DOE Hydrogen and Fuel Cells Program Record		
Record #: 14009 (Rev. 1)	**Date: 08/12/2014**	
Title: Industry Deployed Fuel Cell Backup Power (BuP)		
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Item:

Table 1: Number of fuel cells deployments (current and planned) for applications in backup power.

	DOE Funded[1] (ARRA) as of Record Date	DOE Funded (Appropriations)[2,3] as of Record Date	DOE Total	Industry Funded Shipments (Globally)[4,5,8,9,13,14] From 2009 – Record Date	Fuel Cell Units On-Order (Globally)[6,7,13] From 2009 – Record Date	DOE and Industry Total From 2009 – Record Date
Number of Backup Power Deployments (current & planned)	824	83	907	2,876	1,240	5,023

The funding of 907 Department of Energy (DOE) fuel cell backup power systems has led to over 2,800 industry shipments and nearly 1,300 on-order backup power units with no DOE funding.

Data/Assumptions/Calculations:

The manufacturers providing the fuel cells for the deployments (current and planned) mentioned in Table 1 above are:

Altergy	Ballard / Ida Tech
Hydrogenics	ReliOn, Inc.

Total DOE American Recovery and Reinvestment Act (ARRA) investment for these fuel cell projects is $18.5M, with an industry cost share of $30.8M.[i] While publicly available sales information for backup power fuel cell sales is difficult to obtain, industry reports of sales activity in recent years show signs of substantial growth in sales activity.

[i] ARRA funding supported deployments in backup power for: ReliOn with deployments at AT&T and PG&E sites, Sprint Nextel with deployments at Sprint sites, and Plug Power with deployments at Warner Robins Air Force Base and Fort Irwin. Funds included units as well as other aspects of the project such as installation, pre-testing, data collection, analysis, maintenance, and reporting.

In August 2011, Ballard Power Systems purchased IdaTech Power Systems and in April 2013 they announced the shipment of their 500th methanol-fueled telecom backup power system.[10] Also in 2011, ReliOn announced that is has deployed more than 3.9 MW of its fuel cell systems at approximately 1,350 customer sites globally and Altergy Systems' Freedom Product achieved 5 million operational hours in telecommunications and other applications worldwide.[11]

In early April of 2014, Plug Power Inc. announced the acquisition of ReliOn Inc., a developer of hydrogen fuel cell stack technology and fuel cells systems based in Spokane, WA. The acquisition brings fuel cell stack technology and products in-house which Plug Power plans to integrate into several models of its GenDrive® fuel cell systems with first deployments in 2014. ReliOn develops modular, scalable proton exchange membrane (PEM) hydrogen fuel cell systems featuring innovative air-cooled stack designs with low-cost snap-and-build stack assembly technology. The company has deployed over 5,000 fuel cell stacks at customer sites.[12]

Based on fuel cell manufacturers' feedback, it was determined that their purchase orders for deployments were considered either directly or indirectly due to results of the DOE Fuel Cell Technologies (FCT) Office. This includes fuel cell R&D, Market Transformation and American Recovery and Reinvestment Act deployment funding. In some instances, companies increased the number of purchases beyond those with DOE funds assistance. In other instances, the fuel cell manufacturers were able to show the business case using data collected from DOE projects and obtained purchase orders with no DOE funding.

Note: This record is a revision of a previously issued record #14009. This revision distinguishes between industry shipments and on-order fuel cell units that were not supported by DOE funds. The total number of industry shipments is used to estimate the impacts of the Fuel Cell Technologies Office efforts on fuel cell technology company revenues and additional investments.

References:

Information based on public documentation of deployments and orders in addition to composite data products (CDPs) and fuel cell system assignments by the National Renewable Energy Laboratory (NREL) based on DOE-funded projects.

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