AVoided Emissions and geneRation Tool (AVERT)

A tool that estimates the emission impacts of energy efficiency (EE) and renewable energy (RE), and other energy policies and programs

What is AVERT?

AVERT is a free tool with a simple user interface designed to meet the needs of state air quality planners and other interested stakeholders. Non-experts can use AVERT to evaluate county-level changes in emissions from electric power plants by energy policies and programs. AVERT uses public data that are accessible and auditable. Users can choose between AVERT's Excel-based tool and a web-based version. Visit www.epa.gov/avert to use AVERT's web-based Main Module.

Why use AVERT?

Organizations interested in the emission impacts of energy policies and programs can use AVERT to:

- Quantify the fine particulate matter ($PM_{2.5}$), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and carbon dioxide (CO_2) emission benefits of state and multi-state EE/RE policies or programs.
- Use AVERT-calculated emission impacts of EE/RE policies in air quality modeling and Clean Air Act plans to meet the National Ambient Air Quality Standards.
- Analyze the regional, state, and county-level emission impacts of different EE/RE programs based on their temporal energy savings and hourly generation profiles.
- Compare the emission impacts of different types of EE/RE programs, such as the impacts of wind versus solar installations.
- Understand the emission impacts of different EE/RE policies and programs during high electric demand days.
- Present information about location-specific emission benefits in easy-to-interpret tables and maps.
- Use AVERT-generated emission factors to quickly estimate the magnitude of emission impacts within an AVERT region.

Cost-effective ways to reduce air pollution and enhance public health

Many states are adopting, implementing, and expanding cost-effective EE/RE policies and programs. States are investing in EE/RE policies and programs to achieve many benefits:

- Lower customer costs
- Improve electric supply reliability
- Diversify their energy supply portfolios
- Reduce pollution of criteria air pollutants and greenhouse gases

EPA is committed to helping state and local governments enhance public health. Decision-makers and analysts can use the AVERT tool to quantify emission reductions from EE/RE policies and programs as an early step in calculating air quality changes and localized health impacts.
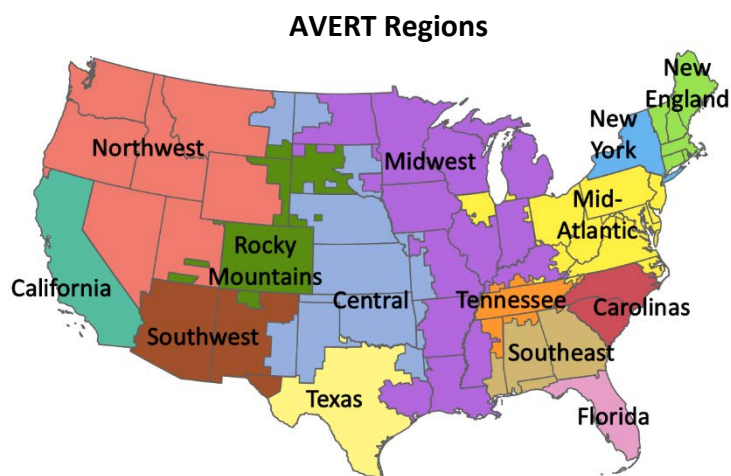
When should AVERT not be used?

AVERT's Excel-based modules should not be used to examine the emission impacts of major fleet adjustments. Users who wish to conduct analyses more than five years from the baseline must use AVERT's statistical module and future year scenario template.

Who should use AVERT?

- Analysts looking to improve their understanding of the emission benefits of state-wide or multi-state EE/RE policies and programs.
- Environmental agency staff and air quality planners interested in assessing emission benefits and including them in Clean Air Act plans to meet the National Ambient Air Quality Standards or other clean air goals.
- Energy office or public utility commission staff looking to estimate or promote the air benefits of existing or planned energy efficiency or renewable energy policies.

How do I run a scenario in AVERT?

AVERT's web-based Main Module runs in any major web browser and estimates the emission impacts likely to result from energy programs using the most recent year of data. Users select one of 14 AVERT regions and input data on the programs they want to analyze. For EE policies and programs, users should have EE savings annual impacts (in MWh) or an understanding of the policies' or programs' temporal profiles (e.g., would the EE program save energy during peak periods or the same amount through the year). For RE programs, users will need to know the capacity of the solar or wind resource they

AVERT Regions

want to analyze. For more information on using the Excel-based Main Module, with additional functionality including different data years, custom load profiles, future regional data files, and additional output formats, see the AVERT Main Module Quick Start Guide.

For more information

- Visit the AVERT website, download AVERT, download avoided emission factors generated from AVERT, and take online training at www.epa.gov/avert
- Contact us at avert@epa.gov

State and Local Energy and Environment Program

epa.gov/statelocalenergy