

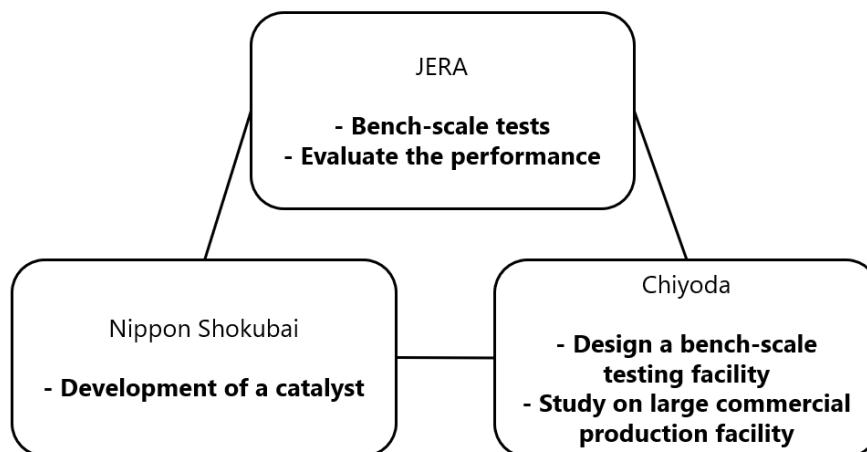
JERA, Nippon Shokubai and Chiyoda to Start Development of Ammonia Cracking Technology under NEDO’s Subsidized Project

TOKYO — 9 June 2023 — JERA Co., Inc. (“**JERA**”), NIPPON SHOKUBAI CO., LTD. (“**Nippon Shokubai**”), and Chiyoda Corporation (“**Chiyoda**”) have commenced technology development of ammonia cracking, under the New Energy and Industrial Technology Development Organization (“**NEDO**”)’s "Development of Technologies for Building a Competitive Hydrogen Supply Chain" program.

Ammonia is expected to be one of the most important hydrogen carriers that can transport and store hydrogen at low cost. One of the ways for early realization of a hydrogen society is to improve the efficiency and reduce the cost of ammonia cracking technology that extracts hydrogen from ammonia.

As the purpose of this project, the above three companies will combine their knowledge and develop an ammonia cracking technology that is competitive compared to existing technologies. The development period is about three years until FY 2025.

Business promotion system/role of each company



In this project, JERA will conduct bench-scale tests to confirm and evaluate the performance of catalysts and processes based on its experience as a power generation company, and identify issues for social implementation. Nippon Shokubai will consider the establishment of a basic catalyst manufacturing method for the development of a catalyst for extracting hydrogen from ammonia. Chiyoda will design a bench-scale testing facility to confirm the performance of the catalyst, and identify the issues involved in increasing the scale of the facility, in preparation for the development of a large-scale production of the hydrogen for commercial size.

Under its “JERA Zero CO₂ Emissions 2050” objective, JERA has been working to reduce CO₂ emissions from its domestic and overseas businesses to zero by 2050, promoting the adoption of clean fuels such as hydrogen and ammonia and pursuing thermal power that does not emit CO₂ during power generation. JERA will continue to contribute to energy industry decarbonization through its own proactive efforts to develop decarbonization technologies while ensuring economic rationality.

Nippon Shokubai is working toward the realization of carbon neutrality in 2050, under "Strategic Transformation for Environmental Initiatives" in the Nippon Shokubai Group's long-term vision, "TechnoAmenity for the future." Aiming at the further spread of ammonia and hydrogen, which are zero-emission fuels that do not emit CO₂, Nippon Shokubai is promoting the development and social implementation of ammonia decomposition catalysts that convert ammonia into highly combustible hydrogen. Nippon Shokubai will continue to contribute to a sustainable society while providing materials and solutions needed by people and society.

As an integrated engineering company, Chiyoda is not only involved in the EPC of plants, but also in the development and social implementation of technologies that contribute to the realization of carbon neutrality, including ammonia cracking technology, for the introduction of hydrogen, which is the key to realizing a decarbonized society. Chiyoda is working on business from various aspects. Through these businesses, Chiyoda will contribute to the development of a sustainable society, aiming for our management philosophy of "energy and the environment in harmony. "