

From Research to System Application-current overview of the fuel cell demonstration and promotion program in Taiwan

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Summary

Fuel cell technology one of the hottest topics in the green energy industry and has become a popular topic in most of the international green energy symposiums. In the meantime,the development of the fuel cell industry has been recognized as one of the key rising industries in Taiwan. Since 2009,the Industrial Technology Research Institute(ITRI) has collaborated with Chung-Hua Institution for Economic Research(CIER) for implementing the fuel cell demonstration and promotion programs which are supported by the Bureau of Energy, Ministry of Economic Affairs. This program focuses on three major areas for application of fuel cells:backup power supply,ordinary power supply, and power supply for the transportation application sector.

Significant results have been achieved in all three areas. Backup power supply has proven useful in the specific areas where if power supply has been cut, fuel cell will become a major energy resource. In addition, the applications for general fuel cell use and the scooter development have been a focus in the future transportation sector.

Overall, there are several challenges for Taiwanese fuel cell development. First, hydrogen production, supply and storage might imply several technical barriers. Second, it is hoped that Taiwan can establish a standard certification system in the future and all industry experts can participate in international standard or specification committee for enhancing fuel cell safety. Third, fuel cell applications are totally different from wind or solar energy systems which fuel cells used for energy applications are much costly in their maintenance and are much expensive in manufacturing their products. Fourth, Taiwan is still at an early stage of fuel cell market development, and therefore our capabilities have disadvantages if compared with more advanced countries. Fifth,the general public still has some doubts about fuel cell system safety;the Government should increase technical promotion and guidance in this area.

Based on the last two-year experience of the fuel cell demonstration program, our government and industry have agreed on the following issues:First, the subsidies provided by the government need to increase continuously, and the scope of subsidies should be expanded. Second, in order to promote our national industry development, several key components and materials should be developed from national coordinated research and development. Third, our superior fuel cell producers

should be continuously subsidized, and new product should be supported. In addition, the cost reduction as well as the large scale production targets should be promoted for the final fuel cell commercialization.

Finally, the author would like to provide the following recommendations:

First, in order to be aligned with global development trends towards environmental protection, the government should increase fuel cell R&D budgets as soon as possible. Second, the government should pay attention to the most recent international development trends in order to design an appropriate strategy. Third, it is necessary to speed up the process of setting up a testing laboratory using international specification or standards on fuel cell system in order to decrease product deviations or system complications when the Taiwanese companies export their products to the international markets.