Spatially and Temporally Resolved
Energy and Environment Tool (STREET) Model
(University of California-Irvine)

Objectives

Determine the number of strategically located hydrogen fueling stations needed within a geographic area to enable the introduction of commercial volumes of fuel cell electric vehicles (FCEVs), and determine the geographic distribution of the required stations while also assessing the environmental impacts.

Key Attributes & Strengths

Optimized hydrogen fueling station locations are determined by employing an optimization routine in which the existing road infrastructure is modeled to determine driving times to hydrogen stations within the cluster. Model has the capability to analyze well-to-wheels greenhouse gas (GHG) emissions impacts, in addition to air quality impacts.

Platform, Requirements & Availability

Model is web-based and available through a license. For custom analyses (e.g., air quality), need to contact the Advanced Power and Energy Program of the University of California-Irvine.

INPUTS	ASSUMPTIONS & DATA	OUTPUTS
• Fuel supply chain simulations. • Alternative vehicle data, future vehicle projections, and travel demand forecasts. • Electric power generation infrastructure. • Land use and infrastructure considerations. • Weather data and atmospheric chemistry. • Economic information. • Demographic data.	• Region(s) of FCEV interest are assumed based on appropriate demographics, consumer interest data, or vehicle data, and then used in the model.	• Infrastructure requirements. • GHG and criteria pollutant emissions. Air quality impacts. • Energy impacts. • Water impacts. • Resource consumption. • Energy cost.