

VIII.12 Hydrogen Analysis Repository

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Contribution to Achievement of DOE Systems Analysis Milestones

This project will contribute to achievement of the following DOE Systems Analysis milestones from the Systems Analysis section of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

- Task 3: Provide Support Functions and Conduct Reviews
 - Maintain and update the Analysis Repository

Accomplishments

- Created a searchable online database of hydrogen-related analyses, publicly accessible on the internet at http://www.hydrogen.energy.gov/analysis_repository/.
- Designed a user-friendly interface that provides the needed functionality, particularly regarding search capabilities.
- Populated the database with approximately 75 analyses projects. Projects continue to be added.



Objectives

- Create a searchable online database of hydrogen-related analyses.
- Populate the database with as many hydrogen-related analyses as is practical, both DOE- and non-DOE-funded.
- Develop a user-friendly interface that provides the needed functionality, particularly regarding search capabilities.

Technical Barriers

This project addresses the following technical barriers from the Systems Analysis section of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

- (B) Stove-piped/Siloed Analytical Capability
- (D) Suite of Model and Tools
- (E) Unplanned Studies and Analysis

Introduction

One challenge faced by researchers, analysts, and program managers involved in hydrogen and fuel cell studies is the glut of information. Many research projects and analyses have been done or are being done, but a number of these studies are not easily accessible or highly visible. As a result, research and analyses are duplicated unnecessarily. The DOE Hydrogen Analysis Repository is a tool for analysts and decision-makers to find information on hydrogen-related analyses and models quickly and easily. The repository is a searchable online database of past and present hydrogen analysis projects and computer models. Each entry contains, at a minimum, the purpose of the analysis or modeling project and means to locate more information.

The analysis repository website is now up and running, with search capabilities and a sampling of about 75 projects. Future efforts will work to greatly expand the number of projects listed in the repository, to try include all of the major important hydrogen analyses and models, and to make the repository a useful tool for the hydrogen community.

Approach

The approach for developing the DOE Hydrogen Program Analysis Repository included determining data needs and specifications for the repository; programming the repository database and online user interface; and populating the repository database with information on hydrogen-related analyses and models. The function of the repository is modeled after a card catalogue in a library. Each entry in the repository should contain enough information on the analysis or model to identify its general purpose and scope and enable the user to locate further information.

Results

Alliance Technical Services, Inc. has populated a database of projects, and the National Renewable Energy Laboratory has created a searchable online tool for displaying the data. The Analysis Repository website went live on May 8, 2007, with a sampling of about 75 hydrogen-related analysis projects and models. Figure 1 shows the front page of the repository website, which is publicly accessible at the following internet address: http://www.hydrogen.energy.gov/analysis_repository/. A search feature is available, and projects can be sorted by:

- Type of analysis/model (cross-cutting, energy infrastructure, environmental, hydrogen fuel pathways, macro-economic, vehicle options, well-to-wheels)
- Model vs. analysis

- Title
- Performing organization
- Principal investigator
- Date

Over 100 additional projects have been identified for inclusion in the repository, including all DOE-funded systems analysis projects from present time back to 1995 (component analyses excluded), other federally funded hydrogen-related analyses conducted since 1995, and privately and internationally sponsored hydrogen-related analyses conducted since 1995. Data on these projects are being gathered from publications, reports, and from the principal investigators of the projects. Over 100 principal investigators of hydrogen-related projects have been contacted to verify project and contact information. As information about projects is verified, the projects are entered into the repository database and become available on the website.

Conclusions and Future Directions

- We have implemented an initial version of the DOE Hydrogen Program Analysis Repository with a limited number of projects, and made the repository available online to the hydrogen community.
- Future efforts include collecting data on additional projects and updating/expanding data on existing repository entries.
- Feedback is solicited from the analysis community to improve both the data and the structure of the

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SEARCH REPOSITORY

Analysis Repository

- > Analysis Projects
- > Modeling Projects
- > Projects by Title
- > Projects by Performing Organization
- > Projects by Principal Investigator
- > Projects by Date

The Analysis Repository is a compilation of analyses and analytical models relevant to assessing hydrogen fuel and fuel cell issues. Projects in the repository relate to

- Hydrogen production, delivery, storage, fuel cells, and hydrogen vehicle technology
- Hydrogen production feedstock cost and availability
- Electricity production, central and distributed
- Energy resource estimation and forecasting.

The U.S. Department of Energy created this repository to help analysts, policy makers, businesses, government agencies, and others quickly and easily locate information on hydrogen analyses.

Finding Information

This database is structured much like a library catalog. Each project entry contains information on the principal investigator, sponsor, and purpose—providing enough information for additional searches elsewhere if more information is needed. In some cases, more project details are included, such as reports, links to models, and other related data.

You can find projects using different approaches. The left-hand navigation allows for browsing by either analysis or modeling projects. You can also browse by title, performing organization, principal investigator, and completion date. The search box at the right hand top allows for searches by keyword.

Submitting Your Project

To submit information on your hydrogen analysis project or model, please contact [Melissa Lott](#).

FIGURE 1. Hydrogen Program Analysis Repository Website: http://www.hydrogen.energy.gov/analysis_repository/

repository tool. Improvements will be implemented based on feedback; the tool will evolve so that it can become a valuable resource for the analysis community and decision-makers.

FY 2007 Publications/Presentations

1. Melissa Lott, Tom Timbario, and TG Powell, "Analysis Repository," Poster at 2007 DOE Hydrogen Program Review, May 16, 2007, Arlington, VA.