DOE Hydrogen and Fuel Cells Program Record	
Record #: 12014	**Date:** June 18, 2012
Title: Current U.S. Hydrogen Production	
Originator: Fred Joseck	
Approved by: Sunita Satyapal	**Date: June 26, 2012**

Item:

The United States currently produces about 9 million metric tons of hydrogen per year, enough to power approximately ~36-41 million FCEVs.

References/Calculations:

- "…9 million metric tons of hydrogen per year"

The United States produces about 9 million metric tons per year for the captive and merchant markets.

U.S. Hydrogen Production By Merchant & Captive Types 2009-2016 (Thousand Metric Tons)[1]

Type	2009	2010	2011	2016
Captive	6,224	5,662	5,579	5,825
Merchant	1,908	3,007	3,379	4,770
Total	8,245	8,948	9,303	11,209

Source: MarketsandMarkets, *GLOBAL HYDROGEN GENERATION MARKET BY MERCHANT & CAPTIVE TYPE, DISTRIBUTED & CENTRALIZED GENERATION, APPLICATION & TECHNOLOGY – TRENDS & FORECASTS (2011-2016)*, www.marketsandmarkets.com

The captive hydrogen market is defined as hydrogen produced by the consumer for internal use and consumed at the point of usage.[1]

[1] MarketsandMarkets, *GLOBAL HYDROGEN GENERATION MARKET BY MERCHANT & CAPTIVE TYPE, DISTRIBUTED & CENTRALIZED GENERATION, APPLICATION & TECHNOLOGY – TRENDS & FORECASTS (2011-2016)*, www.marketsandmarkets.com

The merchant hydrogen market is classified as hydrogen produced by a producer and sold to a consumer by pipeline, bulk tank or cylinder (including small cylinders) truck delivery. This hydrogen can be generated from a central production facility or through an onsite production plant.[1]

- "..to power ~36-41 million FCEVs"

To calculate the number of FCEVs powered by hydrogen, the following applies:

(a) 13,000 miles per light duty vehicle[2]

(b) Fuel economy of hydrogen fuel cell vehicle range from 52 to 60 miles per kg of hydrogen [3]

(e) The range of vehicle miles traveled for hydrogen production of 9 million metric tons:

- 9 million metric tons x 1000 kg/metric ton x 52 miles/kg = 470 billion miles
- 9 million metric tons x 1000 kg/metric ton x 60 miles/kg = 540 billion miles

(f) The range of vehicles that can be fueled by 9 million metric tons of hydrogen per year:

- 470 billion miles divided by 13,000 miles per vehicle per year = ~36 million vehicles per year can be fueled by hydrogen.
- 540 billion miles divided by 13,000 miles per vehicle per year = ~41 million vehicles per year can be fueled by hydrogen.

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[2] Oak Ridge National Laboratory, T*ransportation Energy Data Book: Edition 30*, (June 2011), "Table 8.9 Average Annual Miles per Household Vehicle by Vehicle Age," (8-12), http://cta.ornl.gov/data/tedb30/Edition30_Full_Doc.pdf.

[3] U.S. Department of Energy (Fuel Cell Technologies Program), "Record 10001:Well-to-Wheels Greenhouse Gas Emissions and Petroleum Use for Mid-Size Light-Duty Vehicles," http://www.hydrogen.energy.gove/program_records.html.