



JRI news release

Creation of Energy Business Models Using Fuel Cells

~ Role of the DESS (Decentralized Energy System & Software) Consortium ~

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【Summary】

1. Fuel cells are now on their way to market with technological innovation being accelerated. Because of their many benefits including, (1) high power generation efficiency, (2) little noise/vibration and no air pollutant emission and (3) compact size, fuel cells are expected to find a wide range of uses. It is estimated that stationary fuel cells, especially those for household use, will come into wide use earlier than fuel cells for automobiles. A report published in May 2002 by the Fuel Cell Project Team (comprising five senior vice ministers of the Ministries of Economy, Trade and Industry, the Ministry of Land, Infrastructure and Transport, and the Ministry of Environment) sets the goal of generating around 2,100,000 kW in 2010 using stationary fuel cells. Estimates by a private research institute put the size of the household fuel cell market in 2010 at 265 billion yen. Commercialization of fuel cells for household use means further diversification of power supplies and an incomparably larger market than that for existing decentralized power sources.

2. From the perspective of production technology, the commercialization of fuel cells for household use means a significant shift from customized production to standardized volume production, which in turn is expected to bring about radical cost reduction and dramatic quality improvement. Widespread use of smaller fuel cells of higher quality will result in, (1) further improvement in thermal efficiency through interchange of power among networks of small fuel cells, (2) enhanced security and eventual elimination of the need for emergency generators, (3) reduction of carbon dioxide emissions in power supplies for civilian use (no measures have been taken against significant emission growth), and (4) more efficient energy infrastructures through elimination of the need for transmission from large-scale power plants to isolated islands, mountains and other thinly populated areas where transmission line construction costs are too expensive.

3. Such an advance means a significant change in the supply-demand situation of electric power in which large-scale power plants have played a predominant role. This will give rise to business chances such as (1) expansion of on-site businesses into households, (2) spawning of new businesses such as energy interchange and security control, and (3) creation of a market for credit dealings in CO₂ reductions in the civilian sector as well as in new businesses to support such dealings, which will add value to fuel cells.

4. The Japan Research Institute will establish the DESS (Decentralized Energy System & Software) Consortium in May with a view to an early startup of the market for fuel cells for household use. So far, projects on fuel cells have concentrated on hardware development. The Consortium will focus on the software aspects or the operation and control of networks of fuel cells, and lead the development and accumulation of intellectual properties. In the future, the Consortium will create a mechanism for participating companies to share accumulated intellectual properties in a quest to develop and expand the fuel cell business in Japan and overseas.