OVONIC METAL HYDRIDE FUEL CELL TECHNOLOGY

Advantages Over Competing Technologies

Ovonic Fuel Cell Company is focusing on the commercial advantages its technology has over competing technologies.

The Ovonic® Metal Hydride Fuel Cell technology is a fundamentally new approach to fuel cell technology in which metal hydrides replace the conventional noble metal catalysts in the hydrogen electrode. It offers several key advantages, thanks to unique intrinsic energy storage functionality in the fuel cell stack.

The Ovonic® Metal Hydride Fuel Cell technology is highly unique in that it can store and use regenerative braking energy. It also can provide instant cold start. The energy storage functionality of the Ovonic® Metal Hydride Fuel Cell technology imparts excellent low-temperature performance and the ability to operate even during interruption of the hydrogen fuel supply.

These advantages make our technology attractive for a wide variety of mobile and stationary commercial applications, including portable electronics. Consequently, we have developed a business plan that focuses on early commercialization opportunities in several markets:

- Military applications
- Stationary applications, such as uninterruptible power supplies
- Vehicular propulsion applications, including scooters and forklifts

One major obstacle to the commercialization of conventional fuel cells has been cost. For example, the most expensive components of our competitors' Proton Exchange Membrane (PEM) fuel cells are costly platinum catalysts, proprietary polymer membranes, and expensive graphite conductive plates. Our approach avoids all three of these costly components and, in so doing, provides the best opportunity to meet challenging fuel cell cost targets.

Also, in many applications under consideration for fuel cells, it is assumed that the fuel cell system must include a high-power auxiliary battery wired in parallel. The battery would provide for instant startup and buffering to handle peak power pulses in stationary applications. Addi-

tionally, in propulsion applications, an energy storage functionality to utilize regenerative braking energy is essential to meet efficiency targets. Our system requires no battery, thereby substantially reducing weight, cost, and complexity.

For many years, fuel cell technologies have been competing in the laboratory. Soon, they will compete in the marketplace. And given the many advantages inherent in its fuel cell technology, the Ovonic Fuel Cell Company is well-positioned to develop products that can compete and win.

Kevin Fok, manager of marketing, holds the innovative hydrogen electrode from the Ovonic Metal Hydride Fuel Cell, a fundamentally new type of fuel cell that can store electrical energy inside the fuel cell stack. This new technology from Ovonic Fuel Cell Company has the potential to revolutionize power systems due to its unique performance advantages, including onboard energy storage, instant start, and good low-temperature performance.

Lower cost is a key feature of the metal hydride fuel cell since it does not use expensive noble metals or exotic components. In addition, it requires no battery; thus, reducing weight, cost, and complexity. The metal hydride fuel cell has key features and advantages that make it a practical power device.