## **JOBS** Models

JOBS FC (Fuel Cells) & JOBS H2 (Hydrogen)

(Argonne National Laboratory)

## **Objectives**

The JOBS and economic impacts of Fuel Cells (JOBS FC) and JOBS and economic impacts of Hydrogen (JOBS H2) models estimate employment, earnings and economic output from the manufacture, installation and use of select types of fuel cells and hydrogen infrastructure.

# **Key Attributes & Strengths**

The two JOBS models use input-output methodology to estimate economic impacts associated with expenditures on fuel cells and related infrastructure, and calculate the ripple effects of those impacts throughout the economy. Users can define a variety of scenarios with the models, either by specifying project-specific costs and operating parameters or by using defaults provided in the models. Both models have a flexible platform that permits users to analyze impacts at the state, regional or national level and to examine scenarios in which different types and sizes of the relevant technology (PEM, PAFC or MCFC fuel cells in JOBS FC or hydrogen fueling stations in JOBS H2) are produced inside or outside a region of interest.

# Platform, Requirements & Availability

Version 1.1 of the JOBS FC model is a Microsoft Excelbased spreadsheet tool copyright by the University of Chicago—Argonne, LLC and is available at http://jobsfc.es.anl.gov. The model must be run in Microsoft Excel 2010 for full functionality. The JOBS H2 model is currently under development.

#### **INPUTS**

- Analysis region (any one of 50 states, nine census regions, or U.S. as a whole).
- Annual numbers of PEM, PAFC or MCFC fuel cells or hydrogen fueling stations of given size/capacity to be deployed in near term, their annual utilization and energy use.
- Uninstalled costs of fuel cells or hydrogen fueling stations by relevant component.
- Costs for key construction and preconstruction activities, installation and operation of fuel cells or hydrogen infrastructure.

#### **ASSUMPTIONS & DATA**

Models and Tools

**GPAT** 

STREET

STREET

VISION

**HYTRANS** 

ADOPT AUTONOMIE

MSM

**UCDavis** 

MARKAL

Financial

and Employment

**Market Assessment** 

**Environmental and Life Cycle** 

**Vehicle Penetration** 

Component, Infrastructure and

Vehicle Assessment

**NEMS** 

**UCDavis** 

**UCDavis** 

STREET

STREET

SERA

ANL

JOBS

ADOPT

ADOPT

HyPRO

GREET

(ANL)

MA3T

(ORNL)

HYTRANS

SERA

(NREL)

MA3T

MSM

(NREL)

MA3T

(ORNL)

MSM

MA3T

EIN

Cash

VISION

FC Power

HDSAM

Flow

- JOBS models rely on relationships embedded in RIMS (the Regional Input-output Modeling System).
- State, regional and national relationships in RIMS reflect recent structure of U.S. economy and are assumed to remain stable over nearterm.
- Default values in JOBS models reflect costs reported in literature, from industry sources, or from other models. They represent likely expenditures for equipment purchase, preconstruction and construction activities, equipment installation, fuel purchase, etc.
- Users can override default values if they have data specific to their project and region.

### **OUTPUTS**

- Employment, earnings and economic output provided to:
  - ☐ Individuals and establishments directly (direct impacts).
  - ☐ Individuals and establishments further up the supply chain (indirect impacts).☐ Service and support
  - ☐ Service and support industries whose growth is induced by re-spending of Dollars in the economy (induced impacts).