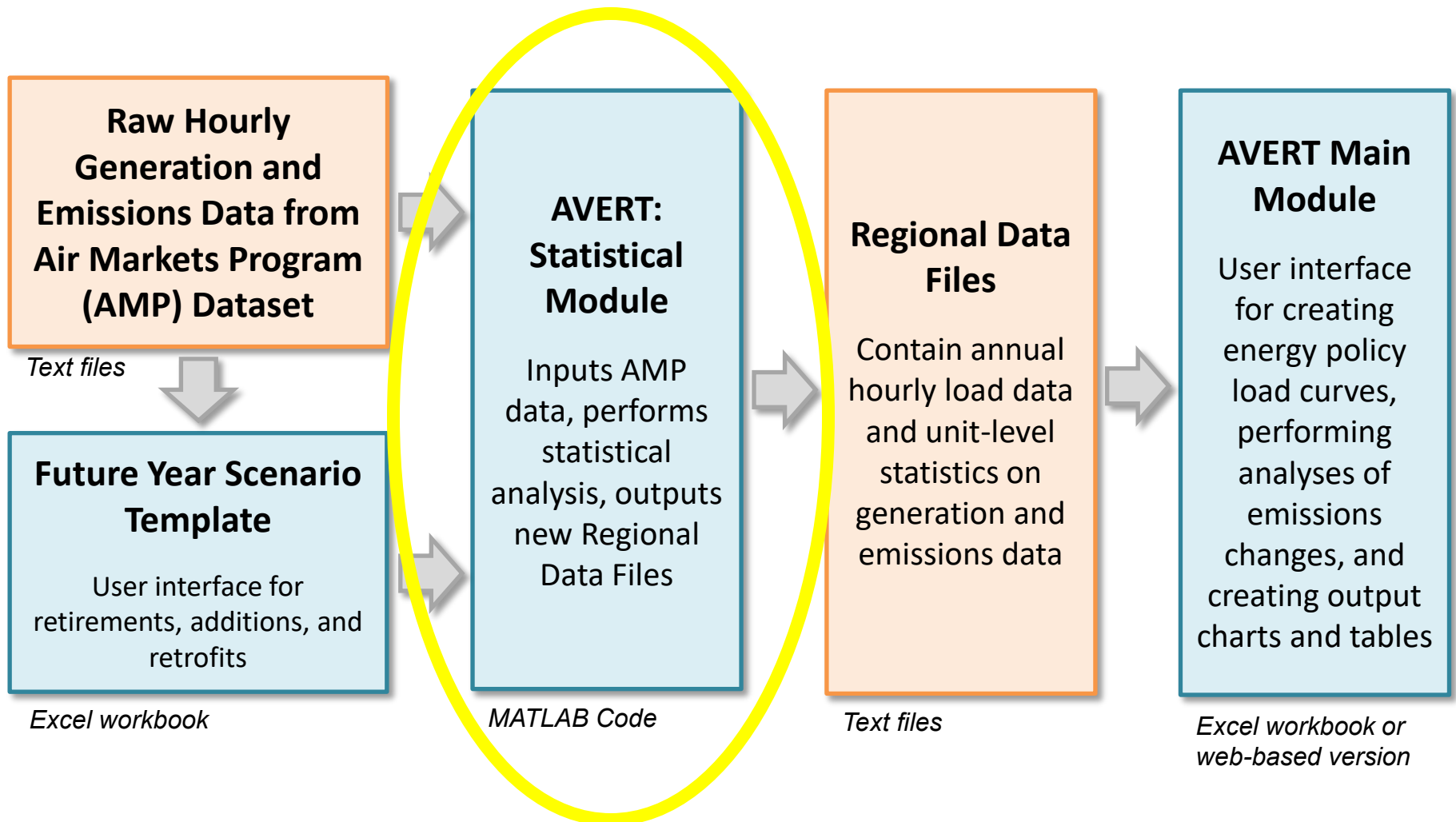


AVERT Statistical Module Operation

U.S. Environmental Protection Agency
State Energy and Environment Program



AVERT's Modules and Data Files



Most users will only need to use the Regional Data Files and AVERT Main Module to calculate emissions

AVERT Statistical Module

Overview

- Purpose
 - Basis of AVERT analysis
 - Processes raw CAMD data to determine behavioral characteristics of fossil-fired EGU
 - Returns expected generation and emissions behavior to AVERT Main Module
 - Allows users to alter EGU characteristics, retire and add EGU with Future Year Template
- Advanced use of AVERT
 - Most users will not require the Statistical Module
 - Based in MATLAB
 - Executable version available for public use
 - Requires MATLAB Compiler Runtime (MCR) to be installed (free from Mathworks)
- Output file can be used directly in Excel-based Main Module

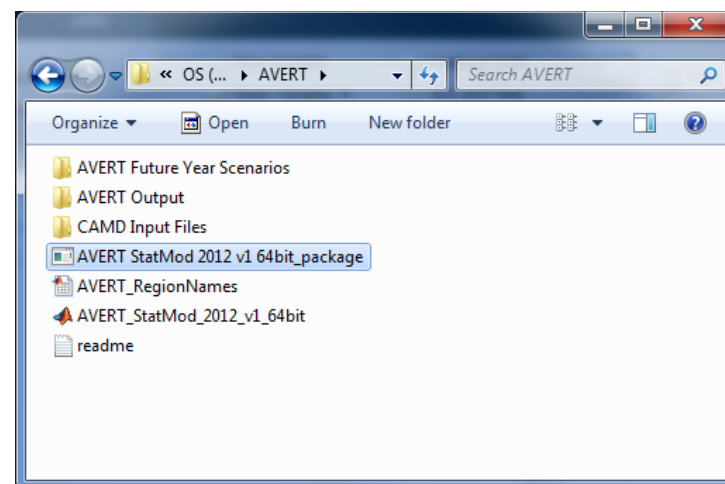
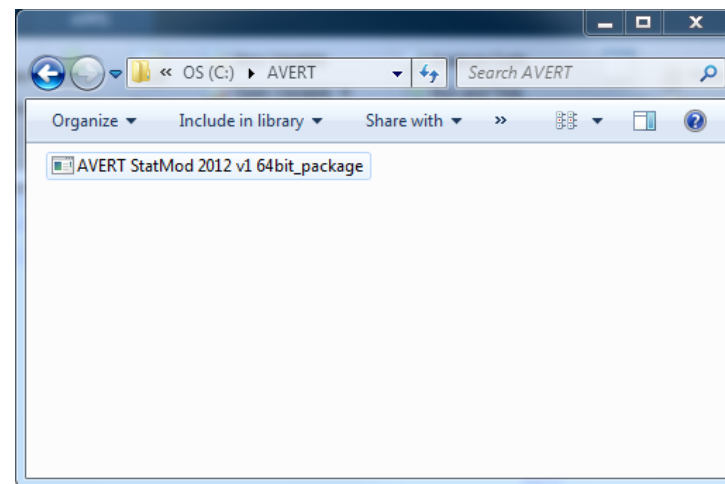
AVERT Statistical Module

Obtain Correct Version

- AVERT Statistical Module is sensitive to PC specifications.
- Requires 64-bit operating system.
- Obtain correct version of MCR from Mathworks:
R2012b (8.0).
 - Use the exact version noted on the AVERT website and in the user guide. An older or newer version will give you an error when you try to run the analysis.
- Determine if your Windows system operates in a 32-bit or 64-bit environment.
 - Find this information in “properties” of “My Computer” in Windows XP, or “Computer” in Windows Vista, Windows 7, or Windows 8.
 - Follow these instructions: <http://windows.microsoft.com/en-us/windows7/find-out-32-or-64-bit>.

AVERT Statistical Module Unpacking and Startup

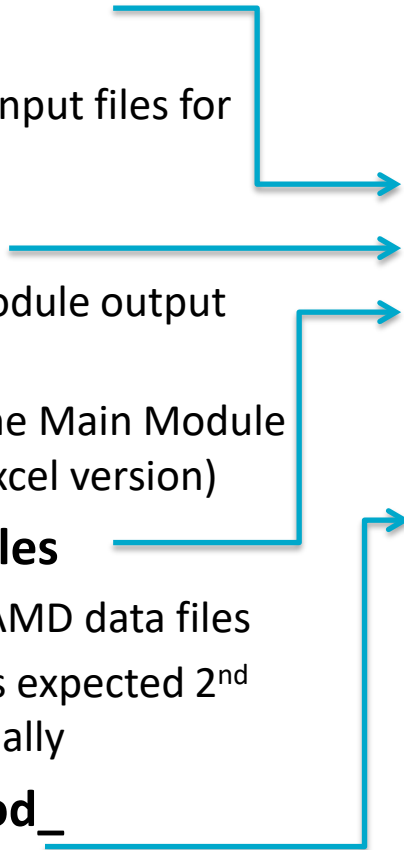
- Download the AVERT Statistical Module package.
- Run the executable to decompress the package to three files and three subfolders.



To obtain historical base years, visit <https://www.epa.gov/statelocalenergy/download-avert> and obtain both the CAMD input file and the Future Year Scenario Template for that same year.

AVERT Statistical Module

File Structure

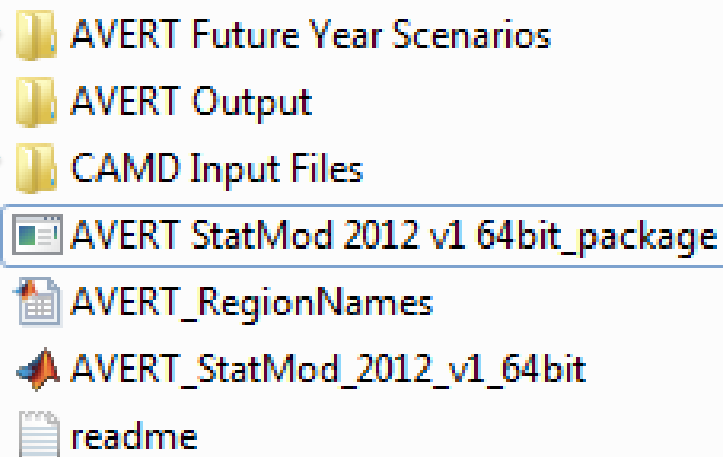
- **AVERT Future Year Scenarios**
 - Excel-based input files for altering EGU
 - **AVERT Output**
 - Statistical Module output files
 - These become Main Module input files (Excel version)
 - **CAMD Input Files**
 - Processed CAMD data files
 - New versions expected 2nd quarter annually
 - **AVERT_StatMod_2012_v1_64bit**
 - Executable
- 
- The diagram shows four blue arrows originating from the text blocks and pointing to a list of files on the right. The first arrow points from 'AVERT Future Year Scenarios' to 'AVERT Future Year Scenarios'. The second arrow points from 'AVERT Output' to 'AVERT Output'. The third arrow points from 'CAMD Input Files' to 'CAMD Input Files'. The fourth arrow points from 'AVERT_StatMod_2012_v1_64bit' to 'AVERT_StatMod_2012_v1_64bit_package'.
- AVERT Future Year Scenarios
 - AVERT Output
 - CAMD Input Files
 - AVERT StatMod 2012 v1 64bit_package
 - AVERT_RegionNames
 - AVERT_StatMod_2012_v1_64bit
 - readme

Obtaining Other Base Years

To obtain additional historical base year data, visit:

<https://www.epa.gov/statelocalenergy/download-avert>.

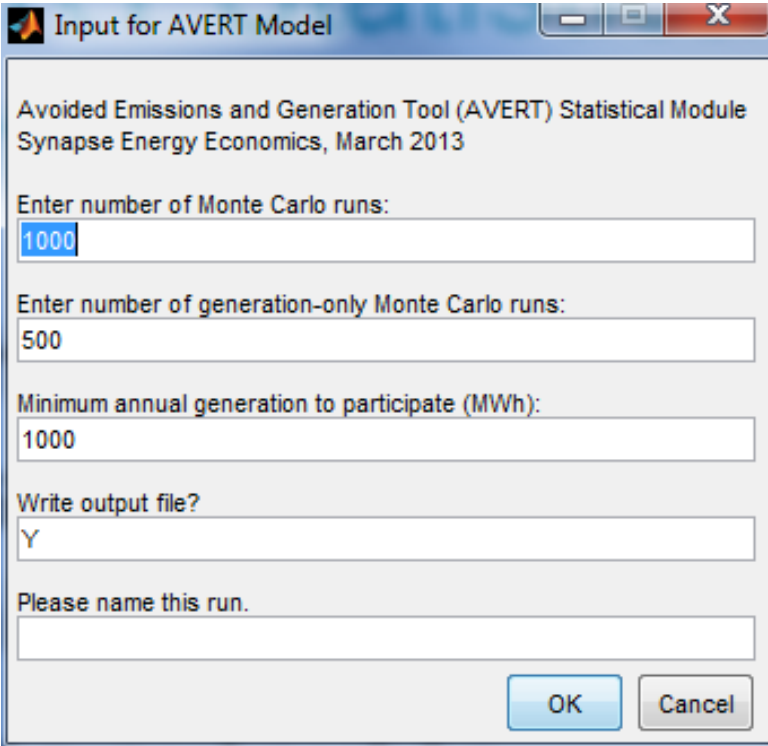
- Download AVERT Future Year Scenario for the same historic base year.
 - Place the file in “AVERT Future Year Scenarios”
- Download the CAMD input file for the historic base year.
 - Place the file in “CAMD Input Files”



AVERT Statistical Module

Input Parameters

- Higher number of Monte Carlo (MC) runs reduces noise.
 - For test runs, use a low number of MC runs (10) and generation-only MC runs (5).
 - For final runs, use a high number of MC runs (1,000) and generation-only MC runs (500).
- Select “Y” to write output and save runs.



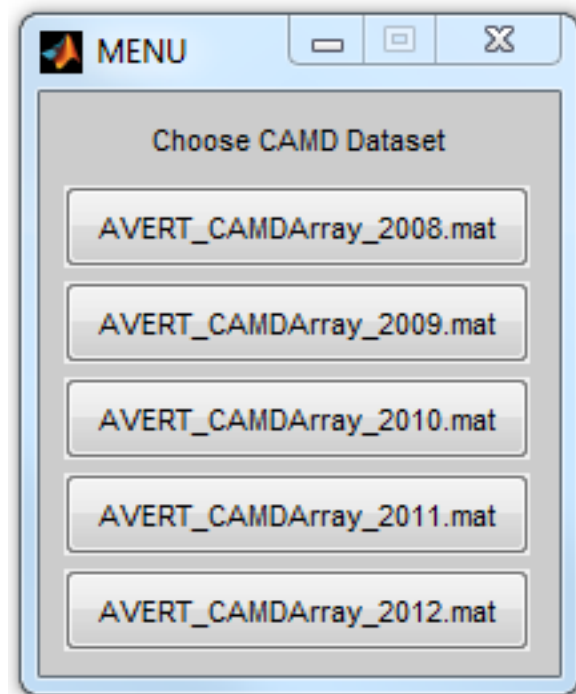
The screenshot shows a Windows-style dialog box titled "Input for AVERT Model". The text inside reads: "Avoided Emissions and Generation Tool (AVERT) Statistical Module Synapse Energy Economics, March 2013". There are four input fields: "Enter number of Monte Carlo runs:" with the value "1000" entered; "Enter number of generation-only Monte Carlo runs:" with the value "500" entered; "Minimum annual generation to participate (MWh):" with the value "1000" entered; and "Write output file?" with the value "Y" entered. Below these fields is a label "Please name this run." followed by an empty text box. At the bottom right are "OK" and "Cancel" buttons.

*Use letters and numbers only.
No special characters and no spaces.*

AVERT Statistical Module

Choose Data File

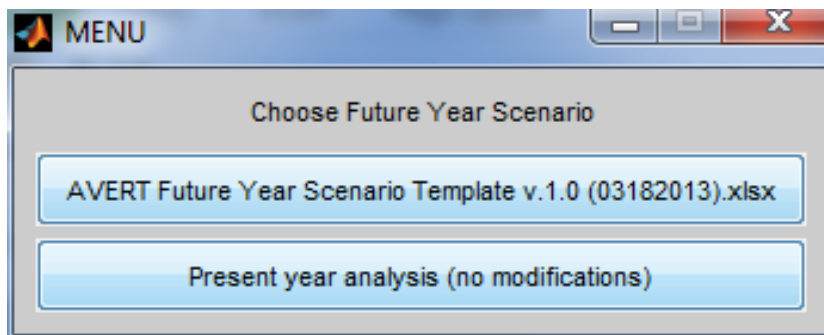
- Choose base year for analysis.
 - Data now available from 2017 through 2019.
 - New data will be ready by the second quarter of the next year.
 - Requires data to be vetted by EPA and post-processed.



AVERT Statistical Module

Choose Future Year Scenario

- Select either
 - Saved future year scenario (see Future Year Scenario Template tutorial)
 - Present year analysis

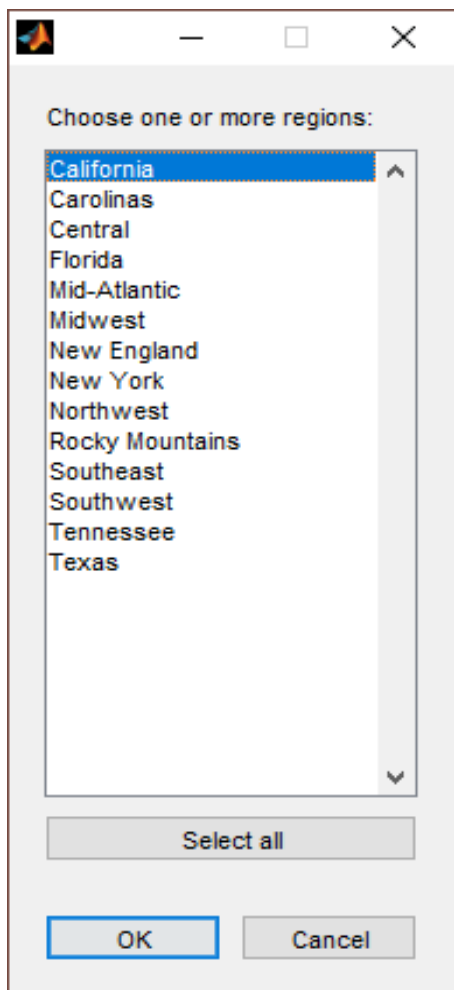


Present year analysis makes no modifications to the AVERT dataset.

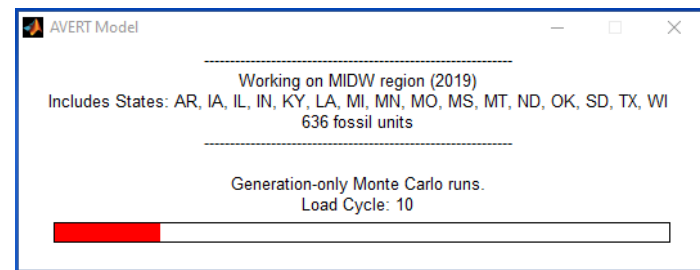
- Uses EGU that exist in data year
- No changes in emissions rates

AVERT Statistical Module

Choose Region(s) of Interest



- Choose region (or multiple regions) of interest.
- Same regions as in AVERT Main Module
- Once you hit “OK”, the program will run uninterrupted until completion.
 - Program returns updated run status on a regular basis.
 - Output graphic and file indicate successful completion.



Use AVERT Future Year Scenario in Statistical Module

- Obtain Future Year Scenario Template (slides 4-7).
- Modify Future Year Scenario Template (see Future Year Scenario Template tutorial).
- Save Future Year Scenario Template with a meaningful name.
- Run Statistical Module (slides 8-11).
 - Provide a unique name for the statistical module run (slide 8).
 - Choose saved future year scenario (slide 10).