



JAPAN

New Energy and Industrial Technology Development Organization

INTRODUCTION AND BACKGROUND

NEDO's New Energy Technology Department is promoting technology development projects encompassing basic research, experimental studies, and the establishment of benchmarks and standards in cooperation with industry, academic institutions and public research institutes. NEDO is now carrying out seven projects in the fields of stationary fuel cell systems, FCVs and hydrogen infrastructure.

UPDATE ON MEMBER'S ENERGY FRAMEWORK

On January 13, 2011, 13 Japanese companies (automakers and hydrogen fuel suppliers) jointly announced the launch of FCVs in the Japanese market in 2015 and the development of a hydrogen supply infrastructure.

- Automakers are aiming to launch FCVs in the Japanese market, mainly in the country's four major metropolitan areas, in 2015.
- Hydrogen fuel suppliers are aiming to construct approximately 100 hydrogen refueling stations (HRS) by 2015.
- Automakers and hydrogen fuel suppliers will work together to expand the introduction of FCVs and develop a hydrogen supply network throughout Japan.

VITAL STATISTICS

Population

128 Million

Territory

377,947 km²

Capital

Tokyo

GDP/capita

USD 39,530 (FY2009)

Average Annual GDP Growth

-5.2% (FY2009)

Primary Energy Structure FY 2009

Production

Total production 20,893 PJ

Coal: 21%

Oil: 42%

Natural Gas: 19%

Large-scale Hydraulic: 3%

Nuclear: 12%

Others: 3%

Imports

17,831PJ

Coal: 25%

Oil: 55%

Natural Gas: 20%

Electricity

1,113 MWh

Production

Hydro: 8%

Thermal: 67 %

Nuclear: 25%



Figure 1: Allocation of HRS



UPDATE ON HYDROGEN R&D&D SPECIFICS

JAPAN HYDROGEN FUEL CELL DEMONSTRATION PROJECT PHASE 3 (JHFC3)

Status and accomplishments

After successful completion of JHFC2, JHFC3 was commenced in April 2012. Sixteen hydrogen refueling stations and approximately 50 FCVs are being operated in the Tokyo, Aichi, Osaka and Fukuoka regions. The project is planned for five years from 2012 to 2016.

Participation

- Research association: HySUT (The Research Association of Hydrogen Supply/Utilization Technology)
- Local governments: Fukuoka Prefecture, Saga Prefecture, Yamanashi Prefecture, Nikko City
- Energy suppliers: JX Nippon Oil & Energy, Idemitsu, Showa-Shell, Cosmo Oil, Tokyo Gas, Osaka Gas, Toho Gas, Iwatani, Taiyo Nippon Sanso, Japan Air Liquide
- Auto manufacturers: Toyota, Nisan, Honda
- Universities: Kyushu University
- Electric power companies: Kyushu Electric Power Company, Kyuden Technosystems,
- Others: Kawasaki Heavy Industries, Nippon Steel, Tosu Environment Development General Center, Engineering Advancement Association of Japan, Nikko Hydrogen Energy Society Promotion Council

Funding

JPY 3 billion will be funded by NEDO in FY2012.

DEVELOPMENT OF PEFC TECHNOLOGIES AIMING AT PRACTICAL APPLICATION

Status and accomplishments

The project includes three sub-projects as outlined below. The targeted advancements are expected to be achieved during the full-scale commercialization stage (2020 to 2030) when FCVs are expected to have a lifespan exceeding 100,000 km and residential stationary fuel cells are expected to have a service life comparable to that of home appliances.

Base technology

- A number of academic-industry consortia have been formed to carry out R&D on improving the performance of PEFCs and reducing the amount of Pt catalyst in order to realize a cost reduction.
- Development of basic production technology
- Technologies for a residential fuel cell system (“ENE-FARM”) are being refined in order to further promote the use of fuel cells and expand the market.
- Development of technology for next-generation fuel cells
- Innovative and advanced research and development is being carried out to contribute to achieving high reliability and reducing the cost of PEFCs.





Participation

Academia and industry participate in these activities.

Funding

JPY 3.5 billion will be funded by NEDO in FY2012.

OTHERS

- Other NEDO funded R&D&D projects related to hydrogen and fuels cell are as below.
- Development of System and Elemental Technology for SOFCs
- R&D on Industrial Electric Power Generation Using SOFCs
- Development of Technologies for Hydrogen Production, Delivery and Storage Systems
- Fundamental Research Project on Advanced Hydrogen Science
- Advanced Fundamental Research on Hydrogen Storage Materials

REFERENCES

MEMBER WEBSITE

<http://www.nedo.go.jp/english/index.html>

OTHER IMPORTANT WEBSITES

http://fccj.jp/index_e.html

<http://hysut.or.jp/en/index.html>

CONTACT INFORMATION

Mr. Tadashi Ito

Chief Officer

Fuel Cell and Hydrogen Technology Group

New Energy Technology Department

New Energy and Industrial Technology Development Organization

18F, MUZA Kawasaki Central Tower, 1310 Omiya-cho, Saiwai-ku

Kawasaki City, Kanagawa 212-8554 Japan

E-mail: itohtds@nedo.go.jp

