

# Red Sticker Off-Highway Recreational Vehicle (OHRV) Workshop

**December 10, 2013- Sacramento**

December 16, 2013- Fresno

December 17, 2013- Diamond Bar



# Purpose

Invite stakeholders to participate in the Board-directed assessment of red sticker program and development of an emission reduction strategy



# Presentation Outline

Section 1: Background

Section 2: Need for Evaluation

Section 3: Red Sticker Program Assessment

# Section 1

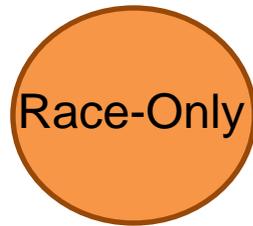
# Background

# History

- Exhaust regulation adopted in 1994
  - Standard controls high-emitting two-strokes
- In 1997 stakeholders expressed concerns regarding:
  - Availability and performance of compliant OHRVs
  - Concern over practice areas
- Committee formed to develop solution
- Board adopted amendments in 1998 that provided relief for red sticker OHRVs
  - Restricted riding areas
  - Addressed exhaust emissions only

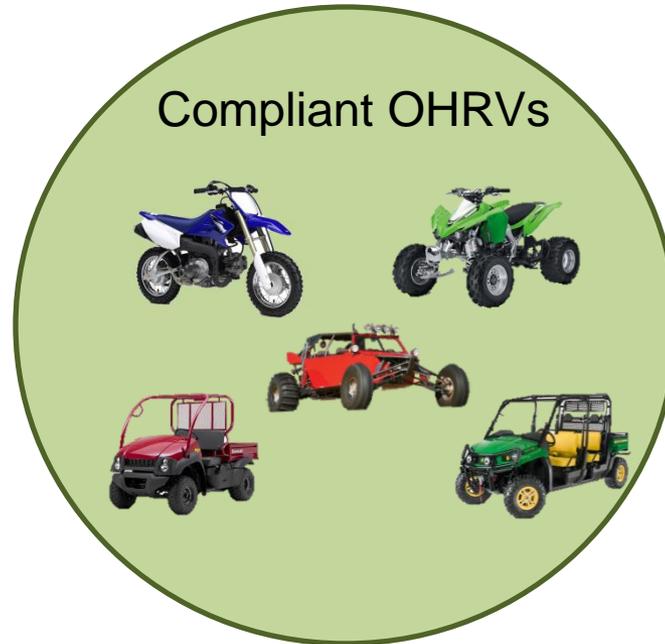


# Prior to Red Sticker Program



Race-Only

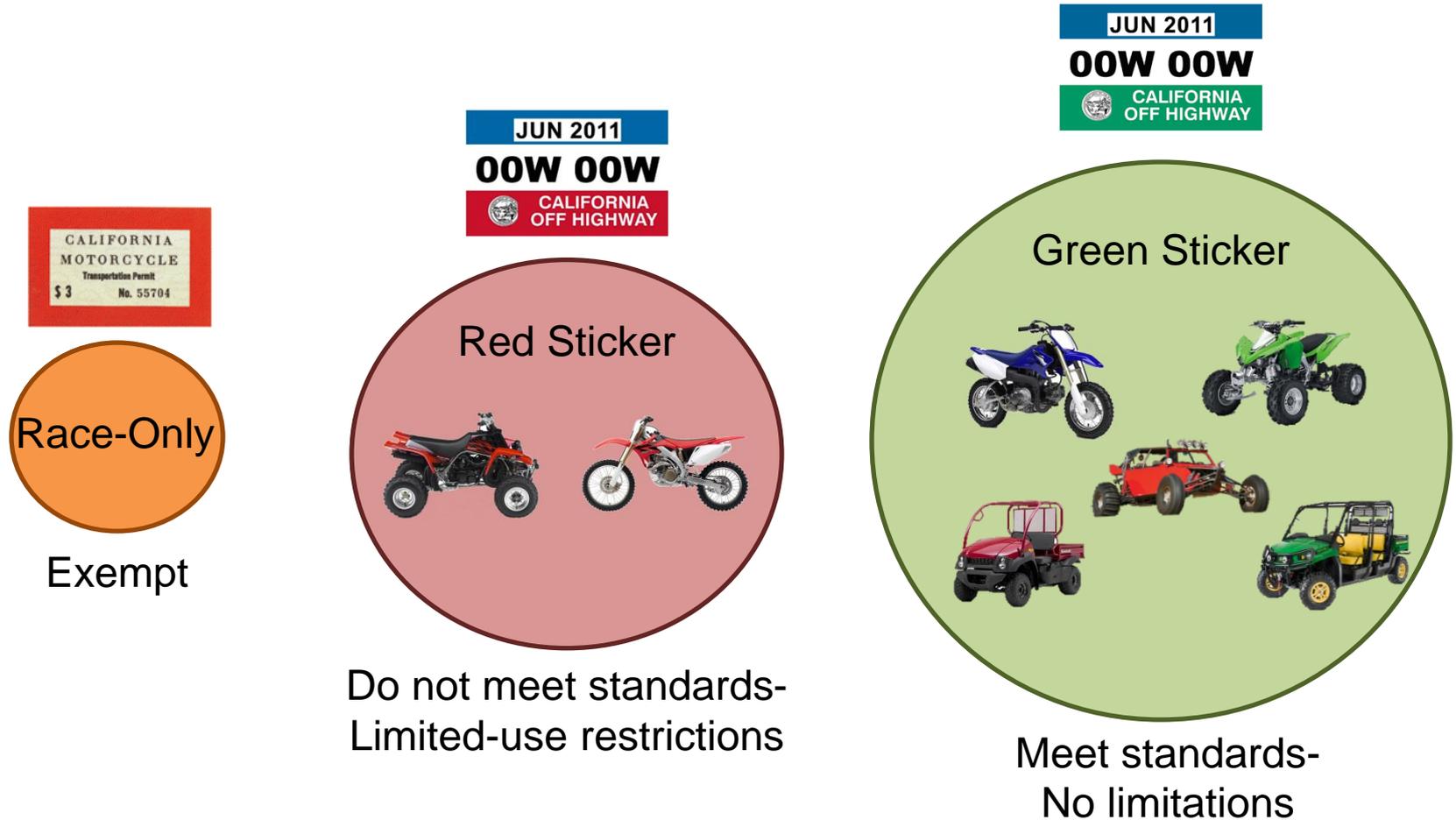
Exempt



Compliant OHRVs

Meet standards-  
No limitations

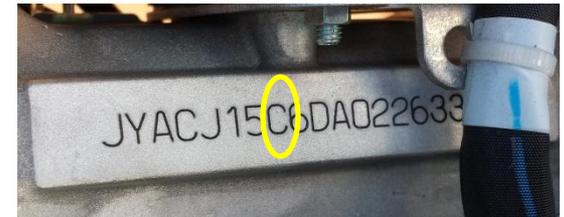
# After Red Sticker Program Implementation



# Red Sticker Vehicles

OHRVs that do not meet emission standards:

➔ Identified by 3 or C in 8<sup>th</sup> digit of VIN



➔ Receive red registration sticker

➔ Operation restricted by riding calendar



➔ **Summertime Emission Reductions**

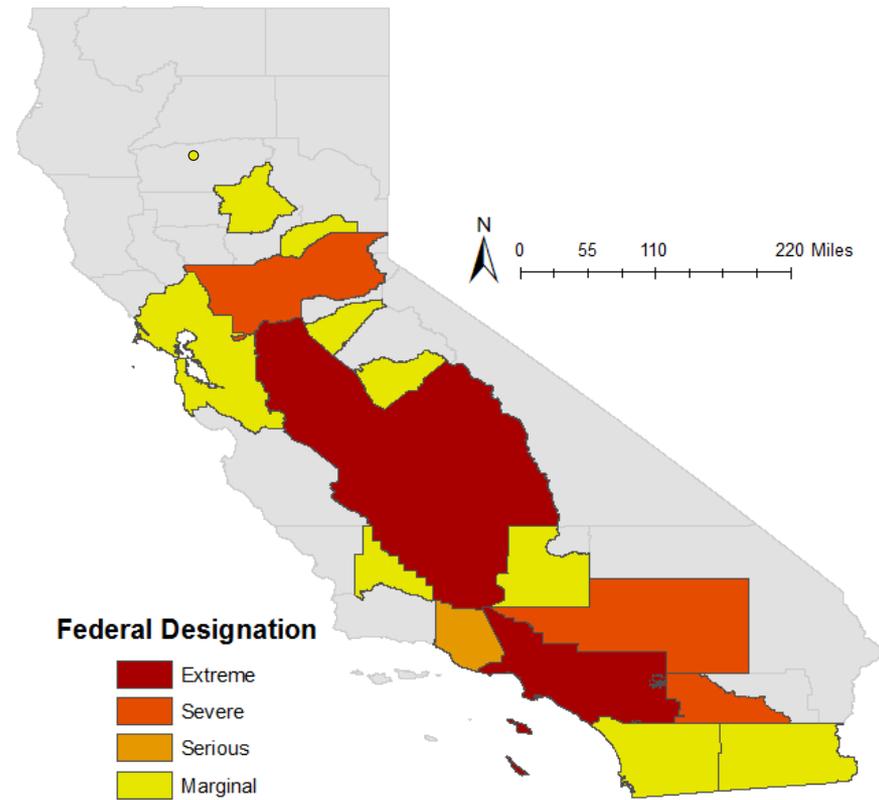
# Section 2

## Need for Evaluation

# State Implementation Plan (SIP)

California 8-Hour Ozone Non-Attainment Areas  
(2008 Standard)

- California has the worst air quality in the nation
- SIP outlines plan for compliance
- SIP requires reductions from all categories, including mobile sources



# Emission Sources

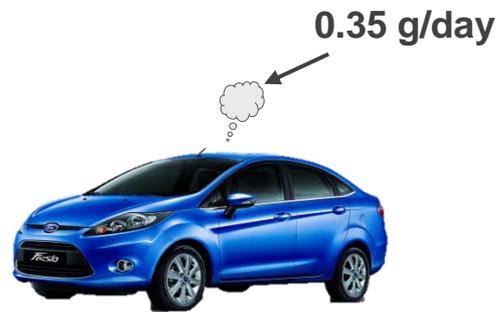


**Evaporative Emissions**  
Operating/ Storage

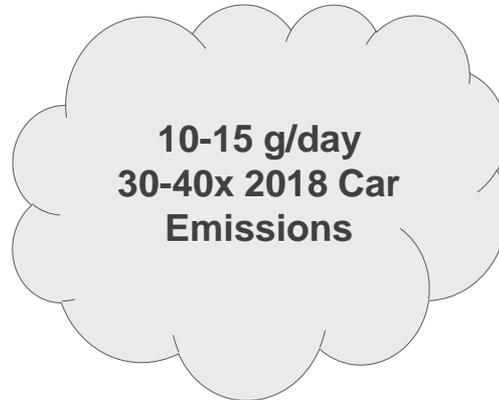


**Exhaust Emissions**  
Operating

# Evaporative Emission Comparison



2018 Passenger Car Standards

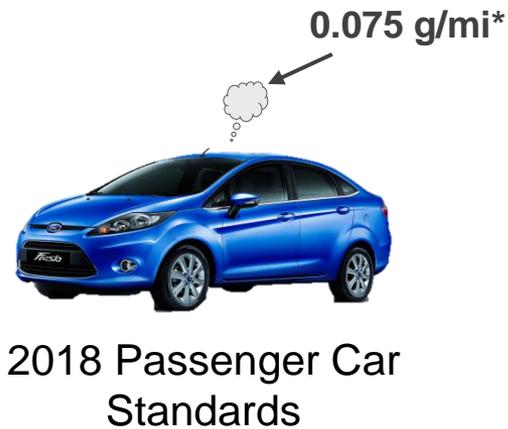


Red Sticker OHRV



2018 Green Sticker OHRV Standards

# Exhaust Emission Comparison



\* Non-Methane Organic Gas Standard  
\*\* Hydrocarbon Standard

# Baseline Exhaust Emissions Factors

2-Stroke exhaust emissions are 20 times higher than 4-Stroke

54 g HC/mi  
720x 2018 Car  
Emissions



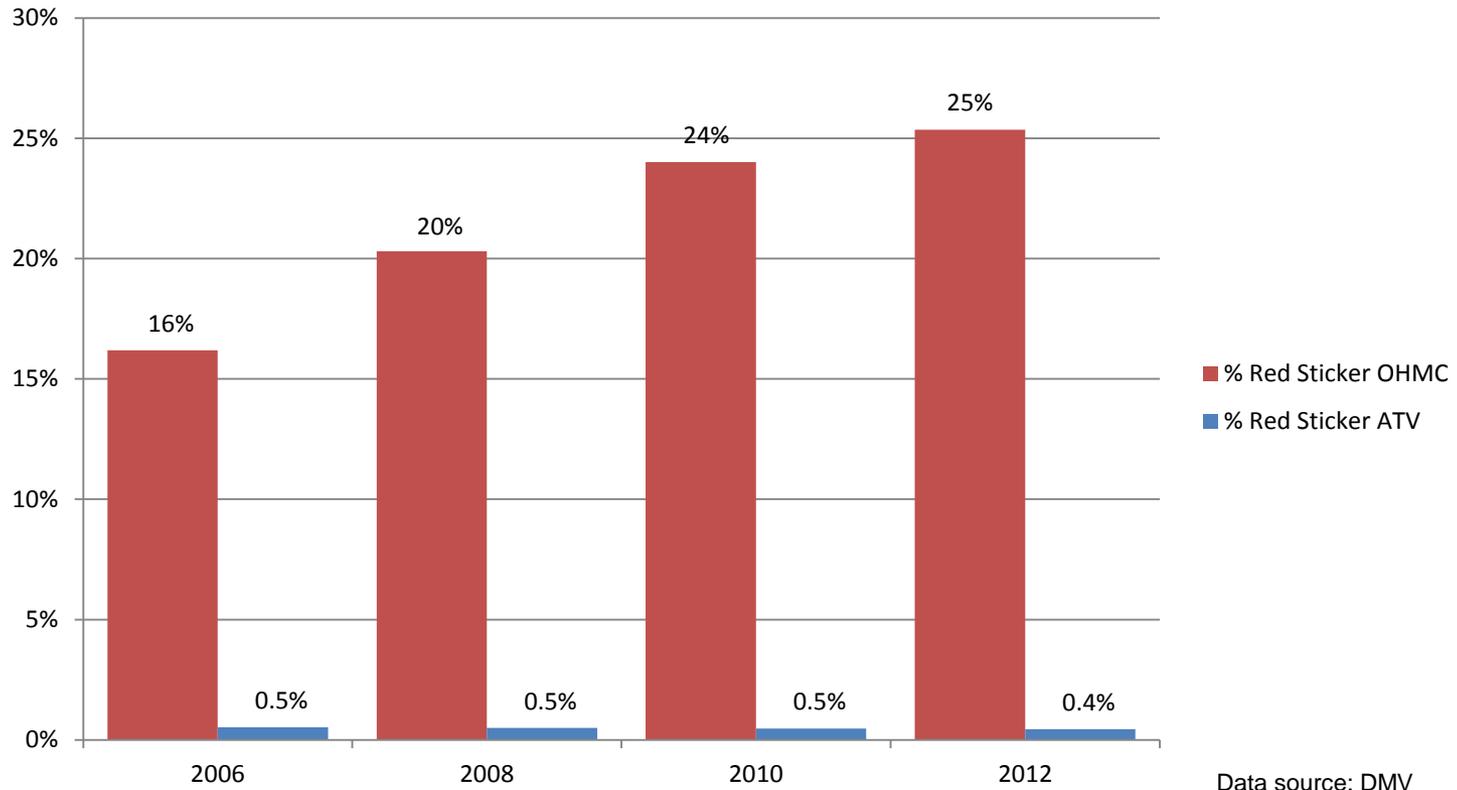
Uncontrolled  
2-Stroke Off-Highway  
Motorcycle



Uncontrolled  
4-Stroke Off-Highway  
Motorcycle

Source: U.S. EPA, Exhaust Emission Factors for Nonroad Engine Modeling - Spark-Ignition, July 2010

# Red Sticker OHRV Registration Percentage Trend



Growing percentage of red sticker off-highway motorcycle registrations

# OHRV Regulatory Process

Board Hearing  
July 2013

Red Sticker Assessment  
Dec 2013 - Sept 2014

Board Update  
Nov 2014

Board Hearing  
Dec 2015

Evaporative control regulation proposed for red and green sticker OHRVs

Board provided short-term red sticker relief

Requested comprehensive assessment and solution

Investigate usage, emissions, control technology, and costs

Work with stakeholders to develop solutions

Present concepts and possible solutions

Update Board members on program assessment

Propose direction for moving forward

Present regulatory proposal based on assessment

## Section 3

# Red Sticker Program Assessment

# Intent

- Characterize usage and activity
- Develop baseline emission factors
- Encourage stakeholder participation



# Assessment 1: Red Sticker Usage and Activity



- Objectives:
  - Build upon 2008 survey
  - Understand vehicle activity
  - Identify storage patterns
  - Evaluate rider usage
  - Improve emissions inventory
- Action:
  - CSUS to conduct survey of riders
  - Update inventory

# Assessment 1: 2008 Usage and Activity Survey

- Conducted by CSUS
- Telephone survey of model year 1980 - 2008 OHRV owners
- Gathered 1,127 responses
- Focused on evaporative emissions



# Assessment 1: Significant Findings of 2008 Survey\*



- Storage
  - 66% of OHRVs stored with fuel
- Vehicle characteristics
  - Trend toward fuel injection
- Operating preference
  - 66% Winter
  - 56% Summer

\* Percentages based on number of respondents

# Assessment 1: 2014 Proposed Usage and Activity Survey

- Augment 2008 CSUS OHRV survey findings
- Compile red sticker specific data to identify:
  - Competitive vs. recreational usage
  - Preferred riding areas
  - Seasonal operating patterns
  - Storage methods and preparation



# Assessment 2: Red Sticker Vehicle Emissions Testing

- Objective:
  - Quantify exhaust and evaporative emissions
  - Develop emissions factors
  - Improve emissions inventory
- Action:
  - Conduct baseline emission testing
  - Update emissions inventory
  - Quantify potential emission reductions



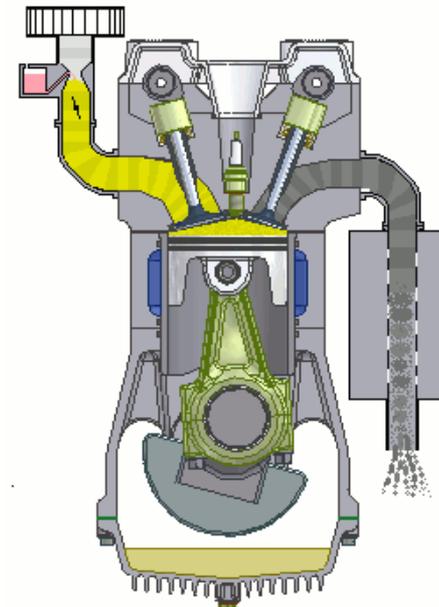
# Assessment 2: Previous Evaporative Emissions Testing

- Tested representative ATVs and dirt bikes
- Year, make and model based on DMV data
- Tested both red and green sticker OHRVs
- Test modes included:
  - Running loss
  - Hot soak
  - Diurnal



# Assessment 2: 2014 Proposed Emissions Testing

- Will test representative newer dirt bikes, no ATVS
  - Including two-stroke, four-stroke, and models with fuel injection
- Year, make and model based on DMV data
- Will test primarily red sticker OHRVs
- Testing will measure
  - Exhaust emissions
  - Evaporative emissions

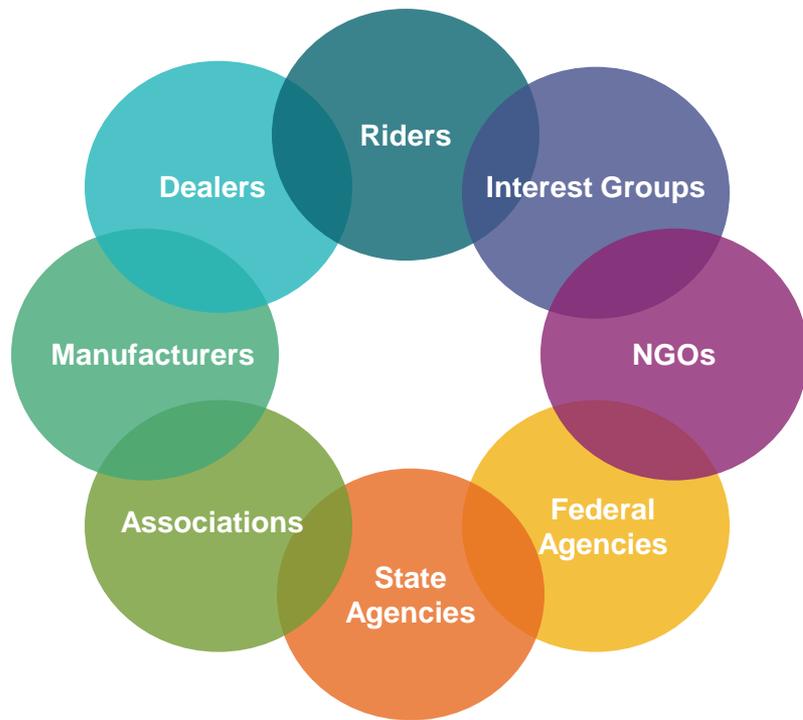


# Assessment 3: Race vs. Recreation

- Objective:
  - Identify differences
  - Develop enforceable definitions
- Action:
  - Work with stakeholders to define



# Stakeholder Participation



- Active stakeholder involvement
- Workshops to be held in multiple locations
- Collaborate with state/federal agencies, rider groups, dealer associations, and motorcycle industry in developing solutions

# Next Steps

Late Summer 2014:  
Workshop survey and test results

December 2015:  
Board Hearing

February 2014:  
Workshop test plan

November 2014:  
Board Update

# ARB Staff Contact Information

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Questions?