

## Full charge in lithium-ion battery boom

By Robin Harding in Tokyo

Published: February 2 2009 02:00 | Last updated: February 2 2009 02:00

A battery boom is under way as the prospect of electric cars spurs electronics companies to invest billions of dollars in their least glamorous business.

Japanese electronics companies such as Toshiba and GS Yuasa have announced plans for new battery plants, even as the industry slashes capital investment overall.

When Ryoji Chubachi, president of Sony, stood up last month and announced a list of factory closures, the one area where he promised growth was batteries.

"Nobody wants to be left out and nobody wants to lose existing market share," said Donald Saxman, an analyst at BCC Research.

Fuji Keizai, a research company, expects the market for rechargeable lithium-ion batteries to more than double to Y1,255bn (\$14bn) between 2007 and 2012, and the overall battery market to grow by 37 per cent.

Industry analysts give three reasons for this. First is the growth in mobile devices, from laptop computers to Apple's iPhone.

Second is the push for hybrid or fully electric cars, all of which will need a large battery.

Third is the potential use of batteries to store renewable energy generated by turbines when the wind blows, or solar panels when it is sunny, and release it as conditions change.

Most observers agree, however, that electric cars are a key factor in the boom.

"We are on the cusp of mass production now - that is why there is a sense of urgency," said Ravi Krishnaswamy of consultants Frost & Sullivan.

Most of the recent investments are being made with car industry partners. GS Yuasa, a battery specialist, is launching a joint venture with Honda, while, according to industry reports, NEC and Nissan may increase investment in their battery joint venture to Y100bn by 2012.

Today's hybrid electric cars, such as the Toyota Prius, use a nickel-metal hydride battery, but the current investments are in lithium-ion technology.

Lithium-ion batteries, which are smaller and lighter relative to the amount of energy stored, are expected to power fully electric cars in the future.

An important motive for Panasonic's Y807bn takeover bid for Japanese rival Sanyo Electric was the former's desire to get its hands on Sanyo's lithium-ion battery business, the world leader.

So many companies are trying to get into the market, however, that there are doubts whether all of them can succeed. "The most successful are typically existing lithium battery companies," said Mr Saxman.

Sanyo, for example, argues that all carmakers will want at least two battery suppliers to reduce risk. It says that its proved technology, customer relationships and global manufacturing base will give it an advantage over ventures part-owned by rival carmakers. Sanyo already plans to invest Y80bn by 2015 and Panasonic may increase that.

Mr Krishnaswamy says Japanese and South Korean producers are well ahead, but US companies are trying to catch up. Last month, A123 Systems, a US battery-maker, applied for \$1.84bn in US government loans to build a lithium-ion plant.

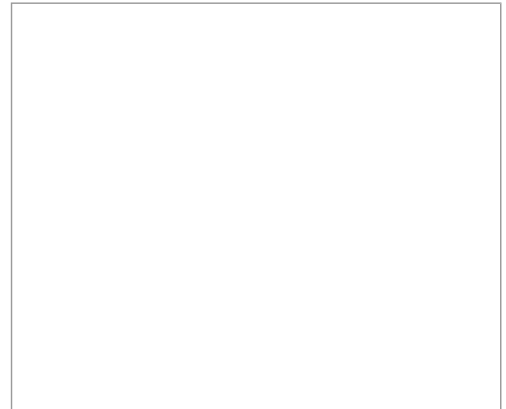
One investment that has raised eyebrows is Toshiba's decision to start mass production in 2010 - a plan that analysts expect to cost several hundred million dollars - in spite of pulling out of the lithium-ion battery market in 2004.

Toshiba did not stop its battery research, however, and says the decision reflects its confidence in a new technology called SCiB, which it claims is not only safer and longer lasting than other lithium-ion batteries, but can also reach up to 90 per cent of its full charge in as little as five minutes.

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