

## PRESS RELEASE

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### **Approval in Principle for Chiyoda and MHI H<sub>2</sub>/CO<sub>2</sub> - FPSO**

Chiyoda Corporation (“Chiyoda”) (TSE: 6366; ISIN: JP352800004) is pleased to announce that Chiyoda and Mitsubishi Heavy Industries Ltd. (“MHI”) have received Approval in Principle (AIP) for the jointly-developed floating production, storage and offloading (FPSO) facility for the production and offloading of hydrogen (H<sub>2</sub>) and carbon dioxide (CO<sub>2</sub>) produced from associated petroleum gas (APG).

The H<sub>2</sub>/CO<sub>2</sub> FPSO is an all-new facility developed to carry out steam reforming of APG that has been generated by offshore plants above subsea oil fields and, simultaneously, to convert generated hydrogen into methylcyclohexane (nominated by Chiyoda as SPERA hydrogen) by applying an organic chemical hydride method\* which allows the methylcyclohexane to be stored in liquid form at ambient temperature and pressure.

The SPERA hydrogen stored in the FPSO will be loaded onto a chemical tanker or other conventional vessel bound for an assigned discharging port. There, the hydrogen is extracted from the SPERA hydrogen by a dehydrogenation method developed by Chiyoda, and is supplied to existing infrastructures. By using SPERA hydrogen, which is safe and easy to handle, and extracting the hydrogen by the dehydrogenation method, there is a high expectation that the use of hydrogen will expand, as the system will also offer the advantage of permitting the configuration of a hydrogen supply chain without requiring large capital investments for vessels/tanks dedicated to hydrogen transport/storage, etc. Furthermore the CO<sub>2</sub>, produced simultaneously with H<sub>2</sub>, is to be used in CO<sub>2</sub>-EOR (enhanced oil recovery), an effective method to achieve utilization of CO<sub>2</sub> for the recovery of naturally depleted oil fields.

This will be the world’s first FPSO to incorporate the new H<sub>2</sub>/CO<sub>2</sub> concept. For this purpose, Chiyoda, in charge of the topside plant, and MHI, responsible for the floating structure, have jointly developed the facility under the support of Nippon Kaiji Kyokai (ClassNK) and were granted AIP through their safety evaluation.

Chiyoda is committed to utilizing the technology, knowledge and experience it has accumulated through its efforts to develop the hydrogen supply business and to pioneer a future hydrogen-based society.

*\* Note: Organic chemical hydride (OCH) is a method whereby aromatic hydrocarbons such as toluene are, by hydrogenation reaction, fixated to hydrogen in the form of an alicyclic hydrocarbon such as methylcyclohexane (MCH), which can be stored and transported in liquid form under ambient temperature and pressure. OCH also enables extraction (and thus use) of hydrogen by dehydrogenation and recovery (and repeated use) of the generated toluene. Compared to other hydrogen storage and transport mediums, OCH offers outstanding storage density and stability, permits use of existing infrastructures, and enables safe storage and transportation. Chiyoda Corporation has successfully performed demonstration tests of the system and it is now in the commercialization phase.*

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