

## **A National Agenda for Hydrogen Codes and Standards**

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For the past decade, the Office of Hydrogen, Fuel Cells and Infrastructure Technologies in the U.S. Department of Energy (DOE) has sponsored a collaborative national effort by government and industry to prepare, review, and promulgate codes and standards needed to expedite hydrogen infrastructure development and to help enable the emergence of hydrogen as a significant energy carrier. In addition, DOE has worked to harmonize national and international standards, codes, and regulations that are essential for the safe use of hydrogen by consumers in the U.S. and throughout the world. The National Renewable Energy Laboratory (NREL) supports DOE in these efforts.

A key to the emerging national agenda for hydrogen and fuel cell codes and standards is the creation and on-going implementation of national templates through which DOE, NREL, and key standards and model code development organizations coordinate the preparation of critical standards and codes for hydrogen and fuel cell technologies and applications. The national templates are accepted by the major standards and model code development organizations in the U.S., the FreedomCAR and Fuel Partnership, key industry associations, and many state and local governments as guideposts for the coordinated development of standards and model codes. The National Hydrogen and Fuel Cells Codes and Standards Coordinating Committee, formed to help manage implementation of the templates, has created a “virtual national forum” for standards and model code development organizations, industry, government, and interested parties to address codes and standards issues, both immediate and long-term.

DOE has also launched a comprehensive research, development, and demonstration (RD&D) effort to obtain data needed to establish a scientific basis for requirements incorporated in hydrogen codes and standards. This RD&D is planned, supported, and evaluated by DOE in collaboration with the Codes and Standards Technical Team (CSTT) of the U.S. FreedomCAR and Fuel Partnership. The CSTT has adopted a Roadmap that identifies RD&D needs, gaps, and priorities related to the development of codes and standards for a hydrogen-based transportation system. DOE implements the Roadmap by supporting priority RD&D at its national laboratories, universities, and industry.

With the help and cooperation of standards and model code development organizations, industry, and other interested parties, DOE has established a coordinated national agenda for hydrogen and fuel cell codes and standards. With the adoption of the RD&D Roadmap and with its implementation through the CSTT, DOE helps strengthen the scientific basis for requirements incorporated in codes and standards that, in turn, will facilitate international market receptivity for hydrogen and fuel cell technologies.