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Batteries

US Industry Study with Forecasts for **2015 & 2020**

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Gains will be driven by healthy demand for replacement batteries in numerous electronic devices and a shift in the product mix toward more expensive, better-performing batteries.

US sales to rise 4.8% annually through 2015

US sales of primary and secondary batteries are expected to rise 4.8 percent annually to \$16.7 billion in 2015. Gains will be driven by healthy demand for replacement batteries in numerous electronic devices and a shift in the product mix toward more expensive, better-performing batteries. Furthermore, following some short term weakness, a strong rebound in motor vehicle production and an improved outlook for fixed investment will bolster consumption of batteries in the motor vehicle and industrial markets. Growth in the rapidly expanding hybrid and electric vehicle market will also provide new sales opportunities. On the other hand, a moderation in prices after a period of strong increase will constrain value gains to some extent. Design improvements that contribute to longer life spans, thus reducing the frequency of replacement, will also limit future growth.

Lithium batteries to pace primary battery segment

Demand for primary batteries is forecast to advance 3.1 percent per year through 2015. The growing popularity of battery-powered portable devices will spur strong replacement demand. Furthermore, increased use of more powerful and expensive batteries will support value gains. Alkaline batteries will remain the most prevalent type of primary battery, accounting for 70 percent of demand. However, sales of most other

US Battery Demand, 2010 (\$13.2 billion)



Alkaline	25%
Other Primary	10%
Lead-Acid	41%
Rechargeable Lithium	14%
Other Secondary	10%

photo: LRNI

battery chemistries, most notably primary lithium, are expected to register stronger advances through 2015. Consumer applications will continue to represent about two-thirds of all primary battery demand in 2015. The aging of the population will benefit demand for both consumer hearing aid batteries and primary lithium batteries for implantable medical devices, as the number of people 65 years of age and older tend to be the primary users of these products.

Secondary batteries to outpace primary batteries

The US market for secondary batteries is projected to climb 5.7 percent annually through 2015. Overall gains will be

fueled by solid growth in sales of lead-acid batteries, driven by a strong rebound in motor vehicle production following an extended period of decline. However, a moderation in lead-acid battery prices will prevent sales from increasing at an even faster rate. Although they will continue to account for a much smaller share of total demand, non-lead acid secondary batteries will register faster growth in percentage terms, spurred by increasing usage of high-drain electronic products, boosting sales of more powerful and expensive batteries. In addition, a ramp up in production of hybrid and electric vehicles will benefit suppliers of non-lead acid batteries such as lithium-ion (Li-Ion), bolstering overall demand.

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Sample Text, Table & Chart

PRIMARY BATTERY PRODUCTS

Primary Lithium

The market for primary lithium batteries is projected to grow at a rate of 10 percent per year through 2020, the strongest growth rate among all primary battery types. This growth is driven by the increasing popularity of high-drain electronic devices, such as digital cameras, which operate on lithium batteries. Other applications include medical and other battery-powered devices. Demand for primary lithium batteries is also strong in the automotive market, as the use of implantable cardiac devices continues to rise.

SAMPLE TEXT

Demand will also be spurred by the introduction of ancillary power devices that include lithium batteries in the package for convenience. For example, Energizer offers the ENERGI TOGO, a portable charger for cell phones, and for audio and gaming devices that are powered by the company's ENERGIZER ULTIMATE lithium batteries. The availability of primary lithium batteries in additional size formats will also support market gains.

Primary lithium battery sales will be limited to some extent by competition from alternative primary battery types, most notably "superpremium" alkaline cells that deliver good performance in high-drain applications, and secondary battery technologies. The higher cost of lithium batteries in relation to the other primary battery types will also restrain advances in demand.

Shipments of primary lithium batteries are expected to grow at a rate of 10 percent per annum to \$1.5 billion by 2020. As a result, the modest growth in demand is expected to widen over the product mix toward high-drain and an increasing number of applications.

93

TABLE VI-2

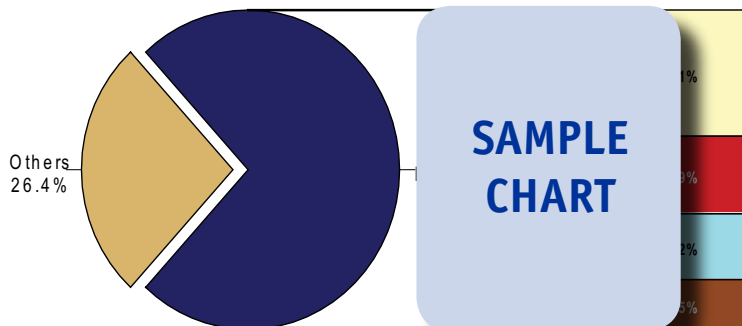
CONSUMER PRIMARY BATTERY MARKET
(million dollars)

Item	2000	2005	2010	2015	2020
Consumer Durable Expenditures (bil \$)	1,900	2,100	2,300	2,500	2,700
\$ batteries/000\$ expenditures	1.5	1.5	1.5	1.5	1.5
Consumer Primary Battery Demand	2,800	3,200	3,600	4,000	4,400
By Application:					
Entertainment	1,500	1,700	1,900	2,100	2,300
Lighting	500	550	600	650	700
Toys & Games	500	550	600	650	700
Photography	500	550	600	650	700
Other	500	550	600	650	700
By Chemistry:					
Alkaline	1,000	1,100	1,200	1,300	1,400
Primary Lithium	500	550	600	650	700
Zinc-Carbon/Zinc-Chloride	500	550	600	650	700
Other Primary	500	550	600	650	700
% consumer	1.5	1.5	1.5	1.5	1.5
Primary Battery Demand	3,200	3,600	4,000	4,400	4,800

SAMPLE TABLE

CHART IX-3

US LEAD-ACID SECONDARY BATTERY MARKET SHARE
(\$5.4 billion, 2010)



SAMPLE CHART

Sample Profile, Table & Forecast

TABLE VII-1
SECONDARY BATTERY SUPPLY & DEMAND
 (million dollars)

Item	2000	2005	2010	2015	2020
Durable Goods Shipments (bil \$)	2,000	2,000	2,000	2,000	2,000
\$ batteries/000\$ durables					
Secondary Battery Demand					
Lead-Acid					
Rechargeable Lithium					
Nickel-Metal Hydride					
Nickel-Cadmium					
Other					
- net imports					
Secondary Battery Shipments					
price deflator (2005=100)					
Secondary Battery Shpts (mil 2005\$)	4472	4100	5010	4970	5255

SAMPLE
PROFILE

SAMPLE
TABLE

COMPANY PROFILES

Valence Technology Incorporated

12303 Technology Boulevard, Suite 950
 Austin, TX 78727
 512-527-2900
<http://www.vt.com>

Revenues: \$
 US Revenues
 Employment

Key Products

Valence Technology develops, manufactures and sells phosphate-based lithium ion (Li-Ion) batteries. The Company has operations in the US, Ireland and China.

The Company's Li-Ion battery technology is based on lithium iron magnesium phosphate material, which is designed to offer several advantages over competing lithium cobalt oxide cathode materials, including increased safety, higher charge and discharge rate capabilities, longer cycle and shelf life, and lower costs. Valence Technology utilizes lithium iron magnesium phosphate material in the Company's U-CHARGE rechargeable battery systems, which can be used in the motive power, stationary power, marine, industrial and military markets. In FY 2011, large-format battery systems represented 74 percent, or about \$34 million, of the Company's total revenues.

U-CHARGE systems are engineered to be a direct replacement for lead-acid and other battery systems in hybrid and electric vehicles (EVs), wheelchairs, scooters, and backup power systems applications, among others. The Company's U-CHARGE line encompasses XP 12-, 18- and 36-volt (V); and RT 12-V scalable modules. The U-CHARGE XP 36-V module was introduced during FY 2011. In FY 2009, Valence

"Demand for secondary batteries is projected to rise 5.7 percent per year to \$11.3 billion in 2015, matching growth from the 2005-2010 period. Gains will be fueled by the growth in popularity of portable electronic devices, as well as the rapidly emerging market for HEVs, which require usage of expensive secondary batteries. In addition, the improved convenience of secondary batteries, most notably that many are ..."

--Section VIII, pg. 157

OTHER STUDIES

World Fuel Cells

Global commercial fuel cell product and service demand will more than triple by 2015, and claim nearly half of all fuel cell spending (including R&D funding and investment) by 2020. Electric power generation will remain the largest application through 2015, while portable electronics and other uses will grow the fastest. This study analyzes the \$780 million world fuel cell industry, with forecasts for 2015 and 2020 by product, chemistry, application, world region and for 15 countries. The study also evaluates company market share and profiles major players.

#2769 June 2011 \$6100

World Batteries

Global battery demand will rise 4.8 percent yearly through 2014. China will remain the world's largest national market, while India will register the strongest sales growth. Non-lead-acid secondary battery demand will outpace primary and lead-acid secondary batteries. This study analyzes the \$86.2 billion world battery industry, with forecasts for 2014 and 2019 by chemistry, product, market, world region and for 16 countries. It also evaluates company market share and profiles industry participants.

#2703 November 2010 \$6300

Batteries in China

Demand for batteries in China will grow 8.5 percent yearly through 2013. Growth will be driven by increasing output of battery-powered products and an ongoing shift toward value-added batteries for export. Secondary batteries will grow nearly twice as fast as primary batteries, driven by transportation markets. This study analyzes the 188 billion yuan battery industry in China, with forecasts for 2013 and 2018 by technology, product and market. It also evaluates company market share and profiles industry participants.

#2630 May 2010 \$5200

World Nanomaterials

Global nanomaterial demand will rise 21 percent annually through 2013. Health care will surpass electronics as the largest market in value terms by 2013, while the energy market grows the fastest. The US, Western Europe and Japan will remain the largest markets, while demand in China leads gains. This study analyzes the \$1.4 billion world nanomaterial industry, with forecasts for 2013, 2018 and 2025 by material, market, world region and for 15 countries. It also considers market environment factors and profiles 125 industry participants.

#2612 March 2010 \$5900

Battery & Fuel Cell Materials

US demand for materials used in batteries and fuel cells will decline 2.5 percent annually through 2013, largely due to a moderation in raw material prices. In volume terms, however, materials demand will rebound due to an improvement in US battery production. Performance additives and catalysts will see the fastest gains by function. This study analyzes the \$4.9 billion US battery and fuel cell material industry, with forecasts for 2013 and 2018 by type, function and application. It also evaluates market share and profiles industry players.

#2574 November 2009 \$4700

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- Chemicals • Plastics • Life Sciences • Packaging • Building Materials • Security & Electronics • Industrial Components & Equipment • Automotive & Transportation Equipment • Household Goods • Energy/Power Equipment

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