CALIFORNIA
AIR RESOURCES BOARD

Errata to Presentation Decks Posted on February 20, 2026, for the February 27, 2026, Tier 5 Workshop

March 3, 2026

The text is draft, for purposes of discussion, and may be revised and/or reorganized in the future

Acronyms Used

Acronym	Definition
CA	California
CARB	California Air Resources Board
CA-TPEM	California Transition Program for Equipment Manufacturers
CF	Conformity Factor
CO	Carbon Monoxide
ECU	Engine Control Unit
g/kW-hr	Grams per Kilowatt-Hour
kW	Kilowatt
NMHC	Non-Methane Hydrocarbons
NOx	Nitrogen Oxides
NRTC	Non-Road Transient Cycle
OR-LLC	Off-Road Low Load Cycle
ORIUT	Off-Road In-Use Testing
PEMS	Portable Emissions Measurement System
PM	Particulate Matter
SOS	Sum-Over-Sum
T5i	Tier 5 interim
2B-MAW	2-Bin Moving Average Window

Tier 5:Changes in Major Elements

Tier 5 Deck, Slide #24: CA-TPEM

- The start of CA-TPEM would be shifted to the 2036 calendar year; no CA-TPEM for T5i
- Total available CA-TPEM allowances would be based on a manufacturer's historical three-year average of California equipment sales for calendar years ~~2033 through 2035~~ 2032 through 2034 for each power category
- Staff has kept the same CA-TPEM allowances and duration
  - Up to 4 years and 80% for each power category < 56 kW
  - Up to 3 years and 50% for each power category ≥ 56 kW

Note: red font indicates updates since the slide posting on Feb. 20, 2026

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ORIUT Deck, Slide #20: NOx Emission Screening Threshold: Example for a 187 kW Variable Speed Engine

2B-MAW Bins	Criteria 1: NOx Emission Screening Threshold	Criteria 2: NOx Emission Screening Threshold
Bin A: Idle	~~8.1~~15.2* g/hour	~~10.7~~20.2 g/hour
Bin B: Non-idle	0.104** g/kW-hr	0.126 g/kW-hr

*Example Criteria 1 Calculation for Bin A:

~~1.5 x (0.0282 g/kW-hr * 187kW) g/hour + 0.2 g/hour = 8.1101 g/hour ≈ 8.1 g/hour~~

Bin A Screening Threshold = (CF × Idle Standard) + $m_{Sensor\ Accuracy}$

Where:

CF = 1.5 (CF for Criterion 1); Idle Standard = 10 g/hour; $m_{Sensor\ Accuracy}$ = 0.2 g/hour

1.5 x 10 g/hour + 0.2 g/hour = 15.2 g/hour

**Example Criteria 1 Calculation for Bin B:

1.5 x (0.04 g/kW-hr x 75% + 0.06 g/kW-hr x 25%) +0.036 g/kW-hr = 0.1035 g/kW-hr ≈ 0.104 g/kW-hr

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ORIUT Deck, Slide #33: Summary of the Draft Potential SOS Emissions In-Use Thresholds for PEMS Testing

PEMS In-Use Bin	SOS Emissions In-Use Threshold	Example: NOx Emission Threshold for a 187 kW Variable Speed Engine at 20 °C
PEMS Bin A: Idle	1.5 x Idle Standard + $m_{PEMS\ Accuracy\ Margin}$ + $m_{low\ amb}$	~~8.3~~ 15.4 g/hr
PEMS Bin B: Non-idle	1.5 x (0.75 x NRTC standard + 0.25 x OR-LLC standard) + $m_{PEMS\ Accuracy\ Margin}$ + $m_{low\ amb}$	0.075 g/kW-hr

PEMS In-Use Bins	$m_{PEMS\ Accuracy\ Margins}$			
	NOx	PM	NMHC	CO
PEMS Bin A	0.4 g/hr	n/a	n/a	n/a
PEMS Bin B	0.007 g/kW-hr	0.008 g/kW-hr	0.013 g/kW-hr	0.034 g/kW-hr

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