



SEPTEMBER 27, 2018  
BOARD HEARING  
SACRAMENTO, CA

2018 Proposed Amendments  
to the

# Low Carbon Fuel Standard Regulation

and to the

# Regulation on Commercialization of Alternative Diesel Fuels

# Low Carbon Fuel Standard (LCFS) Background

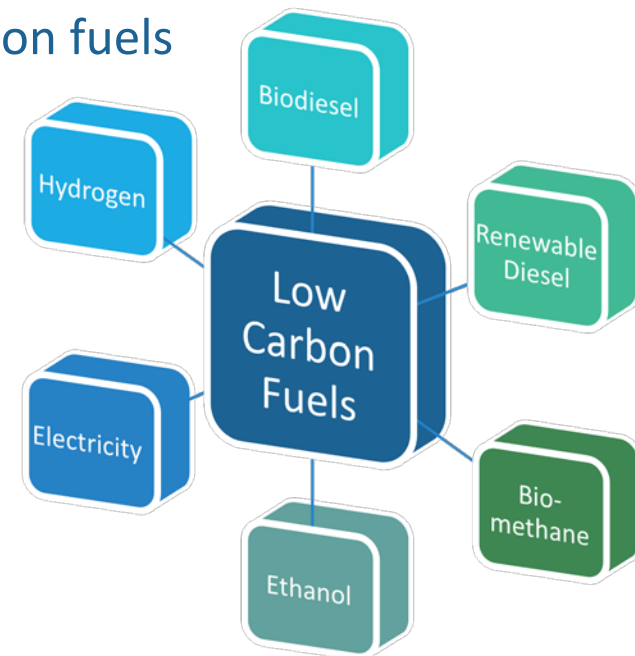
California's primary program to promote cleaner alternative fuel use in-line with 2030 greenhouse gas reduction goals.

Key Milestones: Original adoption in 2009, first compliance year in 2011, re-adopted in 2015 to address legal challenge

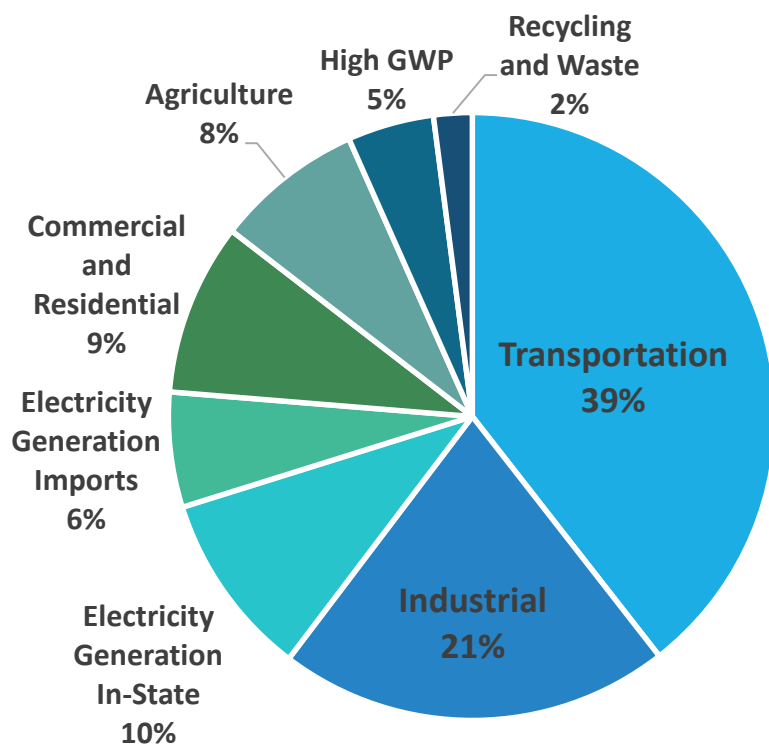
Goal: Reduce carbon intensity (CI) of transportation fuels

## Benefits:

- Reduce greenhouse gases (GHGs)
- Transform and diversify fuel pool
- Reduce petroleum dependency
- Reduce emissions of criteria pollutants and toxics



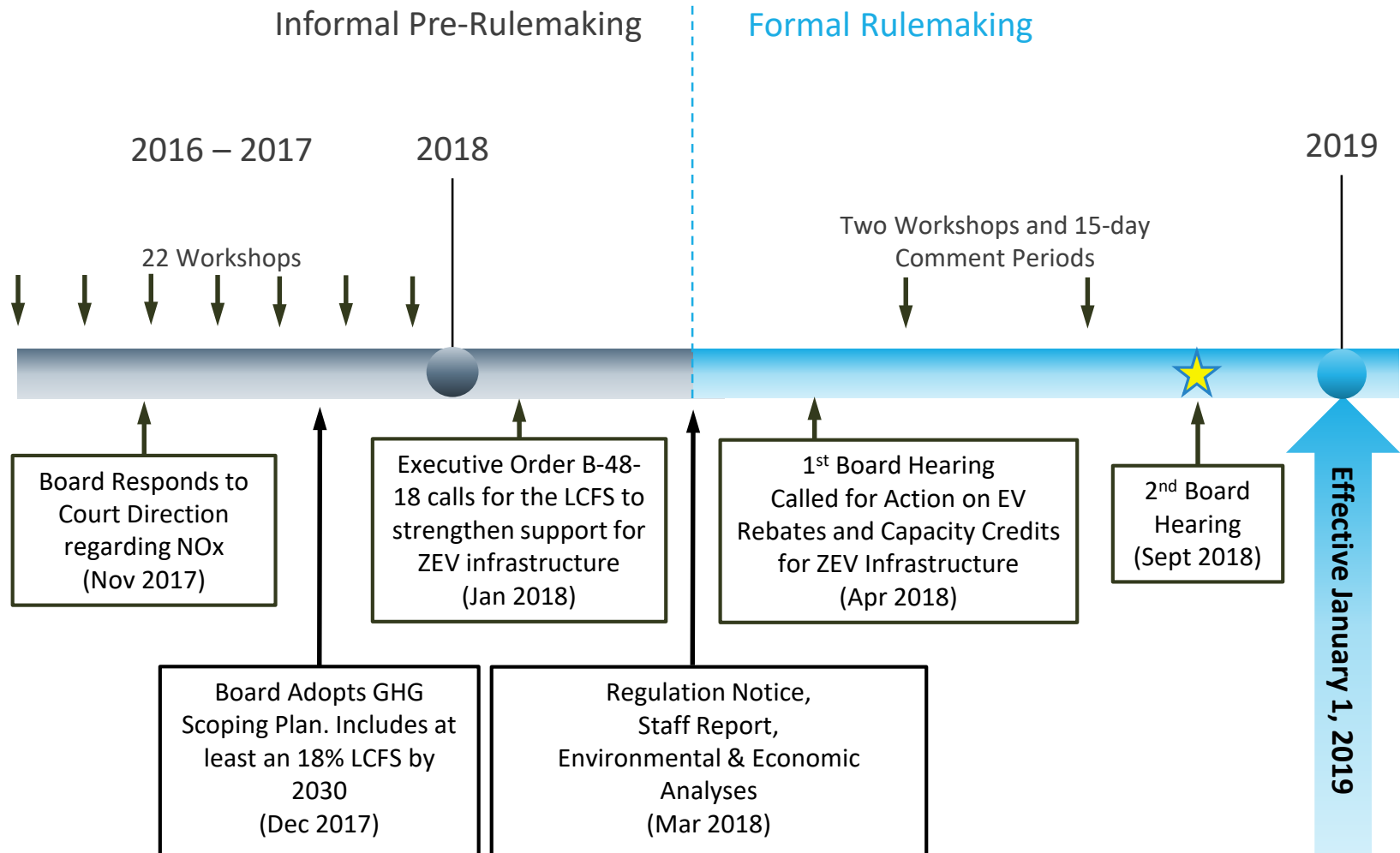
# 2017 Scoping Plan Update and Low Carbon Fuel Standard



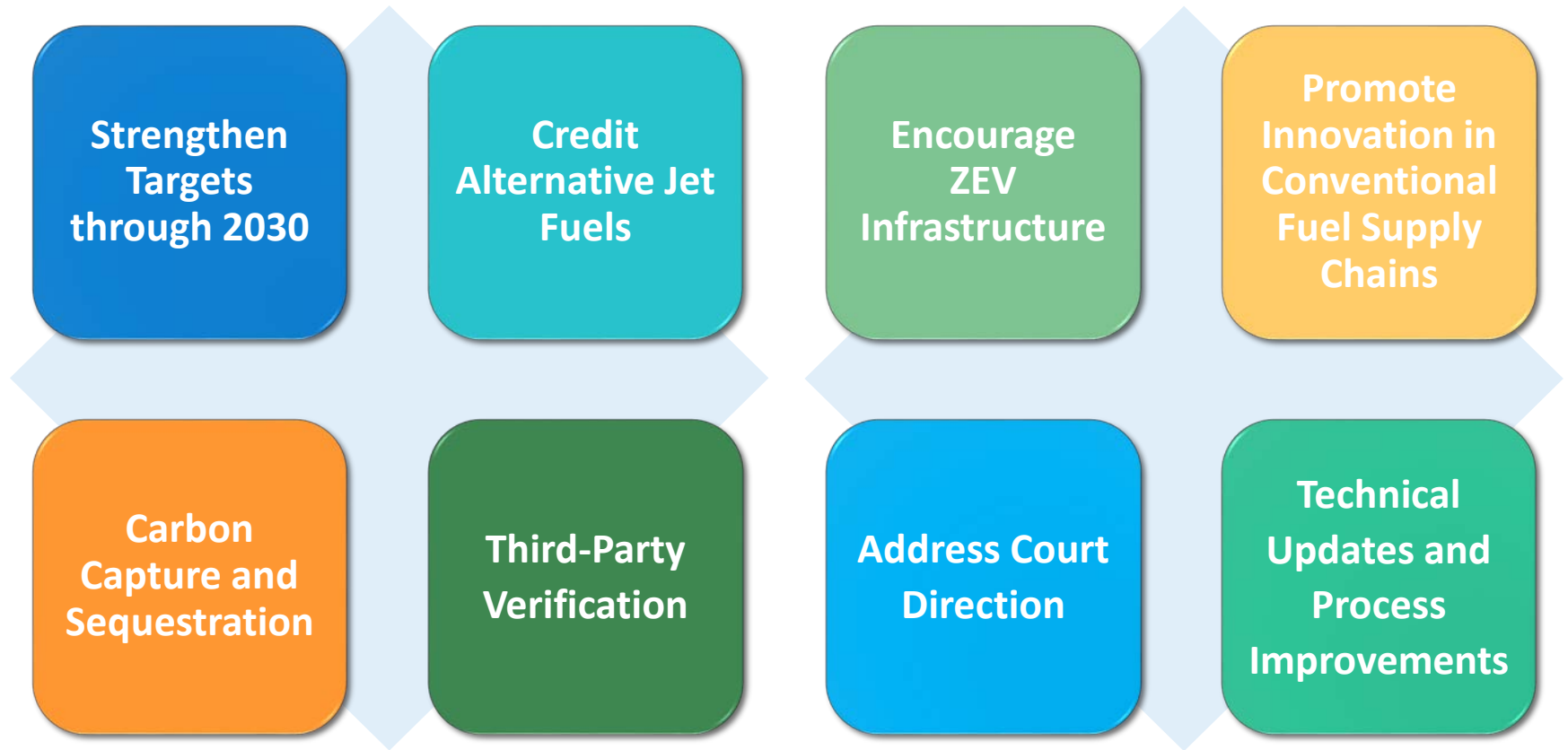
2016 Total CA Emissions: 429.4 MMTCO<sub>2</sub>e

- Transportation accounts for ~50 percent of statewide GHG emissions
  - Increased 2 percent from 2015 to 2016
- Fuels are one of the three prongs for addressing GHG emissions in this sector
  - Cleaner Fuels
  - Vehicle Technology
  - Sustainable Land-Use
- 2017 Scoping Plan Update called for a more ambitious LCFS to achieve the 2030 goal of SB 32

# Major Milestones and Rule Timeline

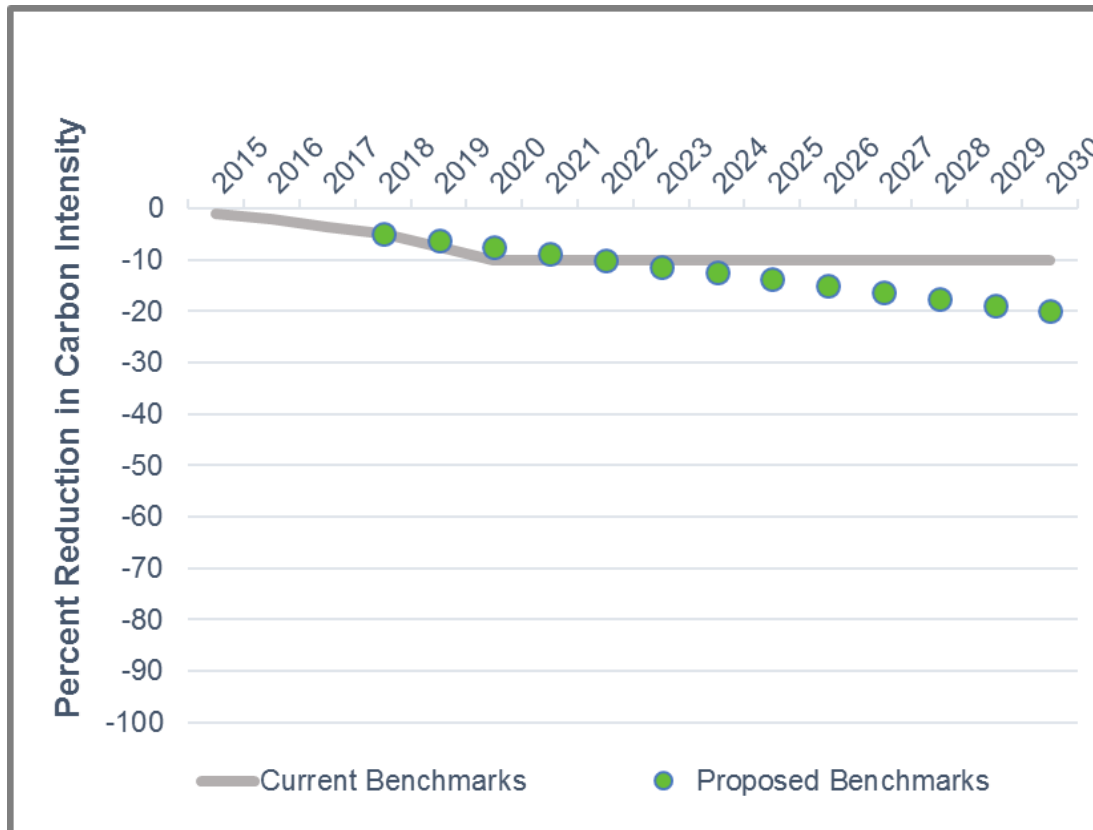


# Key Objectives of the 2018 Rulemaking

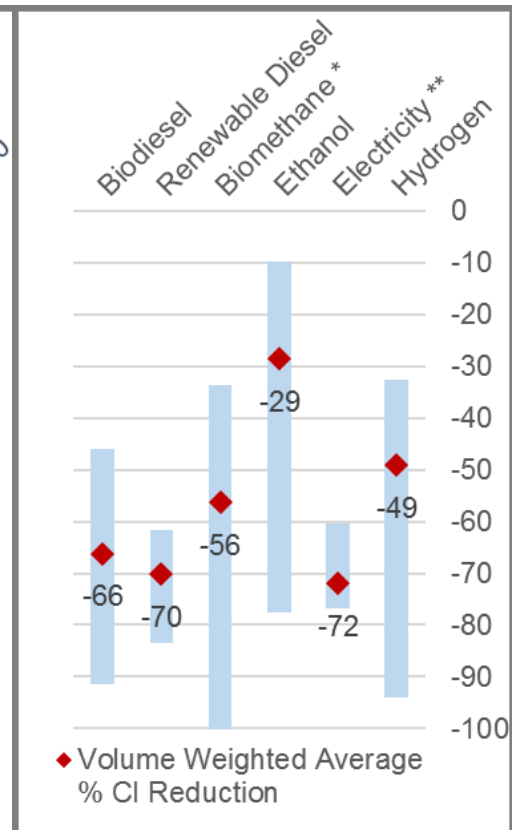


# 20% Carbon Intensity Reduction by 2030

Current and Proposed Annual Carbon Intensity Benchmarks

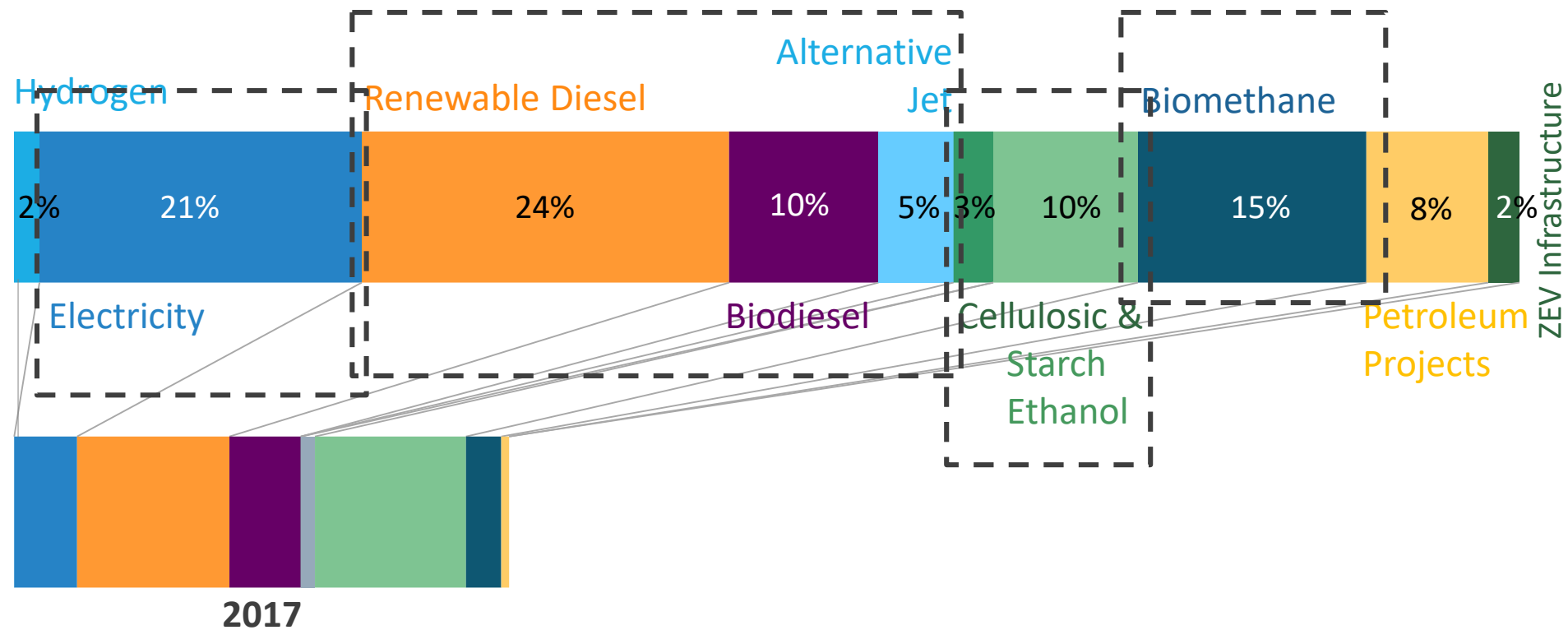


Average CI Reduction Achieved in 2017



# 20% by 2030: Illustrative Scenario

**Potential Credits in 2030**  
 % Share of Total LCFS Credits by Source



# Zero Emission Vehicle Infrastructure

*Promote the expansion of zero-emission vehicle infrastructure as directed by Executive Order B-48-18 and Board Resolution 18-17*

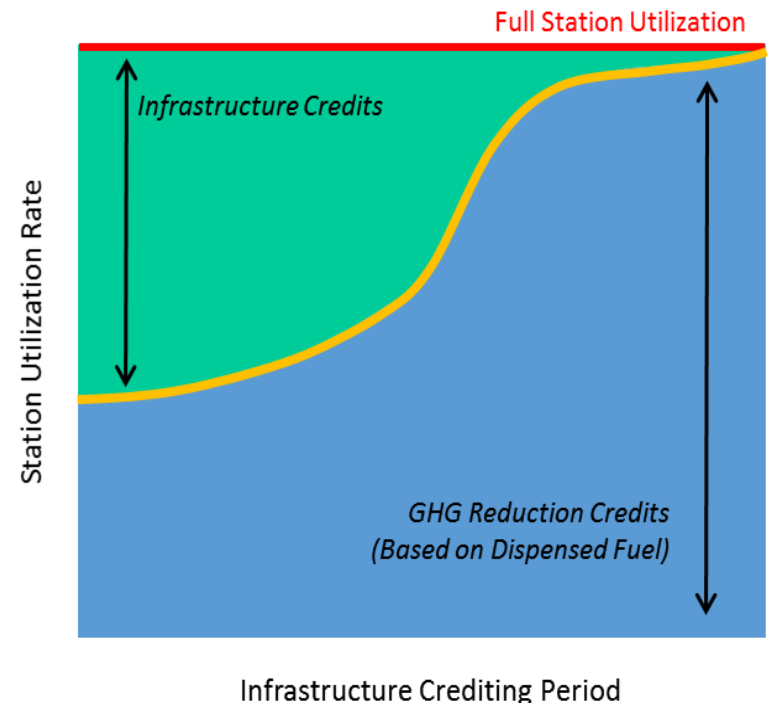




# Zero Emission Vehicle Infrastructure

*Promote the expansion of zero-emission vehicle infrastructure as directed by Executive Order B-48-18 and Board Resolution 18-17*

- Credit hydrogen and DC fast charging fueling stations on the basis of capacity
  - Infrastructure credits decline as stations reach full utilization
- Crediting limitations include:
  - Applications will only be accepted until December 31, 2025
  - Limit each charging and fueling station's crediting period
  - Limit overall capacity credit generation to 5% of program deficits



# Clean Fuel Vehicle Reward

*Explore with stakeholders the opportunities to increase the magnitude of ZEV vehicle rebates at the point of purchase funded by sale of LCFS credits*



- Utilities and Automakers are developing a statewide point of purchase (POP) rebate program
- Minor changes to the LCFS regulation to accommodate the rebate program:
  - Require a minimum percentage contribution from each utility
  - Specify four tiers to determine the rebate amount based on EV battery capacity
- Staff will evaluate utility program design and report back to the Board

# Alternative Diesel Fuels Regulation

In response to a 2017 court order, CARB developed a supplemental environmental analysis that was included in the rulemaking package

- Overall, increased use of biodiesel and renewable diesel due to the LCFS results in health benefits
- Under the current ADF regulation, future off-road sector NOx increases possible
- The ADF regulation imposes restrictions on certain biodiesels to prevent significant new NOx emissions; amendments avoid potential future off-road NOx impacts

Original proposal:  
Amend ADF Biodiesel  
NOx Sunset Provisions

- Biodiesel NOx provision sunsets when both on and off-road sectors are predominantly (90%) **New Technology Diesel Engines (NTDE)**

Modified proposal:  
Bifurcate the sunset  
provisions

- On-road sunsets when on-road sector reaches 90% NTDE (likely 2023)
- Off-road sunsets when off-road sector reaches 90% NTDE (likely after 2030)



# Other Modifications to Original Proposal

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## Alternative Jet Fuels CI Benchmark Schedule

- Modified the benchmark to match the diesel substitutes schedule to improve parity with other fuels

## Refinery Investment Credit Program

- Increased limit on use of credits to meet compliance obligation
- Allowed 15 years of credit generation for refinery improvements
- Removed “pilot program” designation

## Pathway Application and CI Determination

- Improved CI modeling tools with stakeholder input
- Developed Tier 1 Simplified CI Calculators for all biomethane pathways
- Revised Temporary CI value for dairy manure biomethane to -150 g/MJ

## Small Station Exemptions

- Exempted stations dispensing up to 150,000 gal/year of fossil CNG and LPG until fuel is deficit-generating

## Carbon Capture and Sequestration Protocol

- Made technical improvements and clarifications
- Limited credit invalidation to 50 years post injection with an additional 5% contribution to the Buffer Account

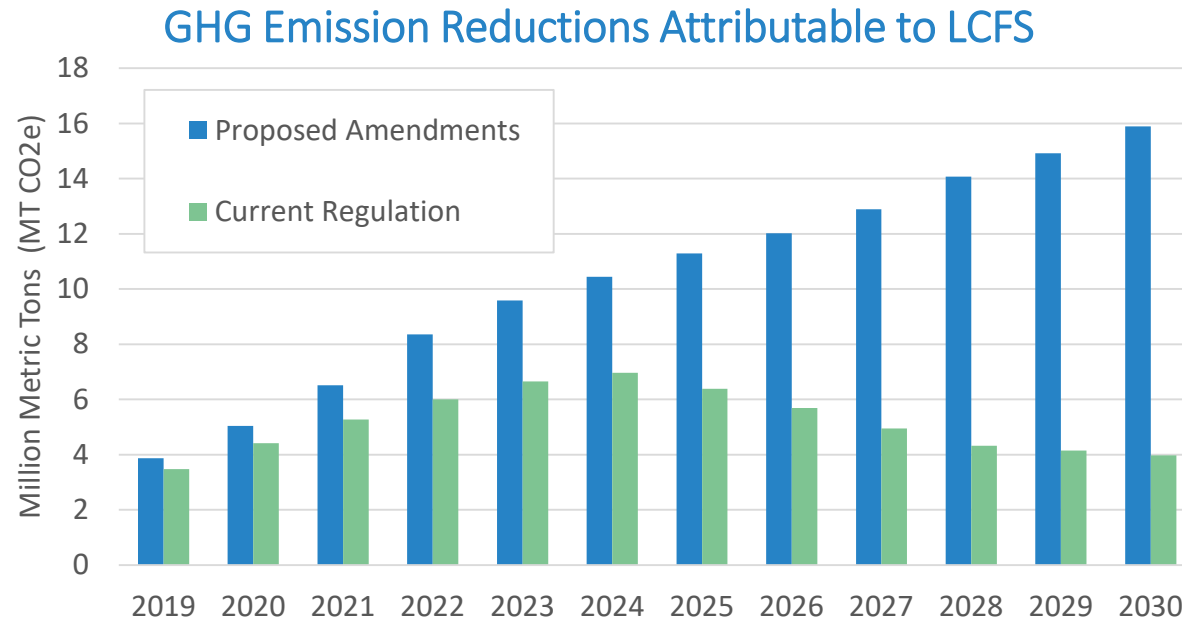
## Third-Party Verification

- Modified conflict of interest requirements and expanded eligibility for deferred verification to address verifier availability concerns

# Environmental Analysis

Draft Environmental Analysis (EA) completed and released for public comment

- March 9, 2018 – April 23, 2018
- Potentially significant impacts found for some resource areas
- Amendments will drive 63 million MT additional GHG reductions beyond the current regulation



CARB prepared the Final EA and written responses to comments received on the Draft EA

- Released in September 2018



# Staff Recommendation

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Approve the proposed Resolution which includes:

- Approval of written responses to environmental comments, certification of the Final EA, adoption of the Final NOx Disclosure Discussion and required CEQA findings
- Approval of the Proposed Amendments

# Next Steps



Closely monitor LCFS implementation



Report to the Board in spring 2019

- Clean Fuel Vehicles Reward
- Other follow up as needed



Work with partners to implement low carbon fuel standard policies in other jurisdictions

- Brazil
- Canada
- Oregon



**THANK YOU!**