

August 30, 2021

Ms. Deborah Jordan
Acting Regional Administrator
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, California 94105
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Dear Ms. Jordan:

The California Air Resources Board (CARB) is transmitting California's current motor vehicle emissions model, EMFAC2021, to the U.S. Environmental Protection Agency (U.S. EPA). EMFAC2021 represents the next step in the ongoing improvement of the EMFAC series of emissions estimation models. We are requesting U.S. EPA to approve EMFAC2021 by December 2021 for use in the State Implementation Plans (SIP) and transportation conformity determinations as required by the federal Clean Air Act, as well as the Federal Highway Administration's transportation planning requirements.

EMFAC2021 fulfills the requirements of sections 172(c)(3) and 176(c)(1) of the federal Clean Air Act (42 U.S.C. sections 7506(c)(3) and (1)) and sections 51.114(a) and 93.111(a) of title 40 of the Code of Federal Regulations.¹ It reflects the latest planning assumptions, best available data, and emissions benefits of CARB's recently adopted regulations, including the following:

- Heavy-Duty Warranty Phase 1²,
- Innovative Clean Transit (ICT)³ Regulation,
- Amendments to Heavy-Duty Vehicle Inspection Program (HDVIP) and Periodic Smoke Inspection Program (PSIP)⁴,
- Advanced Clean Trucks (ACT)⁵ Regulation, and
- Heavy-Duty Omnibus⁶.

EMFAC2021 also reflects the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rules and actions⁷. The light- and heavy-duty vehicle emission factors in EMFAC2021 have been

¹ 84 Fed.Reg. 41717 (Aug. 15, 2019); 80 Fed. Reg. 77338 (Dec. 14, 2015)

² <https://ww2.arb.ca.gov/rulemaking/2018/hd-warranty-2018>

³ <https://ww2.arb.ca.gov/rulemaking/2018/innovative-clean-transit-2018>

⁴ <https://ww2.arb.ca.gov/rulemaking/2018/heavy-duty-vehicle-inspection-program-and-periodic-smoke-inspection-program>

⁵ <https://ww2.arb.ca.gov/rulemaking/2019/advancedcleantrucks>

⁶ <https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox>

⁷ <https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule>

updated to reflect the latest emissions testing data, and the embedded fleet population reflects the latest available vehicle registration information from the California Department of Motor Vehicles. Vehicle activity profiles or driving patterns have been updated by including data from the 2018 California Vehicle Inventory and Use Survey (Cal-VIUS), telematics providers, and data collected through various extramural contracts.

EMFAC2021 now has the ability to estimate emissions from plug-in hybrid electric vehicles (PHEV) and natural gas-powered engines, in addition to conventional gasoline and diesel-fueled vehicles. Heavy-duty truck categories have also been expanded to allow for more specificity in vehicle activity data and emission rates, and to better support CARB's future planning and policy development. Compared with previous versions of EMFAC, EMFAC2021 can produce a more detailed emissions inventory that better reflects California conditions, regulations, and region-specific data. Therefore, it should be considered as the best available tool for motor vehicle emissions estimation in California.

The transportation conformity rule requires U.S. EPA to approve the emissions model for conformity purposes before it can be used to determine conformity of a transportation plan or program. We are explicitly asking U.S. EPA to approve the emission factor elements of EMFAC2021, not the default travel activity data included in the model, since metropolitan planning organizations (MPO) and regional transportation planning agencies shall use their latest projected vehicle miles traveled (VMT) data for the purpose of demonstrating transportation conformity.

The transportation conformity regulation also specifies that U.S. EPA must consult with the Department of Transportation to set a grace period of 3 to 24 months to continue using a previously approved model before a new emissions model must be used in demonstrating the conformity of transportation plans and programs.⁸ The length of the grace period can consider the degree of change in the emissions model and the scope of planning updates required to assure conformity.

CARB and air districts have developed on-road emissions inventory using the EMFAC2017 model for the Ozone and particulate matter (PM) standards SIPs under development. In addition, this inventory will also be used for developing the transportation conformity budgets, Reasonable Further Progress analysis, and attainment demonstration for the Ozone and PM SIPs. We request U.S. EPA to provide a 24-month grace period to allow for completion and submittal of emission budgets calculated with EMFAC2017 and completion of U.S. EPA's budget adequacy process. This will allow transportation planning in California to meet the Federal Highway Administration's deadlines for conducting conformity analyses while utilizing the latest planning assumptions and emissions model as required by federal law. Meanwhile, CARB staff have also developed off-model adjustment factors to reflect the emission benefits of regulations that CARB adopted after the EMFAC2017 release. We are also making a separate request for the U.S. EPA's approval of these off-model adjustment factors for use in transportation conformity determinations.

⁸ 40 C.F.R. Part 93, Subpart A, § 93.111(b).

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The EMFAC2021 model as well as the EMFAC2021 User's Guide, Project Level (PL) Handbook, and Technical Documents, are available at our website at: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools-emfac-software-and>.

Additionally, the newly developed EMFAC web platform provides quicker and easier access to the full functions of the EMFAC model and is available at: <https://arb.ca.gov/emfac/>

If you have any technical questions relating to EMFAC, please contact Dr. Sam Pournazeri, Chief of the Mobile Source Analysis Branch, at (916) 600-6188 or via email at Sam.Pournazeri@arb.ca.gov. Questions relating to SIP development should be directed to Ms. Sylvia Vanderspek, Chief, Air Quality Planning Branch, at (916) 324-7163 or via email at Sylvia.Vanderspek@arb.ca.gov. Questions regarding transportation conformity should be directed to Dr. Nesamani Kalandiyur, Manager, Transportation Analysis Section, at (916) 324-0466 or via email at Nesamani.Kalandiyur@arb.ca.gov.

Sincerely,



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