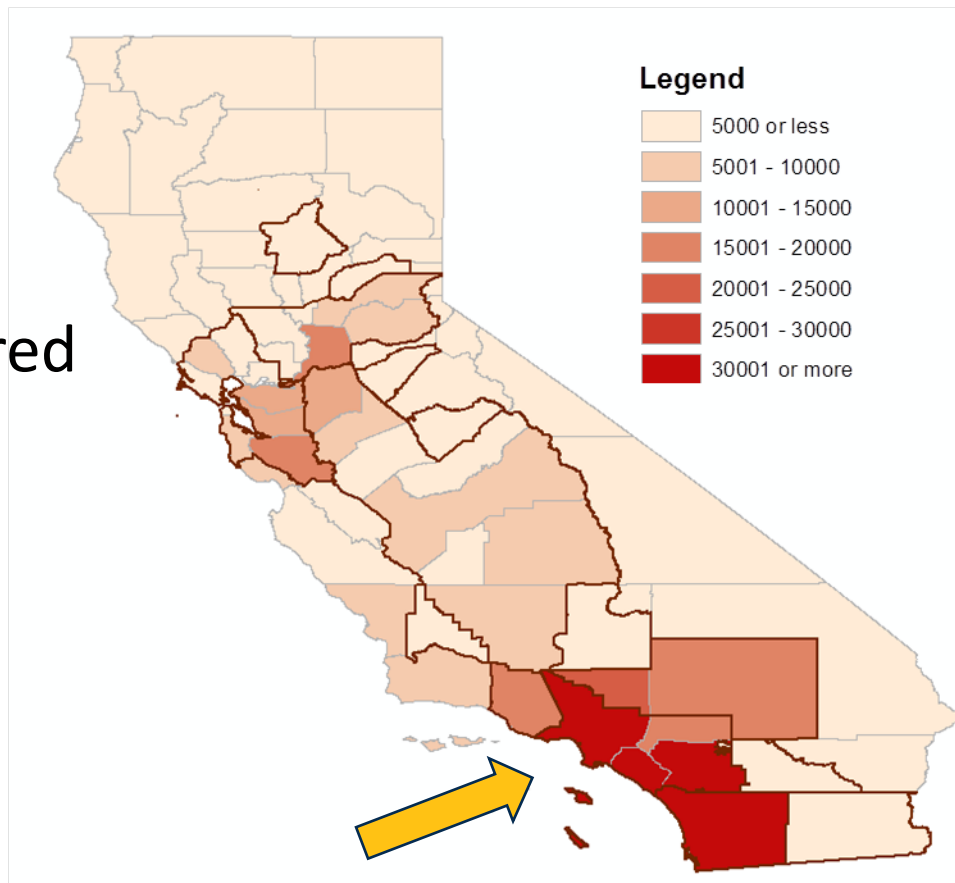


¹ CARB 2013 OHV Evaporative Emissions Regulation

Evaporative Emissions Prevalent in Non-Attainment Areas

- ▶ 95% of OHMCs are stored where registered¹
- ▶ 90% of OHMCs are registered in non-attainment areas²
- ▶ Over 1/3 of OHMCs are registered in South Coast²

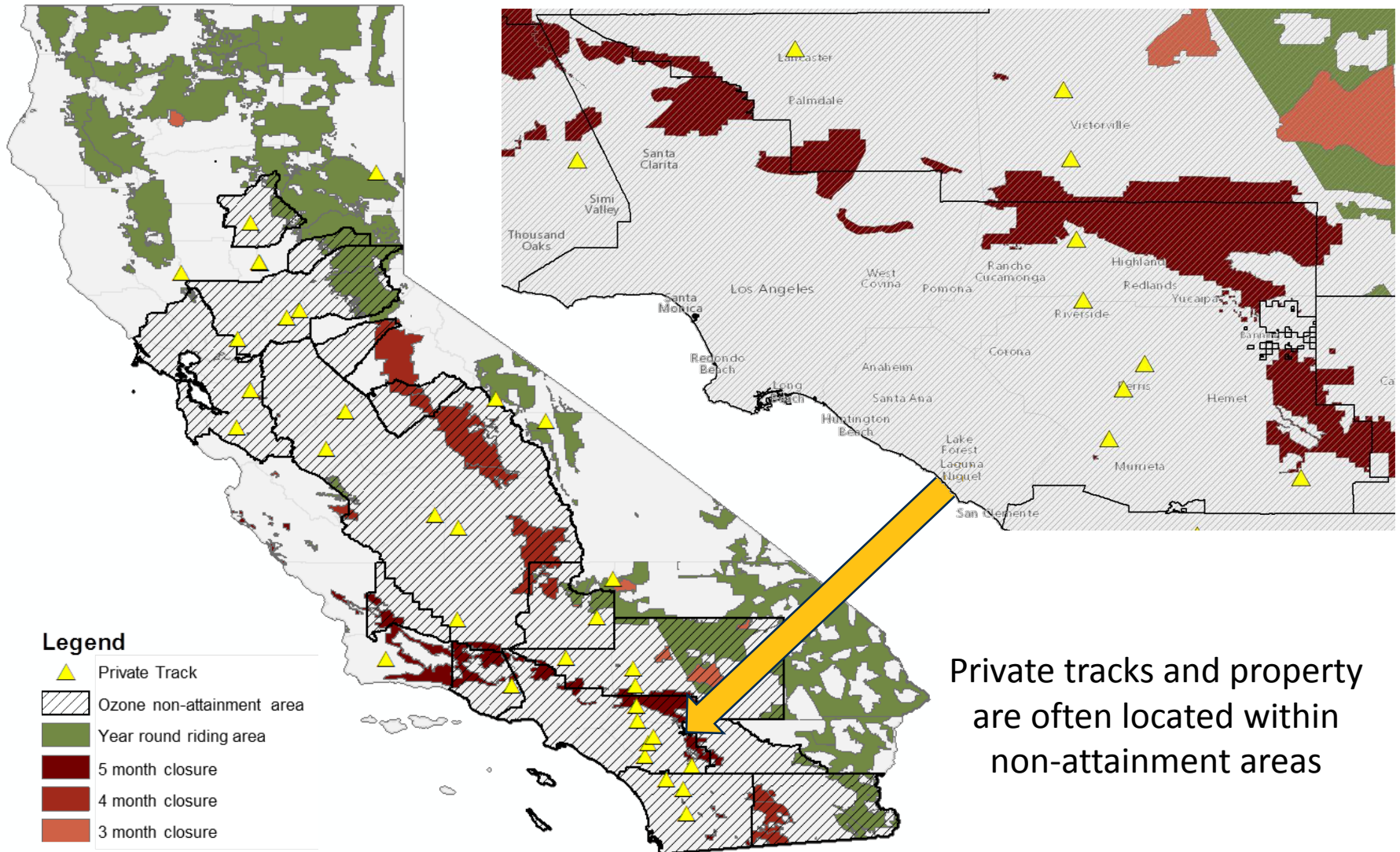
Spatial Distribution of Registered Red Sticker OHMCs



¹ Source: 2016 OHMC Survey

² Source: 2013 DMV Database

Riding Calendar does not Prohibit Summertime use



Red Sticker OHMCs Operate Year-Round

- ▶ 75% of Red Sticker owners registered in ozone non-attainment areas ride during the summer
 - ▶ 43% travel further to ride
 - ▶ 54% operate on private land during the summer¹
 - ▶ 25% operate on unenforced public land¹
- ▶ 93% of Red Sticker operation on private land occurs in ozone non-attainment areas

¹ Source: 2016 OHMC Survey

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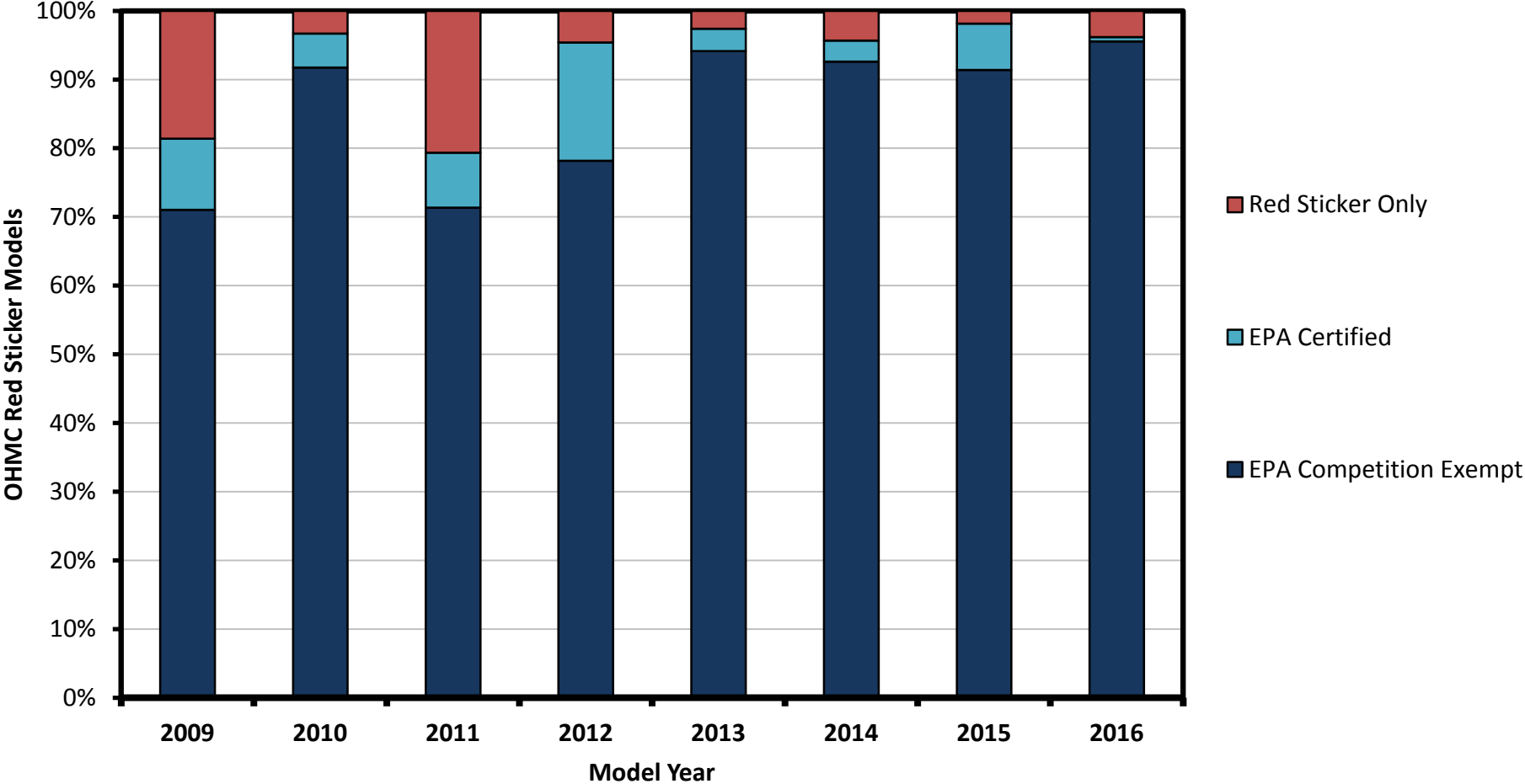


Limit summertime exhaust emissions from OHVs in ozone non-attainment areas



Provide exemption for competition OHVs

Almost all Red Sticker OHMCs are EPA Competition Exempt



Source: U.S. EPA Competition Exemption Database and CARB Certification Database



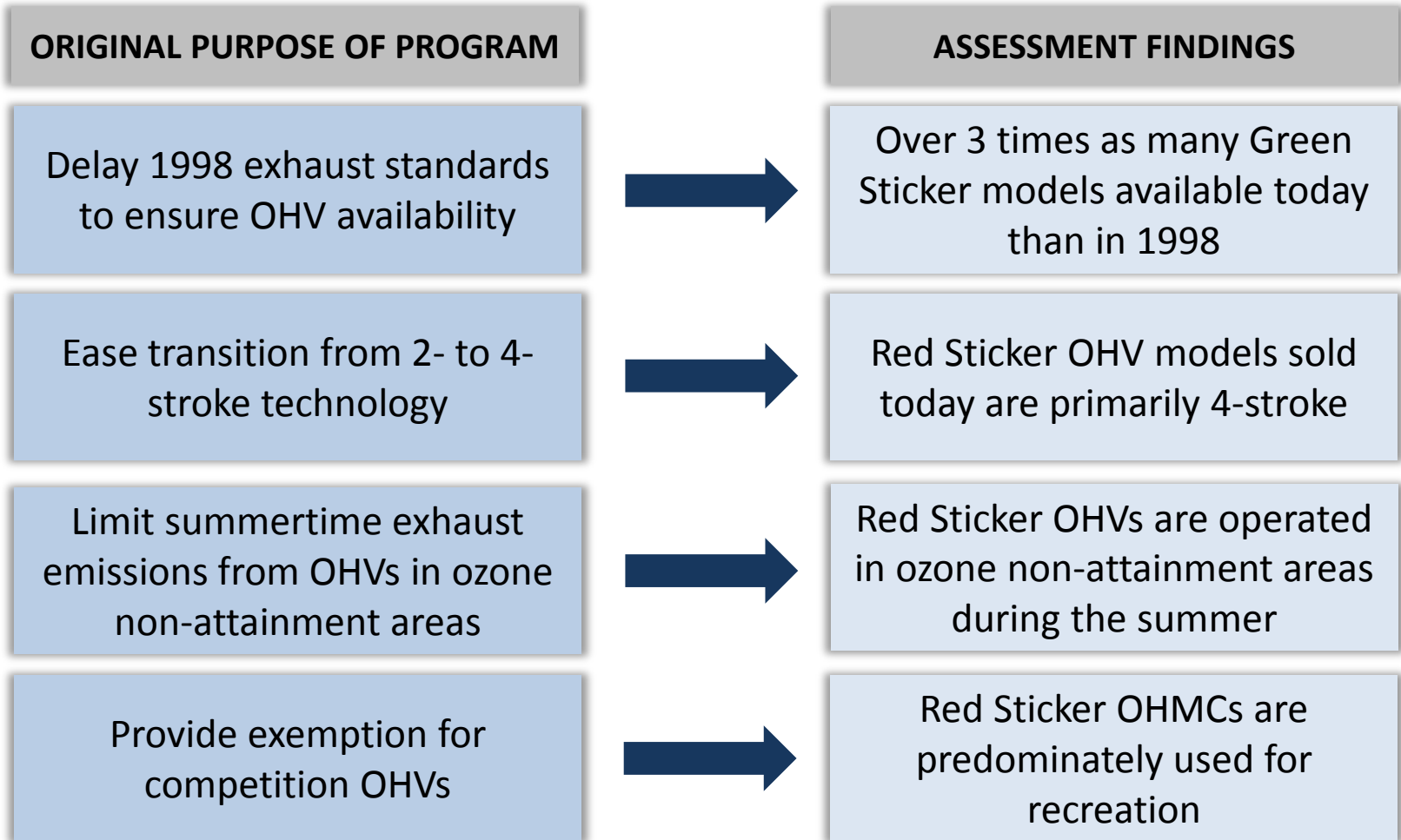
Red Sticker OHMCs are used Recreationally

- ▶ U.S. EPA competition exempt OHVs are restricted to use solely for competition
- ▶ In California:
 - ▶ 90% of Red Sticker OHMCs are primarily used for recreation¹
 - ▶ 74% of Red Sticker owners never race¹
 - ▶ Racing accounts for 6% of total Red Sticker hours operated¹
- ▶ The Red Sticker program allows U.S. EPA competition exempt vehicles to be used recreationally



¹Source: 2016 OHMC Survey

Summary of Red Sticker Assessment Findings



Additional Red Sticker Assessment Findings

- ▶ Results in unintended impacts on riders and other Agencies
- ▶ Red sticker OHVs are the only uncontrolled mobile source category in the State
 - ▶ Serves as a loophole to avoid meeting exhaust and evaporative standards
- ▶ Emissions standards are outdated or non-existent
 - ▶ OHV standard does not include NO_x, PM, or CO₂
 - ▶ Global standards are significantly lower (single standard for on-road motorcycles and OHVs)
 - ▶ No incentives for zero emission technology

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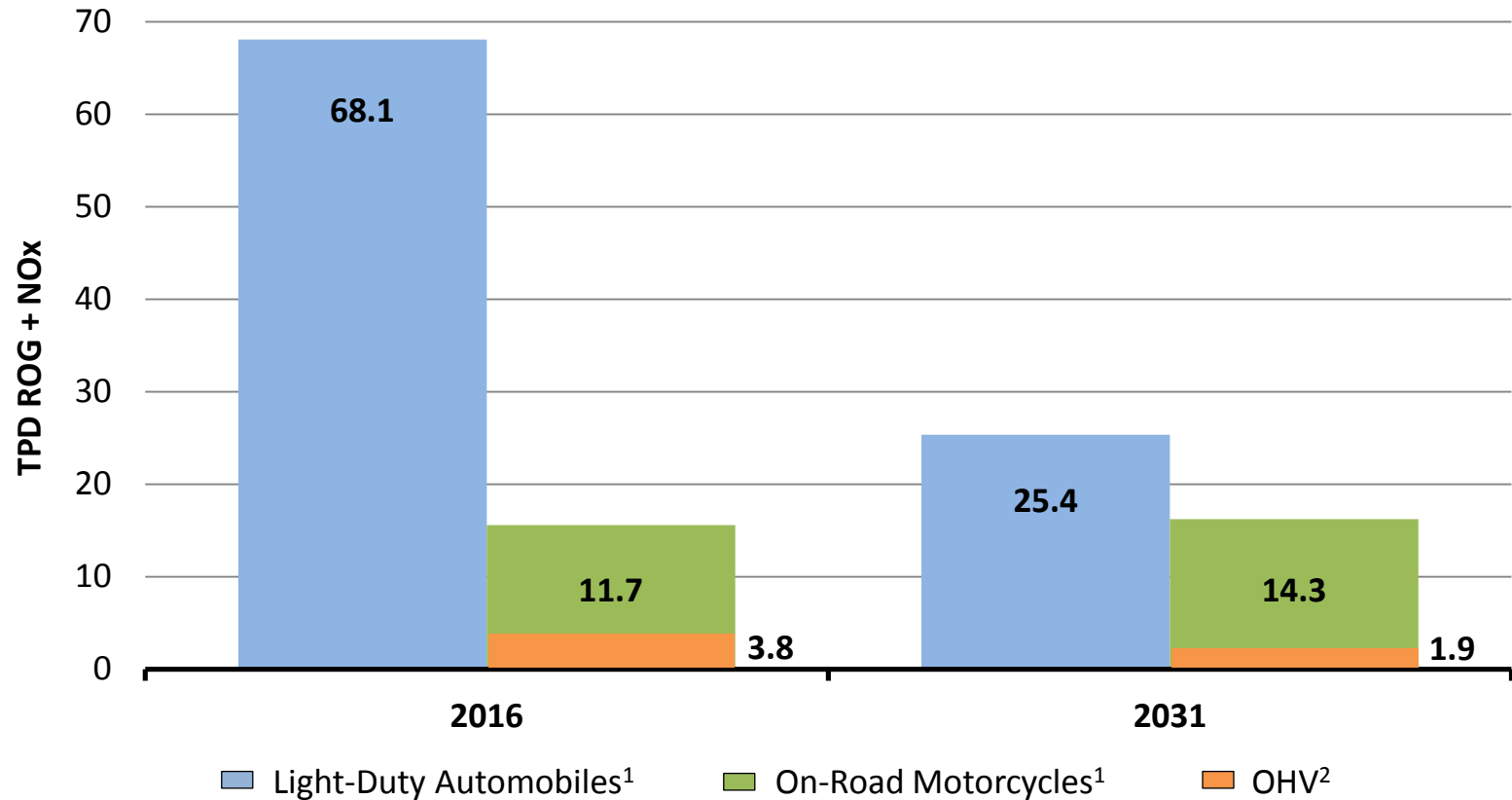
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Significant Emissions Reductions are Needed

- ▶ Over the next 15 years, California needs significant emission reductions to meet critical air quality and climate goals
 - ▶ Plan for attaining federal air quality standards outlined in State Implementation Plan (SIP)
- ▶ SIP requires an 80% reduction in smog forming emissions from mobile sources in South Coast by 2031
- ▶ To meet this target, additional reductions are needed from multiple sources
 - ▶ Includes OHV and on-highway motorcycles

On-Road Motorcycle Emissions are Increasingly Important

Summertime South Coast ROG + NOx Emissions



¹Source: 2014 EMFAC vehicle emissions

²Source: RV2013

Proposed Two-Phase Regulatory Process

Phase I: Sunset Red Sticker Program

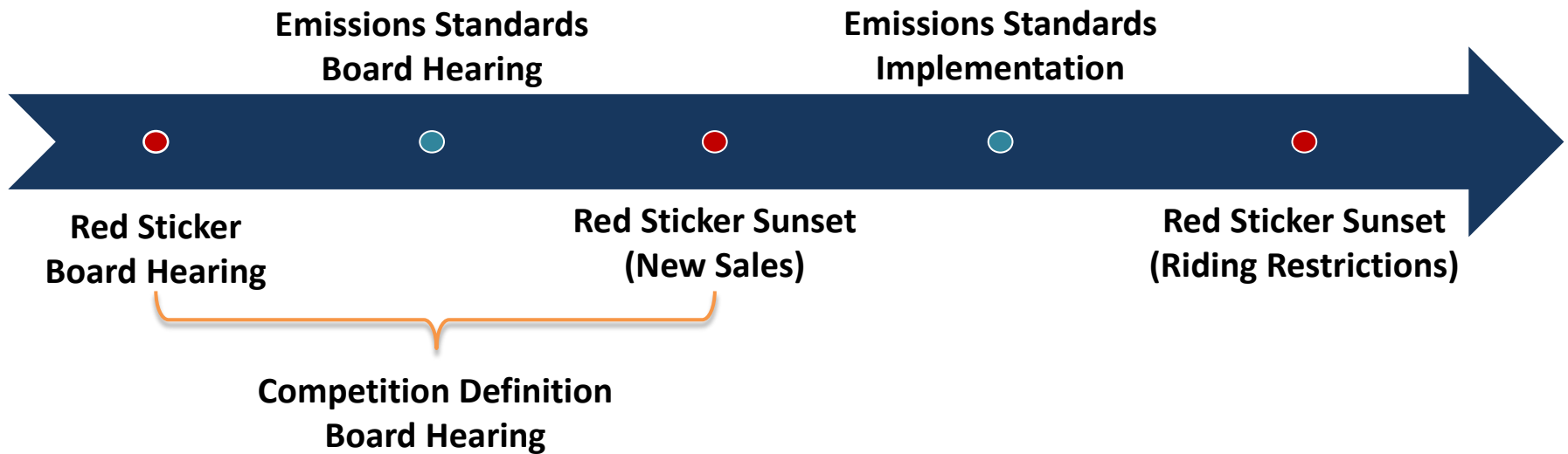
- ✓ Establish date to end the Red Sticker program
- ✓ Establish date to end riding restrictions



Phase II: Adopt New Emissions Standards

- ✓ Tighten emissions standards
- ✓ Incentivize zero emission technologies

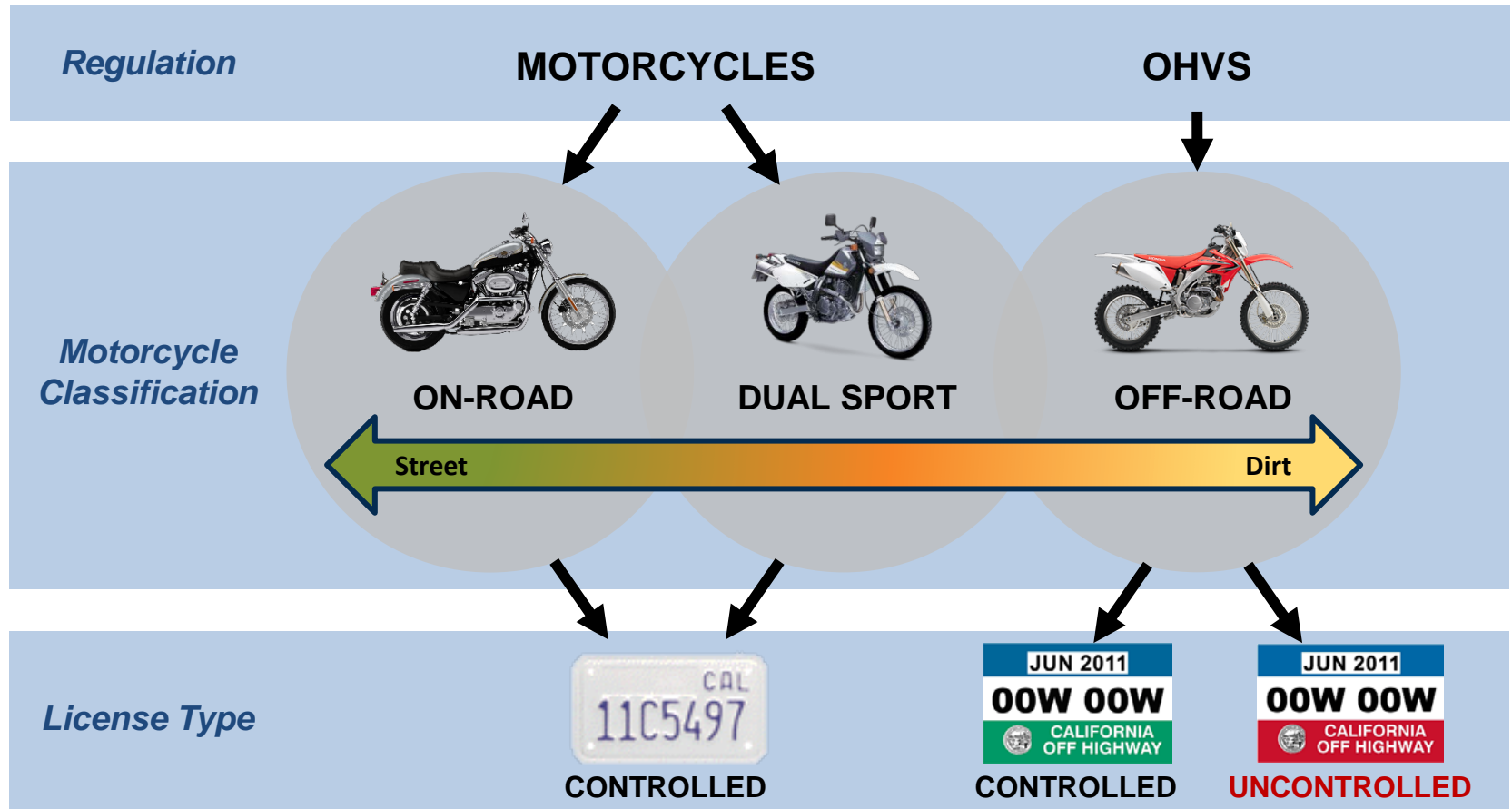
Proposed Regulatory Timeline



Provides manufacturers flexibility:

- Red ➡ Current Standards ➡ New Emissions Standards
- Red ➡ New Emissions Standards + Early phase-in credits
- Red ➡ Emissions credit offset

Opportunity to Develop Holistic Standards



Benefits of Recommended Approach

- ▶ Balances need for reductions and stakeholder concerns
- ▶ Reduces economic impact of new regulations on stakeholders
 - ▶ Maximizes economies of scale
 - ▶ Potential to reduce testing and certification costs
 - ▶ Minimizes number of redesigns required
- ▶ Alleviates riders concerns over trail fragmentation
 - ▶ Allows OHVs that meet safety requirements to be registered on-road
- ▶ Avoids increase in NOx emissions
- ▶ Opportunity to incentivize zero emission technologies

Clarify the Racing Exemption

Problem:

- ▶ Current racing exemption is ambiguous



Solution:

- ▶ Develop single “competition” definition for all categories

Goals:

- ▶ Eliminate excess emissions associated with misuse
- ▶ Protect exemption for true racing purposes
- ▶ Provide clarity on exempted vehicle use

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Upcoming Meetings

- ▶ Competition workshop (July 2017)
- ▶ On-road motorcycle and OHV emission standard kick-off workshop (Summer 2017)
- ▶ Regulatory proposal workshop (October 2017)
- ▶ Red Sticker Board hearing (February 2018)

CARB Staff Contact Information

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For more information and to sign up for our list serve, please visit:
<http://www.arb.ca.gov/msprog/offroad/orrec/orrec.htm>



Questions and Comments

