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PRESS RELEASE

Chiyoda Corporation

Toyota Motor Corporation

**Chiyoda Corporation and Toyota Jointly Developing Large-scale
Electrolysis System**
**Fusing fuel cell and plant construction technologies for hydrogen
production markets in Japan and overseas**

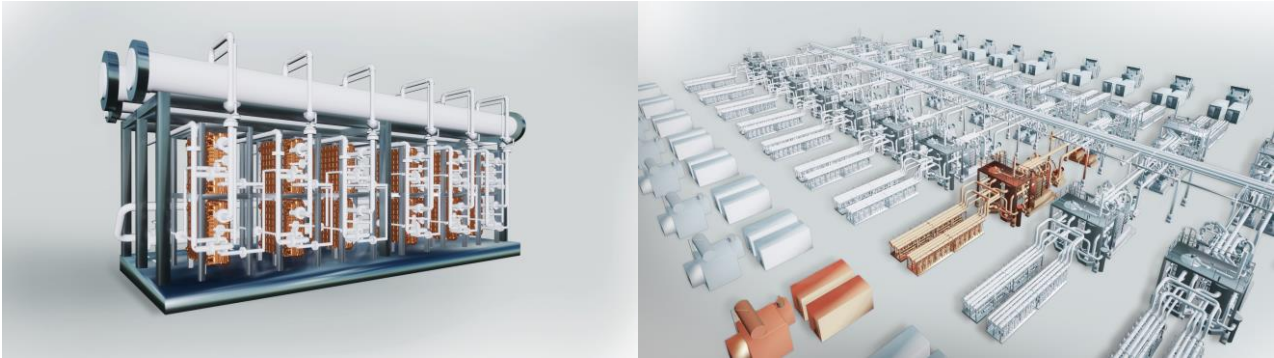
Chiyoda Corporation (head office: Yokohama City, Chairman of the Board, President & CEO: Masakazu Sakakida, hereinafter “Chiyoda”) and Toyota Motor Corporation (head office: Toyota City, President, Member of the Board of Directors: Koji Sato, hereinafter “Toyota”) have agreed to jointly develop a large-scale electrolysis system and construct a strategic partnership and have signed a basic agreement on cooperation.

The goal is to contribute to achieving the government targets*¹ for the introduction of electrolysis equipment both in Japan and overseas as part of the Basic Strategy on Hydrogen formulated by the government.

*¹ The government targets for the introduction of electrolysis equipment are set at about 10% (approx. 15 GW) of the share of Japan-based companies (including parts manufacturers) within the 134 GW forecast for introduction globally by 2030. (Source: IEA, Global Hydrogen Review 2022)

The production and mass production technologies for electrolysis cell stacks using the fuel cell technology held by Toyota and the processing plant design technologies and large-scale plant construction technologies held by Chiyoda will be brought together to develop a large-scale electrolysis system that can be competitive. This will allow adaptation to the rapidly expanding hydrogen production markets both inside and outside Japan.

Illustration of the jointly developed electrolysis system



Left : electrolysis equipment((Highly integrated water electrolysis stack group produced by Toyota)

Right : large-scale electrolysis system(Smart scalable engineering by Chiyoda Corporation)

Specifically, the goal is to develop an electrolysis system with high hydrogen production efficiency while being the world's smallest in size.

To be able to respond to the various needs of customers, such as the amount of hydrogen used or limitations on plant floor area, 5 MW-class equipment will be used as the basic unit (floor area: 2.5 m x 6 m, hydrogen production capacity: approx. 100 kg/hr) for development, and will be combined to create a standard package, allowing the construction of large-scale electrolysis systems.

The merits of this equipment include the fact that it only takes up about half the floor area of conventional equipment and offers ease of maintenance while allowing easier shipping, shortened on-site construction times, and lower civil engineering and construction costs. Toyota's particular expertise in industrial products and Chiyoda's particular expertise in plant engineering will be combined and optimized, allowing benefits such as lower costs, increased production efficiency, and more stable quality for the electrolysis systems required to produce green hydrogen.

Signing of the basic agreement on cooperation



Toyota Hydrogen Factory Chief Project Leader Yoshihiko Hamamura (L) and Chiyoda Senior Vice President Norimasa Matsuoka (R)

With the signing of this basic agreement on cooperation, the introduction of an electrolysis system in Hydrogen Park at the Toyota Honsha Plant will start in FY2025. It will be expanded in the future to the 10 MW class and used for verification and development. Any further developments will be released as they happen.

Both companies will exhibit at the H2&FC EXPO (organized by RX Japan Ltd., held from Feb. 28 to Mar. 1, 2024) held at Tokyo Big Sight (Koto-ku, Tokyo).

As a comprehensive engineering company, Chiyoda intends to actively contribute to the field of hydrogen production at the furthest upstream area, in addition to developing hydrogen transport carriers, technologies that utilize hydrogen, and plant EPC* in order to construct a hydrogen value chain that can contribute to achieving a carbon-neutral society. To that end, Chiyoda is working on this project from numerous angles, such as a range of studies and the development of technologies in-house. Through these projects, Chiyoda aims to achieve its corporate philosophy of “Energy and Environment in Harmony” and contribute to achieving a sustainable society.

*EPC: Engineering, Procurement, and Construction

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