Journal of Solar Energy Engineering

Discussion

Comments Dealing with Fuel Cell Energy Policy and Renewable Energy

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On January 9, 2002, US Secretary of Energy Abrams announced that the Bush administration has terminated funding the Partnership for a New Generation of Vehicles (PNGV) program that was initiated under the Clinton administration in an effort to produce a hybrid vehicle that could obtain 80 miles per gallon. Secretary Abrams further announced that in place of the PNGV program, the administration would fund Freedom CAR, a private-public partnership whose goal is to develop technologies for a fuel cell-powered vehicle using hydrogen as the fuel. It has previously been claimed by some that fuel cell vehicles are not only highly energy efficient, but also will emit no tailpipe pollution. With those claims in mind, the *New Yorker*, in its November 6, 2000 issue, claimed that fuel cells would reach a mass market as replacements for traditional automobiles by the middle of this decade.

For the past two years, ASME has funded a study on advanced ground transportation technologies, including hydrogen fuel cells. The results of this study have been peer-reviewed and will be published in a forthcoming issue of the ASME *Journal of Energy Resources Technology*. The study shows that although fuel cells are very efficient once hydrogen is available, due to the inefficiency of producing hydrogen, automobiles and trucks that use hydrogen fuel cells have a lower well-to-wheel efficiency than hybrid vehicles, similar to those currently imported from Japan. Moreover, because of the inefficiency associated with producing hydrogen with currently available technologies from natural gas, the use of hydrogen fuel cells in automobiles will actually increase the generation of greenhouse gases unless the hydrogen was produced by electrolysis using electric power generated from non-polluting sources such as solar thermal or wind. Our conclusion has been corroborated by the General Motors Corporation in a study released May 21, 2002 (http://www.gm.com/cgi-bin/pr_display.pl?3006). It is thus becoming more and more important to place serious R&D effort on reducing the cost of producing power from solar sources that produce less greenhouse gases than fossil fuels.

