

## Providing Easy-to-Use Computing Tools for the Automotive Industry

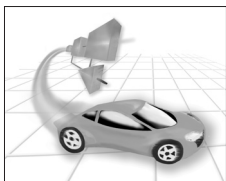
Argonne National Laboratory created a convenient suite of computer models to assist the automotive industry and its constituents in designing and analyzing alternative fuel vehicles (AFVs), validating vehicles and components, and ascertaining the energy and environmental impacts of advanced vehicle technologies.

**GCtool.** Argonne system analysts developed the General Computational toolkit (GCtool), a versatile simulation software package for designing, analyzing, and comparing different fuel cell configurations for vehicles. GCtool lets automobile and truck designers “try out” different system configurations without the expense and delay of actually building numerous prototypes.



A variety of arrangements is available for licensing this software.

For more information, contact Rajesh Ahluwalia, phone: (630) 252-5979.



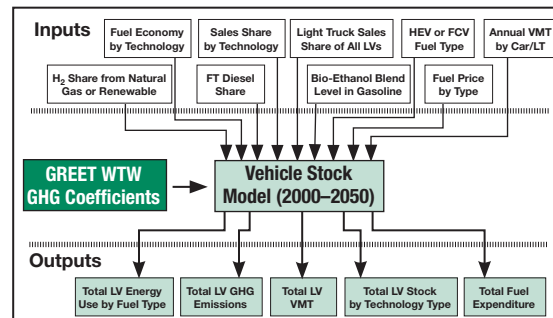
**PSAT and PSAT-PRO.** PSAT, a “forward-looking” model, simulates fuel economy and performance of advanced vehicles (including hybrid electric and fuel cell vehicles) in a realistic manner, taking into account transient behavior and control system characteristics, from the driver to the wheels. PSAT-PRO, its companion prototyping software, is designed to perform Hardware-in-the-Loop and Rapid Control Prototyping of advanced vehicles. For more information, please refer to Argonne’s transportation website (<http://www.transportation.anl.gov/software/PSAT/index.html>).

For more information, contact Aymeric Rousseau, phone: (630) 252-7261.

**AirCRED.** This calculation model easily sums values of summertime ozone precursor and wintertime carbon monoxide emission-reduction credits earned by acquiring AFVs from original equipment manufacturers. The tool primarily assists Clean Cities organizations in estimating AFV emission credits, but has been approved by the Environmental Protection Agency for estimating attributable emission reductions under its Voluntary Mobile-Source Emission-Reduction Program and calculating State Implementation Plan emission credits. The U.S. Department of Transportation also approved the tool for calculating emission-reduction benefits of certain projects. Version 4.0, the most recent, fully interactive web-based edition of this tool, is now available for use at [www.aircred.anl.gov](http://www.aircred.anl.gov).

For more information, contact Chris Saricks, phone: (630) 252-8335 and Andy Burnham (630) 252-6606.

**GREET.** A fuel-cycle model for Greenhouse gases, Regulated Emissions, and Energy use in Transportation evaluates various engine and fuel combinations on a consistent fuel-cycle basis. GREET was created as a multidimensional spreadsheet model in Microsoft Excel and is used extensively worldwide by industry, government, and academic researchers. GREET 1.6 Beta Version is available for download ([http://www.transportation.anl.gov/software/GREET/download\\_form.html](http://www.transportation.anl.gov/software/GREET/download_form.html)).



For more information, contact Michael Wang, phone: (630) 252-2819.

**VISION.** With DOE support, Argonne has developed the VISION model to provide estimates of aggregate energy use, oil use, and carbon emission impacts of highway vehicle technologies for a given year between 2000 and 2050. The model simulates both light-duty vehicles and heavy-duty vehicles with powertrain technologies such as conventional engines, hybrids, electric, and fuel cells. The model can be used to generate savings in annual oil use and carbon emissions, together with other outputs of alternative cases under which new vehicle/fuel systems gradually penetrate vehicle fleets, relative to the basecase technologies and fuels.

For more information, contact Margaret Singh, phone: (202) 488-2440.