

ICI Combustion Tool

Demonstration for EPA's Emissions Inventory Conference April 13, 2015



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Source Categories



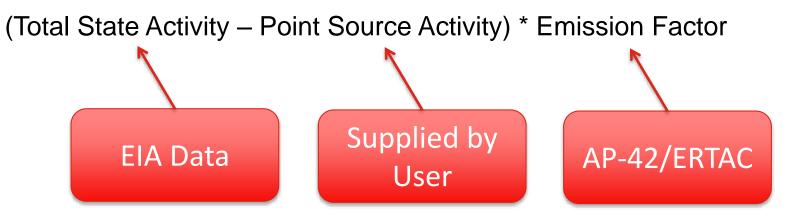
SCC	Description
2102001000	Industrial /Anthracite Coal /Total: All Boiler Types
2102002000	Industrial /Bituminous/Subbituminous Coal /Total: All Boiler Types
2102004001	Industrial /Distillate Oil /Boilers
2102004002	Industrial /Distillate Oil /IC Engines
2102005000	Industrial /Residual Oil /Total: All Boiler Types
2102006000	Industrial /Natural Gas /Total: Boilers and IC Engines
2102007000	Industrial /Liquified Petroleum Gas /Total: All Boiler Types
2102008000	Industrial /Wood /Total: All Boiler Types
2102011000	Industrial /Kerosene /Total: All Boiler Types
2103001000	Commercial/Institutional /Anthracite Coal /Total: All Boiler Types
2103002000	Commercial/Institutional /Bituminous/Subbituminous Coal /Total: All Boiler Types
2103004001	Commercial/Institutional /Distillate Oil /Boilers
2103004002	Commercial/Institutional /Distillate Oil /IC Engines
2103005000	Commercial/Institutional /Residual Oil /Total: All Boiler Types
2103006000	Commercial/Institutional /Natural Gas /Total: Boilers and IC Engines
2103007000	Commercial/Institutional /Liquified Petroleum Gas /Total: All Combustor Types
2103008000	Commercial/Institutional /Wood /Total: All Boiler Types
2103011000	Commercial/Institutional /Kerosene /Total: All Combustor Types

ICI Emissions Calculations



ICI Calculation Methodology:

Nonpoint Emissions =



Activity Data and County Distributions



- Total State Energy Data comes from EIA
 - State Energy Data System (SEDS)
 - Fuel Oil and Kerosene Sales
- State-level data are distributed to the county level based on employment
 - Industrial sector: NAICS 31 33
 - Commercial/Institutional: NAICS 42 92, Census of Governments

Assumptions and Adjustments



Coal

- % Anthracite and % Bituminous/Subbituminous (EIA Annual Coal Distribution Report)
- Distillate Fuel and LPG
 - % of fuel used by Stationary Sources (i.e. not mobile sources; EIA Fuel Oil and Kerosene Sales and EPA's NONROAD Model)
- Distillate Fuel
 - Split Between Boilers and Engines
 - EIA data is total distillate use, and must be split into boilers and engines
- Coal and Residual Oil
 - % Sulfur and % Ash (EIA Quarterly Coal Report)
- All fuels
 - % of Energy Resources used for Nonfuel (Feedstock) Purposes (EIA Manufacturing Energy Consumption Survey)

Point Source Subtraction



- Point source data are subtracted from total state energy consumption to avoid double counting emissions using the following steps:
 - 1. Import the data. The ICI Tool includes a user-friendly interface to import point source activity data at the county and/or state level
 - 2. Link point source SCCs to nonpoint source SCCs using a crosswalk included in the tool
 - 3. Subtract point source activity from total state activity
 - If both county- and state-level activity data are provided, subtraction from county-level is performed first and then gaps are filled with state-level data

4. Corrections:

- If PS activity data > Total activity for a county, then the nonpoint activity is set to 0 for that county and the difference between total activity and PS activity for that county is distributed to the other counties in the state.
- If PS activity ≥ Total activity for <u>all</u> counties, then the nonpoint activity for all counties is set to 0.

Emissions Factors



- Majority of emissions factors are from AP-42 and the EPA/ERTAC2 database
- Ammonia emissions factors for wood combustion are from an EPA Emission Inventory Improvement Program (EIIP) guidance document
- For coal combustion, the SO₂ emissions factors are based on the sulfur content of the coal burned
- Some PM emissions factors for anthracite coal require information on the ash content of the coal

Tool Demonstration



- Unzip folder (ICI Tool v1.1_2015-4-8_DRAFT.zip)
- Should have the following files:
 - ICI Tool v1.1_2015-4-8_DRAFT.accdb
 - ICI Tool Output EIS Format.mdb
 - ICI Tool v1.1_Documentation__2015-4-8_DRAFT.pdf
 - ICI_County-Level_Point_Source_Template_DEMO.xls
 - ICI_State-Level_Point_Source_Template_DEMO.xls
- Let's start by opening the first Access database

Questions?



BOLD THINKERS DRIVING REAL-WORLD IMPACT