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Press Release

Research and Development of Innovative Ammonia Synthesis Catalysts, Using a Green Innovation Fund, to Support Establishment of Fuel Ammonia Supply Chains

Chiyoda Corporation (Chiyoda), Tokyo Electric Power Company Holdings Inc. (TEPCO) and JERA Co., Inc. (JERA) are pleased to announce that they have commenced research and development of innovative ammonia synthesis catalysts funded by the New Energy and Industrial Technology Development Organization’s Green Innovation Fund, to support establishment of fuel ammonia supply chains.

The initiative is to develop Japanese independent ammonia synthesis technologies, based on the development of innovative catalysts, to enhance the use of ammonia through lower production costs and to reduce CO₂ emissions from power generation plants. It is expected that the results will be socially implemented following bench tests and pilot tests assuming commercial utilization.

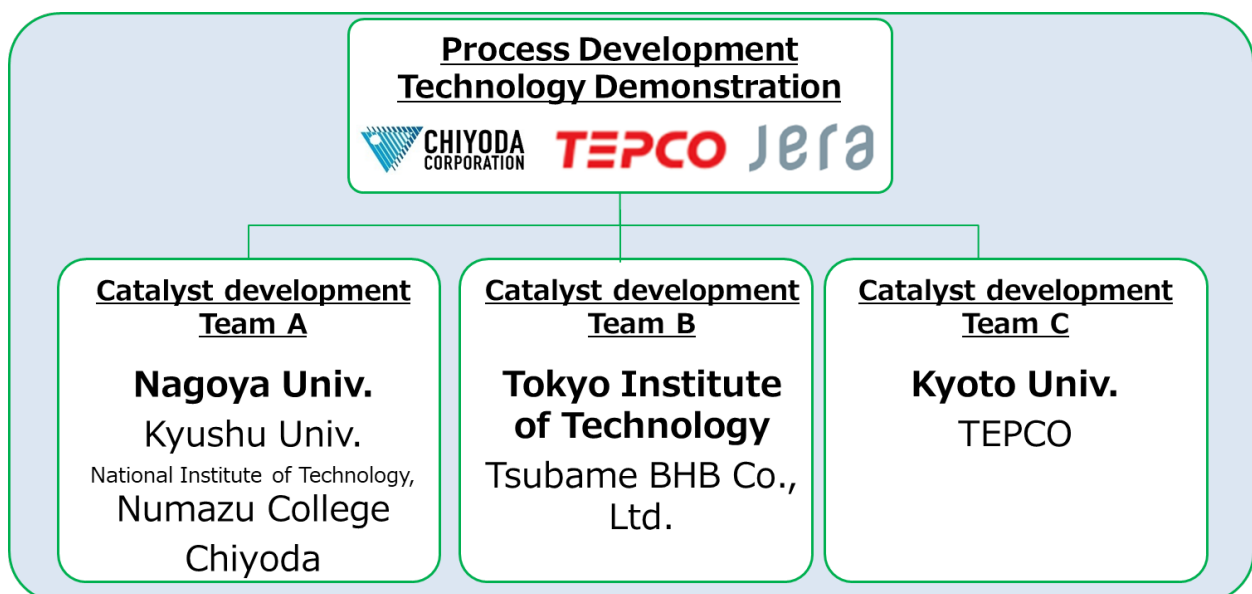
The research and development is in two (2) stages. The first stage is to develop new ammonia synthesis catalysts through a competitive development strategy between three (3) industry/academia teams (A, B and C below). The second is to develop new ammonia synthesis process/facilities, to compete with Haber–Bosch based technologies by utilizing lower temperature and pressure synthesis catalysts developed in the first stage to reduce production costs.

The expected ten (10) year schedule is:

- FY2021 – FY2024: Competitive catalyst development
- FY2025 – 1st half of FY2027: Bench tests and performance evaluations of selected catalysts
- 2nd half of FY2027 - FY2030: Industrializing catalysts and conducting pilot tests

The fuel ammonia market is expected to grow rapidly and Chiyoda, TEPCO and JERA will discuss exploring broader global use of the R&D results, such as ammonia production using clean, green hydrogen from renewable energy.

R&D Organization



Chiyoda Corporation

Chiyoda's corporate philosophy is 'Energy and Environment in Harmony' and has grown since its founding in 1948 by responding to the changing needs of each generation through research and development, continuous technology and successfully delivering projects worldwide in sectors such as oil & gas, chemicals and petrochemicals, life science, renewable energy and the environment. Through this initiative, Chiyoda will continue supporting carbon neutrality in the global drive towards a sustainable environment.

Tokyo Electric Power Company Holdings Inc.

TEPCO has always viewed its initiatives to combat global warming as key business issues, but in light of recent world trends, we are now drastically reforming our business model to focus on carbon neutrality. TEPCO is aiming for a best mix of energy including leveraging zero-emission thermal (ammonia/hydrogen) in order to achieve challenge of reduce CO₂ emissions from the supply of energy to net zero by 2050.

JERA Co., Inc.

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 greener fuels 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.

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