

Fuel Cell Power (FCPower) Model

(National Renewable Energy Laboratory)

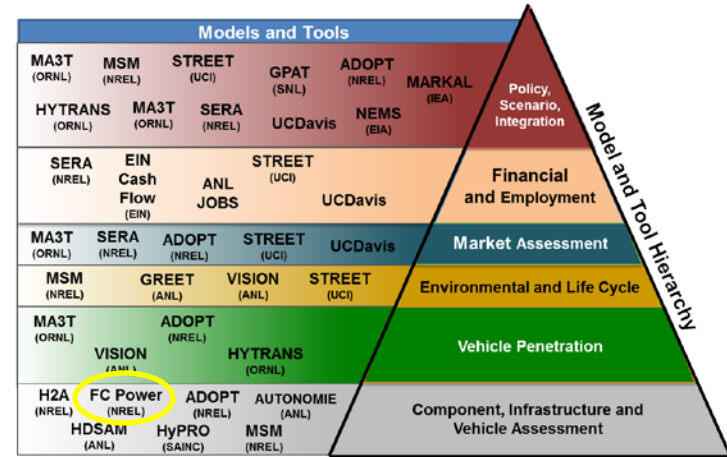
Objectives

Serve as a financial tool for analyzing high-temperature, fuel cell-based tri-generation systems.¹

Key Attributes & Strengths

Evaluates integration of building electricity and heat energy flows with hydrogen production. Performs hourly energy analysis and detailed grid time of use cost evaluations, which then feed into a discounted cash flow evaluation. Ability to analyze several fuel cell technologies: molten carbonate, phosphoric acid, solid oxide, and proton exchange membrane. Model is mainly used for analysis of CHP systems, but can also model building integration with solar panels and fuel cells.

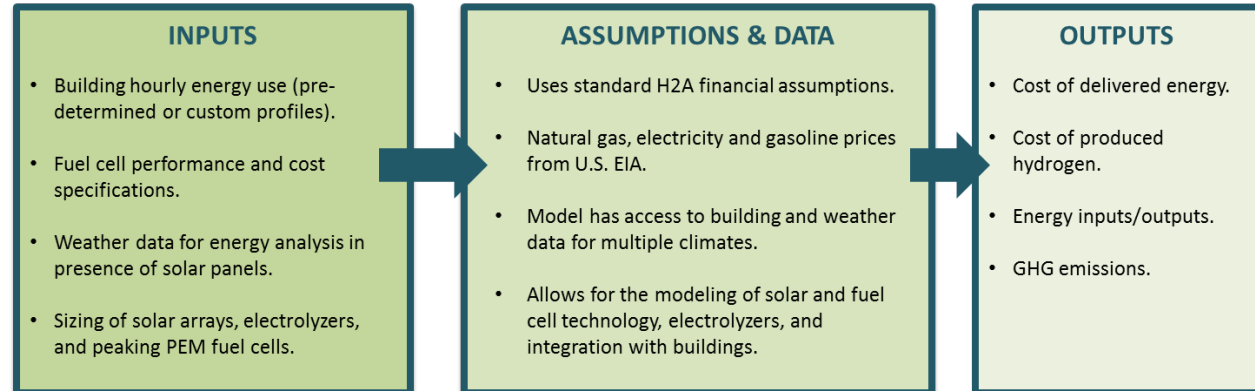
Modules related to electrolyzers, storage, and dispensing are included in the model, also allowing analysis of renewable hydrogen from electrolysis.



Platform, Requirements & Availability

Freely available to the public from the Systems Analysis program's website (http://hydrogen.energy.gov/fc_power_analysis.html) but registration is required. Easy to use interface in Microsoft Excel environment (provides access to assumptions, inputs, and outputs).

Users may also access the model's case study data to download building energy demand profiles and renewable energy supply profiles that can be imported into the model, at: http://hydrogen.energy.gov/cf/fc_power_analysis_model_data.cfm.



¹ Tri-generation systems use natural gas to produce electricity and heat for buildings, and co-produce hydrogen for transportation use.