

Emission Calculation Tools An Overview

EPA –R3

MADC Emission Calculation Workshop

Philadelphia August 2006

Why do I need to Calculate the Emissions Benefits?

- State Implementation Plans
- Inventory Calculations
- Transportation Conformity Analysis
- RFPs-Grant applications/Progress Reports
- Status Reports to Management, Congress
- Marketing
- CMAQ Eligibility
- Demonstrate Need for Congressional Financial Support

Some of the Issues

- Consistency
- Adequate Information
- Tools for the Non-Modeler

Non-Trucking Emissions

- To quantify estimated emissions reductions for non-trucking proposals, please use the National Mobile Inventory Model (<http://www.epa.gov/otaq/nmim.htm>). For technical assistance regarding this tool, please email mobile@epa.gov

Trucking Projects

- To quantify estimated emissions reductions for trucking projects that utilize add-on controls or alternative fuels (except for biodiesel), please use the Smartway FLEET Performance Model (http://www.epa.gov/smartway/smartway_fleets_software.htm). For technical assistance regarding this tool, please contact Annie Kee at kee.annie@epa.gov or 202-343-9218.

Biodiesel Calculator

- To quantify emissions reductions for biodiesel projects, please use EPA's biodiesel calculator (<http://www.epa.gov/otaq/retrofit/techlist-biodiesel.htm>). For technical assistance with this tool, please contact John Brock at brock.john@epa.gov or 415-972-3999.

Truck Stop Electrification

- Guidance for Quantifying and Using Long Duration Truck Idling Emission Reduction in State Implementation Plans and Transportation Conformity
(<http://www.epa.gov/smartway/documents/truckidlingguidance.pdf>)

Smartway Calculator

- The SmartWay calculator is designed to help truck owners compare the costs and estimate the fuel savings associated with various efficiency technologies. The calculator is designed for owners of single trucks as well as multiple-truck fleets.
- <http://www.epa.gov/smartway/calculator/1oancalc>

Locomotive Idling

- Guidance for Quantifying and Using Long Duration Switch Yard Locomotive Idling Emission Reductions in State Implementation Plans

(<http://www.epa.gov/smartway/documents/420b04002.pdf>)

Exhaust and Crankcase Emission

- Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling - Compression-Ignition

(<http://www.epa.gov/otaq/models/nonrdmdl/nonrdmdl2004/420p04009.pdf>)

Mobile Inventories

- Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling
(<http://www.epa.gov/otaq/models/nonrdmdl/nonrdmdl2004/420p04005.pdf>)

CMAQ Eligibly

- Memo- August 25, 2003, USDOT, CMAQ Eligibility for Idle Reduction
- www.fhwa.dot.gov/environment/cmaqpgs/index.htm

Marketing/Cost Effectiveness

- Technical Report: "Diesel Retrofit Technology: An Analysis of the Cost Effectiveness of Reducing Particulate Matter Emissions from Heavy-Duty Diesel Engines Through Retrofits"
- The purpose of this technical analysis is to evaluate the cost effectiveness of retrofitting existing heavy-duty diesel engines to reduce particulate matter (PM). The Analysts evaluated the costs and emissions benefits of retrofitting school buses, freight trucks, and bulldozers with diesel oxidation catalysts (DOCs) and catalyzed diesel particulate filters (CDPFs), two of the most common PM emissions reduction technologies for diesel engines.
- <http://www.epa.gov/cleandiesel/documents/420s06002.pdf>

Voluntary Programs-General

State and Local Transportation Resources: Policy and Guidance: General Guidance on Innovative and Voluntary Air Pollution Control Strategies -06-16-2006

- Provides the basic processes in place for securing air quality credit for voluntary and innovative emission reduction programs in the context of state implementation plans, emission trading programs, and economic incentive programs."
- http://www.epa.gov/oms/stateresources/policy/pag_guidance.htm

SIP-Bundled Measures

- EPA - TTN OAR Policy and Guidance - Guidance - State Implementation Plans: Incorporating Bundled Emissions Reduction Measures in a State Implementation Plan05-03-2006
- <http://www.epa.gov/ttn/caaa/t1/meta/m10885.html> (HTML)

Energy

- Clean Energy-Environment Guide to Action05-08-2006
 - Clean Energy-Environment Guide to Action Policies, Best Practices, and Action Steps for States Clean Energy-Environment Guide to Action Policies, Best Practices, and Action Steps for States April 2006 EPA Clean Energy-Environment Guide to Action Contents Acknowledgements
 - [http://www.epa.gov/cleanenergy/pdf/gta/guide action full.pdf](http://www.epa.gov/cleanenergy/pdf/gta/guide_action_full.pdf) (PDF)

NMIM

- The National Mobile Inventory Model (NMIM) is a free, desktop computer application developed by EPA to help you develop estimates of current and future emission inventories for on-road motor vehicles and nonroad equipment. NMIM uses current versions of MOBILE6 and NONROAD to calculate emission inventories, based on multiple input scenarios that you enter into the system.
- You can use NMIM to calculate national, individual state or county inventories
- <http://www.epa.gov/otaq/nmim.htm>

MOBILE 6

- MOBILE6 is an emission factor model for predicting gram per mile emissions of Hydrocarbons (HC), Carbon Monoxide (CO), Nitrogen Oxides (NO_x), Carbon Dioxide (CO₂), Particulate Matter (PM), and toxics from cars, trucks, and motorcycles under various conditions.
- <http://www.epa.gov/otaq/m6.htm#m60>

Other Tools

- Airport Ground Support Equipment (GSE) Model
A spreadsheet tool that provides users with a quick analysis of the emission benefits and cost-effectiveness of controlling GSE emissions.
- Business Benefits Calculator
Use this tool to estimate the financial, environmental, traffic, parking, and related values of offering employees high quality commuter benefits.
- COMMUTER Model
Calculate transportation and emissions benefits associated with selected commuter benefits, incentives, and other voluntary strategies to reduce solo commuting. Emission reductions for VOCs, NO_x, CO, air toxics, and CO₂ may be calculated.
- <http://www.epa.gov/otaq/stateresources/tools.htm>

Looking Ahead

- EPA will provide new resources to assist state and local governments in developing their own clean diesel programs.
- EPA will expand the clean diesel toolbox by promoting the verification of innovative technologies.
- EPA will target current PM nonattainment areas where diesel retrofits and replacements will have the greatest public health impact.