

Global Pathways Analysis Tool (GPAT)

(Sandia National Laboratories)

Objectives

Calculate least-cost pathways for hydrogen supply for eight participating countries: France, Germany, Norway, Spain, Sweden, Denmark, Japan, and the United States (U.S. further divided into eight regions to allow for additional regional analysis; additional countries could be added as data becomes available). The objective is to match country level demands for hydrogen with lowest cost supply options for each country.

Key Attributes & Strengths

Hydrogen pathways include consideration of feedstock, conversion, distribution (regional and long-distance), and carbon costs. Inter-regional transfers of hydrogen are taken into account, based on total cost of producing and delivering hydrogen. Users are able to vary key assumptions, including resource availability and cost, vehicle shares and efficiencies, carbon taxes, and renewable portfolio standards, and view real-time results, making the tool ideal for policy-level discussions. GPAT also quantifies the potential reduction in greenhouse gas emissions from the transport sector.

Platform, Requirements & Availability

GPAT was developed using the Powersim Dynamic Simulation Modeling platform. Model is not yet publicly available.

