

Running the LEV3 Models

There are 6 components used in creating the LEV3 emission inventory. All are based on Microsoft Access and require it to run. They should be run off of a local hard disk and not off a network drive for performance reasons. All models are linked together and will need to be relinked after the LEV3 tool is run to operate correctly.

Also, if you run the models multiple times, you will likely run out of space in Access, which has a built-in 2 gigabyte file size limit. For the LEV3 tool, click the “reset all” button, and then select the file menu and press the compact and repair button. This will remove all of the inventory tables and compact the file. For the other models, simply press the compact and repair button.

1. LEV3-Inv-dbase_V9h.accdb; the “LEV3 Tool”.

This model takes an EMFAC statewide inventory, either summer or annual, sums them up by vehicle type, fuel, calendar year and model year, and splits these populations by the anticipated tech group profiles for future years. Emission rates are back-calculated from EMFAC and are supplemented by various updates and corrections.

This model must be run before all others. To run the model, click on the emission rates button, select the “run all” checkbox, and then select either a summer or an annual inventory. The entire process should take about 5-10 minutes; a number of queries will pop up as the model runs.

Alternately, if you do not select “run all”, you will have to click on the emission rates button as above, then the baseline, then the greenhouse gas button, then the LEV3 button to run everything.

If you want to create regional inventories, you will also need to click on the LEV3 button and click on the “reductions” button.

The generated emissions are contained in 4 tables: emissions_baseline, emissions_GHG_baseline, emissions_GHG_scenarios, and emissions_LEV3. Vehicle populations are contained in the tables fleet_baseline, fleet_GHG, and fleet_LEV3. Keep in mind that to get accurate populations and VMT for the fleet table you will need to select out only the tech groups that are for exhaust processes, otherwise the gasoline vehicle numbers will be doubled. For a sample query of how this is done, see the query “bl_pop_qa1”.

2. LEV3_BaselineScaling.accdb

This tool is used to create regional inventories, either summer or winter. It scales the regional EMFAC baseline to match the adjusted baseline calculated in the LEV3 tool. You will have to run the LEV3 tool first for this to work.

To use this model, you will first need to relink the tables. From Access, right click any table, and select the linked table manager. In the linked table manager, select the checkboxes for the both tables, select “always prompt for new locations”, and then select OK. You will be prompted to set the location for each table: the table COABDIS_Annual should point to either COABDIS_Annual.accdb or COABDIS_Summer.accdb (depending on whether you are doing an annual or a summer inventory); the table emissions_baseline should point to LEV3-Inv-dbase_V9h.accdb. This step will not work if the LEV3 tool has not been run already.

To run the adjustment, right click the module mdlAdjustBaseline, select design view. Put the cursor anywhere after the words “sub adjustbaseline()”, and press the F5 key to run. This will create the table coabdisall_adjusted, which is the adjusted regional baseline and is used as an input for LEV3_regional.accdb.

3. COABDIS_Annual.accdb and COABDIS_Summer.accdb

These databases each contain one table, named coabdisall_annual in both, containing a reformatted annual or summer EMFAC regional inventory. They are used as inputs for LEV3_BaselineScaling.accdb.

4. LEV3_Regional.accdb

This database is used to calculate the regional adjusted baseline and regional LEV3 inventories. To use it, you will first need to use the linked table manager (see step 2) to link the tables: coabdisall_adjusted should point to the LEV3_baselinescaling.accdb; coabdisall_annual should point to either coabdis_annual.accdb or coabdis_summer.accdb, and emissions_reductions_BLvSLEV3 should point to LEV3-Inv-dbase_V9h.accdb. To calculate the regional inventory, run the macro macRunAll.

5. LEV3_Carbits_v3.accdb

This tool calculates inventories based upon populations generated by CARBITS and emission rates generated by the LEV3 tool. It allows various combinations of inputs to be run.

To use, you will again need to use the linked table manager. All of the tables need to be linked to the LEV3 tool, LEV3-Inv-dbase_V9h.accdb. To run the tool, select a population, a rebound input, a set of emission rates, a greenhouse gas scenario, and click on calculate. Do not change the name of the table in the "name of table" field. A table with a name matching that in "name of table" will be created to hold the emissions; the fleet population and VMT is in a table with the name "fleet_" plus the table name; a query with results will be create with the name "qry_" plus the table name.