

RD&D on Hydrogen and Energy Carriers in Japan

S. Muraki¹

¹Tokyo Gas Co.- Ltd., Program Director, Tokyo, Japan

Japanese Government is taking strong leadership in actions toward hydrogen society.

Strategic Energy Plan in 2014 specified realization of hydrogen society is one of key strategies of Energy Plan, and issued Strategic Roadmap for Hydrogen and Fuel Cell.

Council for Science, Technology and Innovation launched Cross-ministerial Strategic Innovation Promotion Program (SIP) in 2014, and one of 11 themes is Energy Carriers.

Energy Carrier Program consists of R&D projects to develop CO₂ free hydrogen value chain, which covers production of CO₂ free hydrogen from renewable energies, 3 energy carriers (Liquid hydrogen, Organic Hydride, Ammonia), dehydrogenation of energy carriers, hydrogen turbine and engine, and direct use of ammonia for turbines, engines, industrial furnaces and fuel cells.

Key results of program suggest high potentiality of ammonia in gas turbine, mix combustion in coal fired power plant, industrial furnace and solid oxide fuel cell which can contribute for CO₂ reductions in power and industrial sectors. The program is now conducting feasibility study of energy carriers which will be finalized by the end of 2017.

International projects are under discussions to produce Green Ammonia from CO₂ free hydrogen overseas, and supply to Japan and utilize this ammonia by direct use technologies. We have a plan to demonstrate its outcomes in 2020 Tokyo Olympic and Paralympics.

We propose basic scheme of hydrogen Society and to start the showcase in 2020 Tokyo Olympic and Paralympics.