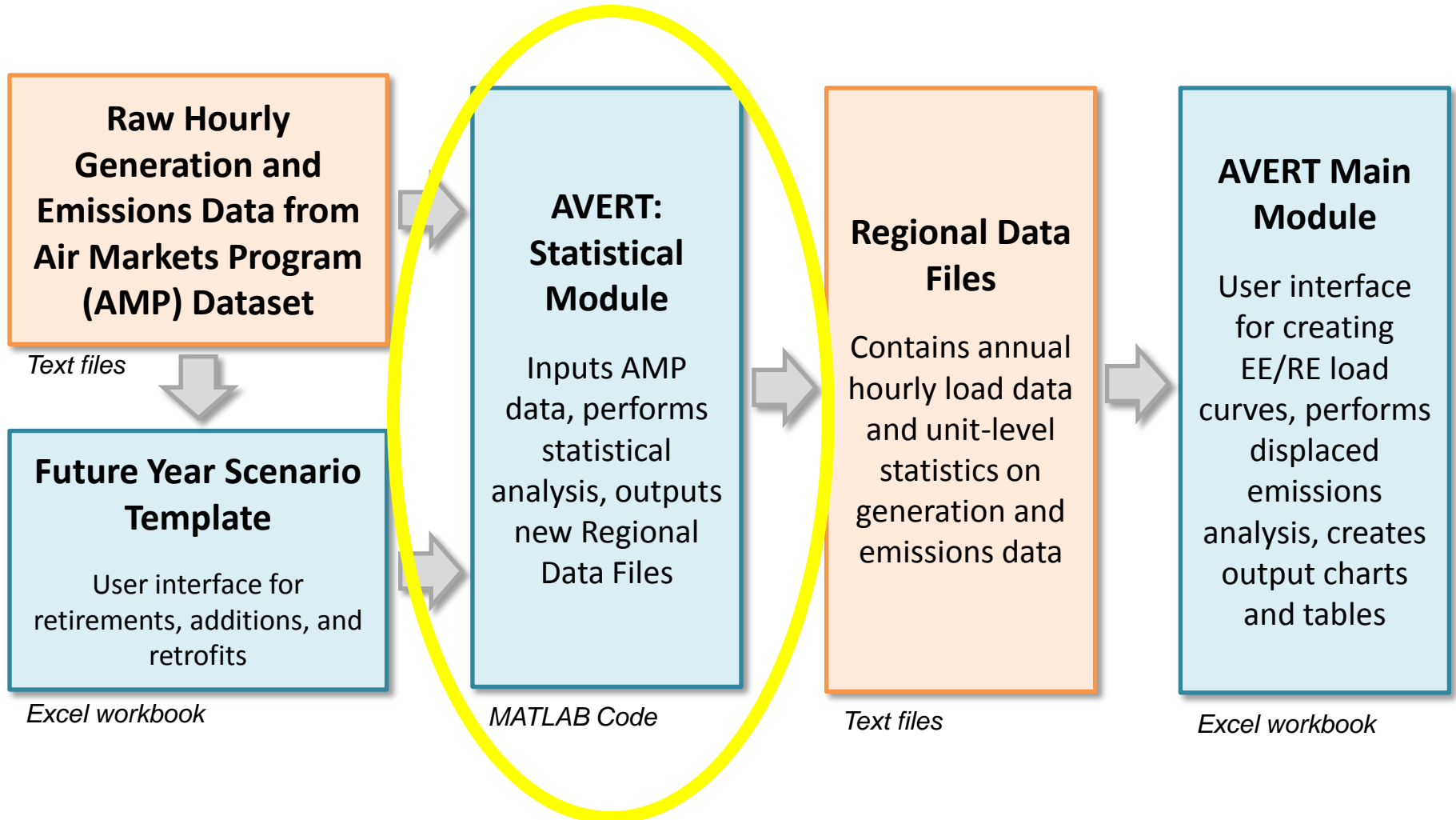


# AVERT Statistical Module Operation

US Environmental Protection Agency  
State Climate and Energy 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 Main Module

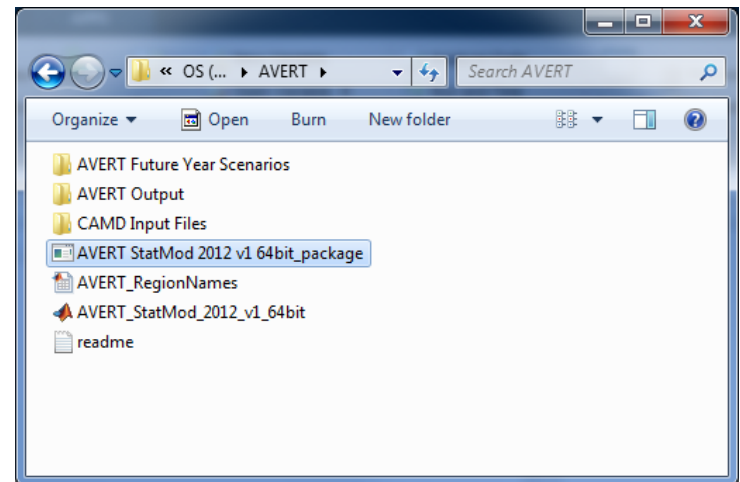
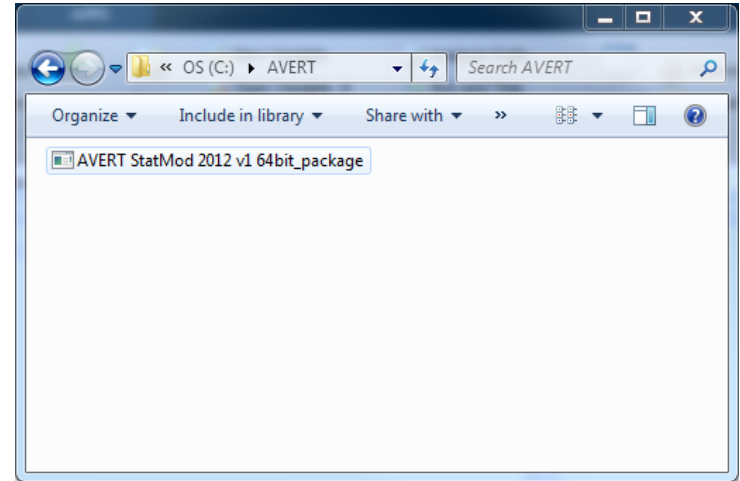
# AVERT Statistical Module

## Obtain Correct Version

- AVERT Statistical Module is sensitive to PC specifications.
- 32-bit and 64-bit operating system versions available.
- Obtain correct version of AVERT Statistical Module.
- Obtain correct version of MCR from Mathworks.
- 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 historic base years, visit <http://epa.gov/statelocalclimate/resources/avert-download.html> 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**

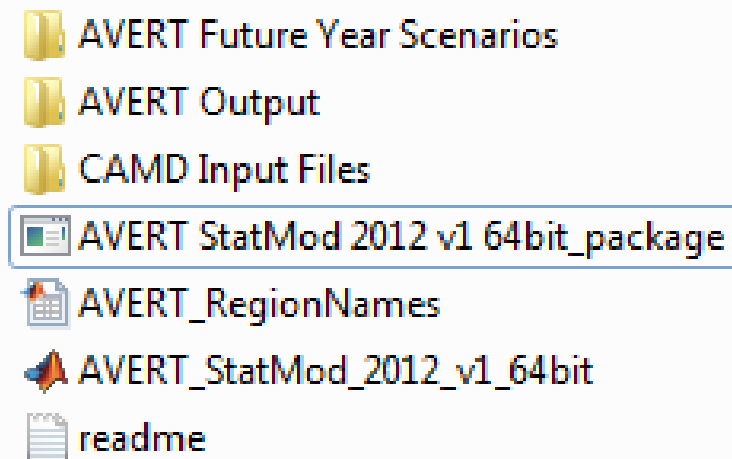
- Statistical Module output files
- These become Main Module input files

- **CAMD Input Files**

- Processed CAMD data files
- New versions expected 2<sup>nd</sup> quarter annually

- **AVERT\_StatMod\_2012\_v1\_64bit**

- Executable

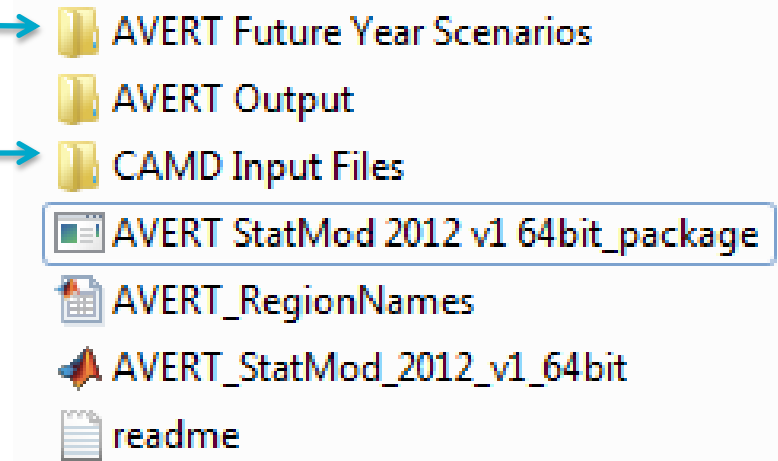


# Obtaining Other Base Years

To obtain additional historic base year data, visit:

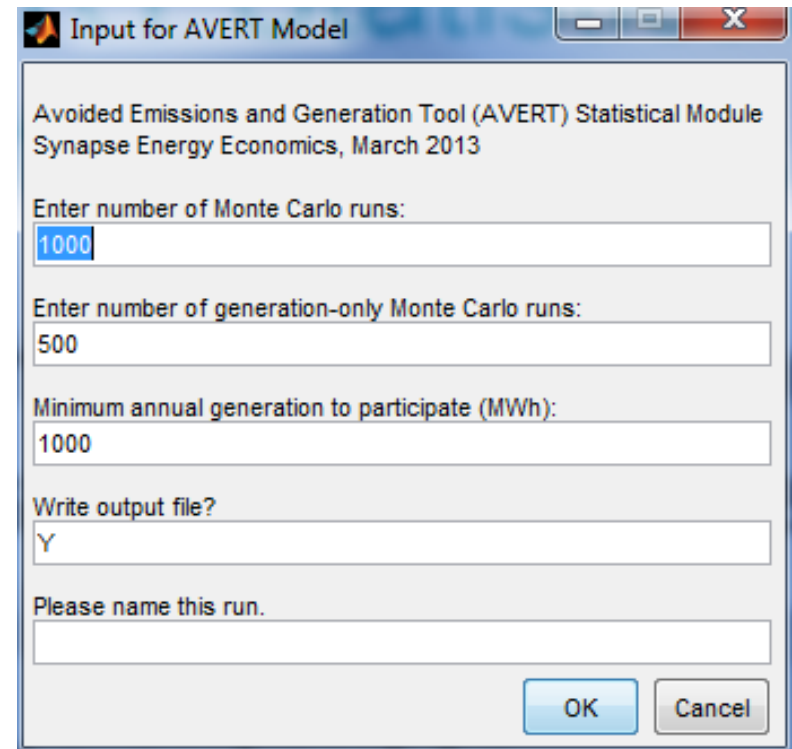
<http://epa.gov/statelocalclimate/resources/avert-download.html>.

- 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.



Input for AVERT Model

Avoided Emissions and Generation Tool (AVERT) Statistical Module  
Synapse Energy Economics, March 2013

Enter number of Monte Carlo runs:  
1000

Enter number of generation-only Monte Carlo runs:  
500

Minimum annual generation to participate (MWh):  
1000

Write output file?  
Y

Please name this run.  
[Empty text box]

OK Cancel

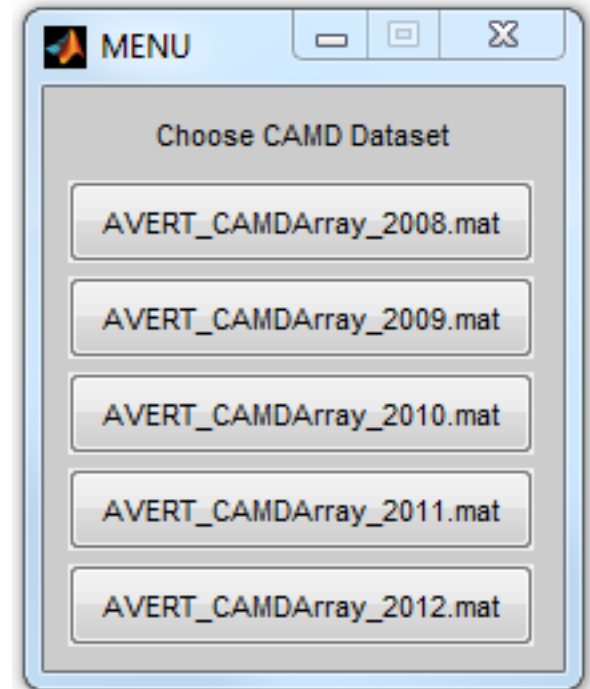
*Use letters and numbers only.  
No special characters and no spaces.*



# AVERT Statistical Module

## Choose Data File

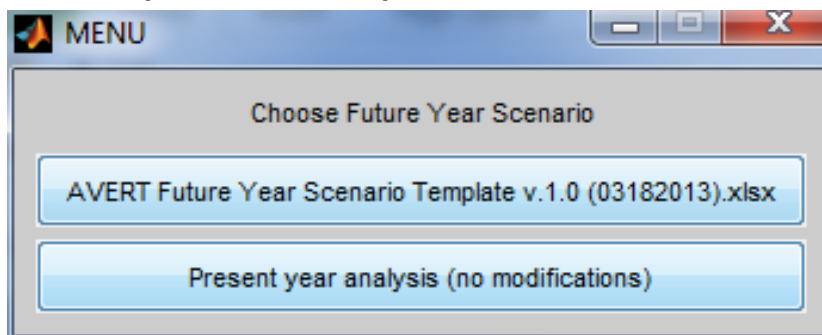
- Choose base year for analysis.
  - Data from 2007 through 2013 are available.
  - New data will be ready by the second quarter of the next year.
    - Requires data to be vetted by EPA and post-processed.



# AVERT Statistical Module

## Choose Future Year Scenario

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

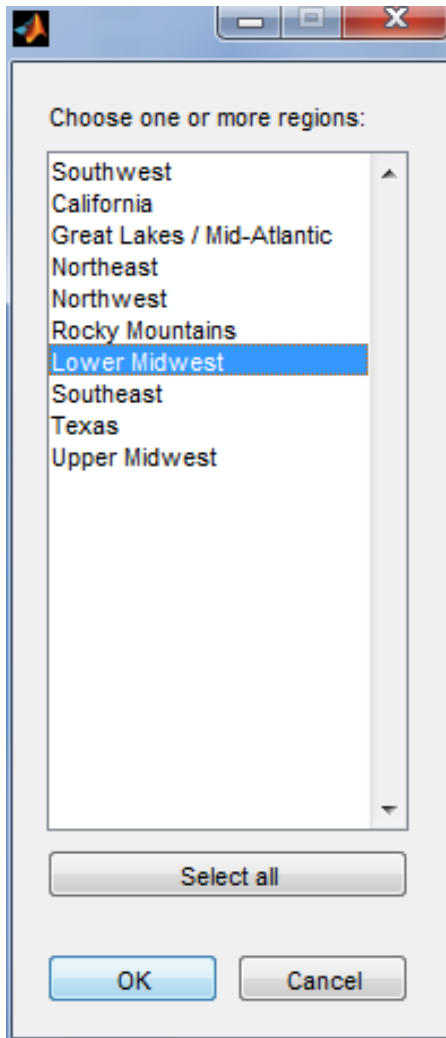


Present year analysis makes no modifications to the AVERT dataset.

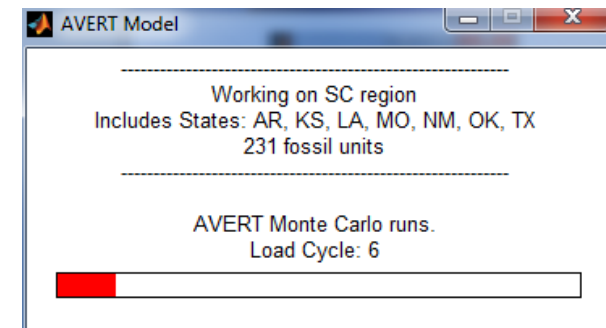
- Uses EGU that exist in data year
- No changes in emissions rates

# 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).