

Comparison of CARB Heavy-Duty Omnibus Regulation (Omnibus) and U.S. Environmental Protection Agency (U.S. EPA) Clean Trucks Plan (CTP) Proposed Options

1 U.S. EPA CTP Proposal

- Option 1 includes many elements in CARB’s Omnibus program and is approximately as stringent, although it takes effect about three years later; and
- Option 2 is significantly weaker, and the standards do not reflect the performance of demonstrated emission control technologies.

U.S. EPA will consider finalizing Option 1, Option 2, or something in between.

2 Omnibus Compared to U.S. EPA’s Proposed Options 1 and 2

Figures 1 and 2 show emission benefits for Options 1 and 2 compared to if U.S. EPA aligned with Omnibus. Along with Option 1, U.S. EPA is also considering allowing additional compliance flexibility for manufacturers for the first seven years of the CTP program, from model years 2027 through 2033. This flexibility could result in a loss of up to 6 tons per day California NOx reductions (i.e., 16 percent of NOx benefits lost) in 2031.

Figure 1: Statewide Cumulative NOx Reductions: 2024-2050

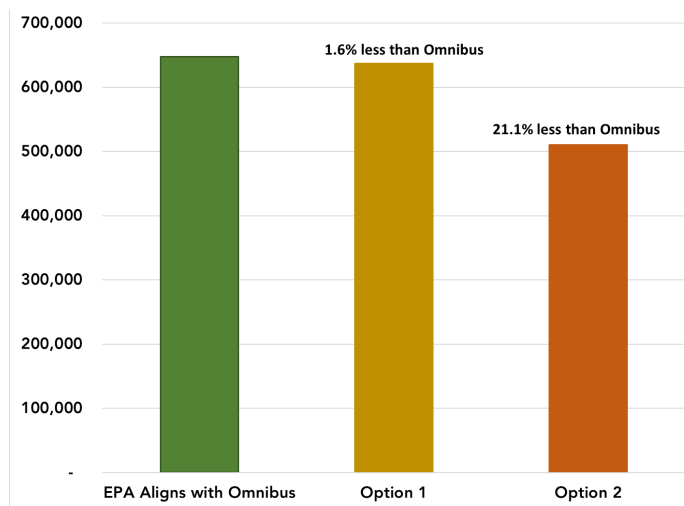
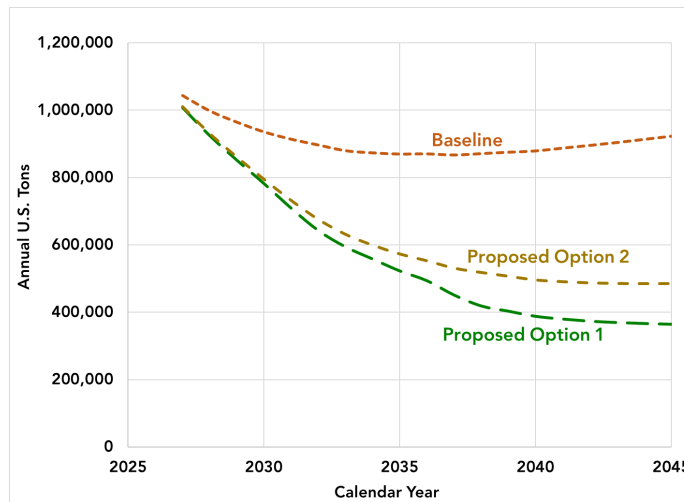


Figure 2: National Heavy-duty Vehicle NOx Emissions



The table below compares Option 1, and Option 2, and Omnibus.

| Element | Option 1 | Option 2 | Compared to California Omnibus |
|------------------------------------|---|---|--|
| NOx standards MY 2027-2030 | All HDEs 35 mg/bhp-hr | All HDEs 50 mg/bhp-hr | HHDD: 20 mg/bhp-hr (35 mg/bhp-hr above IUL). Options 1 and 2 less stringent. |
| MY 2031 and later | 20 mg/bhp-hr (40 mg/bhp-hr for HHDEs above IUL) | All HDEs 50 mg/bhp-hr | Option 1 same as Omnibus; Option 2 less stringent. |
| Durability Testing | Accelerated aftertreatment (AT) aging only | Accelerated AT aging only | Omnibus is more stringent. Engine aging for full UL or Engine aging for partial UL and accelerated AT aging for remaining UL with submittal of in-use data. |
| Useful Life (UL) | HHDD for 2031 and later: 800,000 miles | HHDD for 2031 and later: 650,000 miles | Option 1 same as Omnibus. Option 2 more stringent |
| Warranty | HHDD for 2031 and later: 600,000 miles, 10 years | HHDD for 2031 and later: CA 2022 MY Step 1 warranty (350,000 miles, 5 years) | Option 1 same as Omnibus. Option 2 less stringent (or shorter) |
| FEL caps, credit for HD ZEVs | 2027-2030 MY FEL cap less stringent. 2031+ MY FEL cap more stringent through IUL and then same as Omnibus. Allows HD ZEV credits for NOx indefinitely. | FEL cap less stringent. Allows HD ZEV credits for NOx indefinitely. | Overall, Option 1 and 2 less stringent than Omnibus. Credit for HD ZEVs could make the HD diesel NOx requirements ineffective. Omnibus is more stringent by sunsetting HD ZEV credits in MY 2026. |
| HD In-Use Testing | Method same as Omnibus but adds 10% field measurement margin | Method same as Omnibus but adds 10% field measurement margin | Options 1 and 2 have same method as Omnibus but are less stringent. |

Notes: FEL: Family emission limit
HDE: Heavy-duty engine
IUL: for HHDE, intermediate useful life
MY: Model Year

HD: Heavy-duty
HHDE: heavy heavy-duty engine
UL: useful life
ZEV: Zero emission vehicle