"The Fuel Cell Industry Review 2012"

Fuel Cell Today published its latest annual Fuel Cell Industry Review on 5th September 2012. The Review summarises developments in the fuel cell industry during 2011 and 2012 to date and charts growth in the industry from 2008 onwards, with a forecast for the full year of 2012. The data reported are annual shipments of fuel cell systems plus the total capacity (megawatts) shipped each year. The information is broken down by application (portable power, stationary power or transport), by geographical region and by technology type.

A Successful Year

Annual fuel cell system shipments grew by almost 40% from 2010 to 2011, with 24,600 units shipped in 2011, driven by increases in the stationary power sector. For the first time, annual megawatts shipped exceeded 100 MW, totalling 109.4 MW.

Since fuel cell commercialisation began in 2007, there has been steady progress and in 2011 in the stationary market large orders were announced and completed on time – in some cases, even ahead of schedule. The fuel cell industry is beginning to deliver on its promises.

Shipments and Megawatts Up

In 2012, the Review forecasts that annual shipments will triple to reach a total of over 78,000 for the full year. This dramatic growth in shipments is largely due to the widespread commercial release of three different fuel cell chargers for consumer electronic devices, but growth is expected across all sectors (**Figure 1**). The output of these chargers is below 5 W and thus they will not have a noticeable effect on megawatts. However, the annual megawatt total is also expected to grow substantially from 2011, increasing by over 60% to around 176 MW for the full year, largely due to continued growth in the stationary sector.

Portable Power

For portable applications excluding toys and education kits, unit shipments were flat from 2010 to 2011 – showing the effects of the economic crisis on consumer markets – but are expected to grow to over 50,000 systems in 2012. Three companies

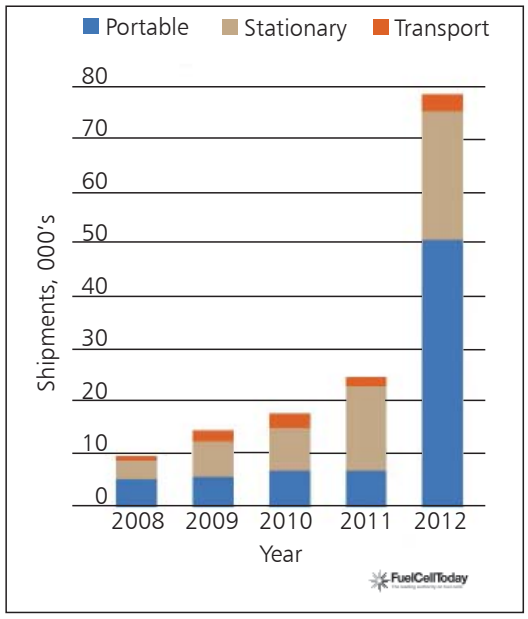


Fig. 1. Fuel cell shipments by application 2008–2012. The data for 2012 is a forecast

launched proton exchange membrane fuel cell (PEMFC)-based portable chargers over the course of 2011 and 2012 and, with the affordable prices of these products and their general availability, significant sales can be expected. PEMFCs rely on platinum-based catalysts for their operation.

Sales of auxiliary power units (APUs) for caravans and motorhomes in Europe dipped in 2011 but will return to growth in 2012. Although a high-temperature PEMFC APU product has been introduced to this market by Truma, most sales this year are likely to be of the well-established direct methanol fuel cell (DMFC) EFOY range from SFC Energy, which also uses platinum.

Stationary Power

Shipments of fuel cell systems for stationary power generation grew substantially from 2010 to 2011, across all categories: residential-scale combined heat and power (micro-CHP); uninterruptible power supplies (UPS); and large-scale (prime) power generation. The Ene-Farm residential fuel cell scheme in Japan goes from strength to strength: more than twice as many Ene-Farm units

© 2012 Johnson Matthey

were sold in 2011 than in 2010, and further growth to around 20,000 Ene-Farm shipments in 2012 is anticipated. Europe is looking to emulate the success of the Japanese scheme and a Europe-wide demonstration of around 1000 micro-CHP fuel cell systems is now in the final stages of negotiation.

Fuel cell UPS, for example providing backup power to telecommunications base stations, is demonstrably superior to incumbent technology (batteries and diesel generators) but unit shipments have been modest to date. This is set to change in 2012, with strong demand in Asia and the USA potentially leading to multi-megawatt orders; the systems predominantly use PEMFC.

Annual megawatts in 2011 were significantly boosted by deployments of large fuel cell systems (100 kW to megawatt-scale) for stationary power generation in the USA and South Korea. Further growth will be seen in 2012 as strong demand in these countries continues.

Transport

System shipments for transport applications dropped nearly 40% from 2010 to 1600 in 2011. This was largely due to natural fluctuations in this market, where large deployments for vehicle demonstrations can be made one year and not matched the following year. The Review reports that this sector will return to growth in 2012, thanks to modest increases in fuel cell electric vehicle (FCEV), bus and niche transport shipments but primarily due to a doubling of shipments for materials handling vehicles in the USA. Fuel cell forklift trucks are now selling on a commercial basis, and currently most orders are being placed with Plug Power for its GenDrive® PEMFC units.

FCEV deployments are expected to start growing steadily from 2012 as the automakers gear up for commercialisation. By the end of 2011, 215 hydrogen refuelling stations were in operation worldwide and many continue to be added, particularly in the early markets: Germany, California and Japan, which between them have announced plans for more than 200 additional stations by 2016.

Special Features

The Review also contains three special features. The first analyses the impact that government funding can have on fuel cell adoption, taking the American Recovery and Reinvestment Act of 2009 as a successful example. The second feature looks at the emerging interest in fuel cells to provide primary power to data centres, and the third examines the changing attitude of the current US Government to fuel cells in transportation.

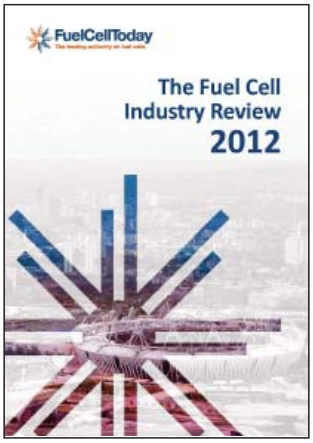
Outlook

Fuel Cell Today foresees sustained growth in both unit shipments and megawatts, across all sectors and all regions. PEMFC remains the dominant electrolyte in unit shipments, and this dominance will increase in 2012 with the release of new products. Growth in PEMFC capacity shipped can be expected.

In general, the trends across the fuel cell industry are very positive: the technology continues to prove itself in a range of applications, offering solid value propositions of clean, reliable power. Success in one area reflects on others and the prospects for platinum-containing fuel cell technologies are healthy. With the growth now being seen in the industry, Fuel Cell Today expects that profitability is on the horizon for a number of fuel cell manufacturers, in some cases as early as next year.

Availability of the Industry Review

Electronic copies of the Industry Review are available as a free download. Free printed copies are available upon request. For more information or to download a copy, please visit http://www.fuelcelltoday.com/analysis/industry-review or email: info@fuelcelltoday.com.



"The Fuel Cell Industry Review 2012"

© 2012 Johnson Matthey