



September 15, 2022

Woodside Energy Ltd.

Japan Oil, Gas and Metals National Corporation

Marubeni Corporation

Hokuriku Electric Power Company

The Kansai Electric Power Co., Inc.

Tohoku Electric Power Co., Inc.

Hokkaido Electric Power Co., Inc.

## **Feasibility Study on Establishing a Lower-Emissions Fuel Ammonia Supply Chain from Australia to Japan (Phase 2)**

Woodside Energy Ltd. (“Woodside”), Japan Oil, Gas and Metals National Corporation (“JOGMEC”), Marubeni Corporation (“Marubeni”), Hokuriku Electric Power Company (“Hokuriku Electric”), The Kansai Electric Power Co., Inc. (“Kansai Electric”), Tohoku Electric Power Co., Inc. (“Tohoku Electric”), and Hokkaido Electric Power Co., Inc. (“Hokkaido Electric”) have signed a joint research agreement under which they will jointly conduct a feasibility study (Phase 2) on the establishment of a lower-emissions fuel ammonia supply chain from Australia to Japan (the “Project”).

Ammonia does not emit carbon dioxide (CO<sub>2</sub>) during combustion and is considered a promising next-generation lower-emission fuel for energy intensive thermal power plants and marine engines. Given existing proven technologies for the production, storage, and transportation of ammonia, it is expected to have early take-up as a lower-emission fuel.

In addition, the Sixth Strategic Energy Plan, published on October 22, 2021, states that ammonia-fueled power generation is one of the most promising options for decarbonizing power sources toward achieving carbon neutrality by 2050 since it does not emit CO<sub>2</sub> during combustion and can be utilized in many existing power generation facilities such as boilers and denitration facilities without modification.

Last year, Woodside, JOGMEC, Marubeni, Hokuriku Electric, and Kansai Electric conducted a feasibility study on the entire supply chain, including the production of lower-emissions ammonia in Australia from natural gas with CO<sub>2</sub> abatement methods such as Carbon Capture and Storage (CCS), Carbon Capture and Utilisation (CCU)<sup>1</sup>, and bio-sequestration; marine transportation to Japan; ammonia’s utilization as a fuel for power generation and marine use; and financing. In last year’s study, the parties sought to address the feasibility of establishing a supply chain in relation to economics and CO<sub>2</sub> emission reduction.

As part of Phase 2 of the Project, seven parties, including Tohoku Electric and Hokkaido Electric as new participants, will conduct a further detailed feasibility study to inform the

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<sup>1</sup> Technology to capture and store (CCS: Carbon dioxide Capture and Storage) or effectively utilize (CCU: Carbon dioxide Capture and Utilization) CO<sub>2</sub> emitted from factories and power plants.



viability of establishing a lower-emissions fuel ammonia supply chain based on the results of the feasibility study conducted the previous year.

All parties participating in this project will continue the research already conducted in order to establish a lower-emissions fuel ammonia supply chain between Australia and Japan through collaboration, in an effort to assist the decarbonization of Australia and Japan.



<Conclusion of joint research agreement>





**Marubeni**

 Hokuriku Electric Power Company



Top row, left to right:

Woodside Energy Ltd., Shaun Gregory, Executive Vice President, New Energy  
Japan Oil, Gas and Metals National Corporation, YAMAMOTO Koji, Vice President, Oil & Gas Upstream Unit

Second row, left to right:

Marubeni Corporation, Yoshiaki Yokota, Managing Executive Officer, Chief Executive Officer, Energy & Infrastructure Solution Group  
Hokuriku Electric Power Company, Wataru Hirata, Director & Managing Executive Officer  
The Kansai Electric Power Co., Inc., Makoto Araki, Executive Vice President

Third row, left to right:

Tohoku Electric Power Co., Inc., Sadahiro Ohno, Director & Managing Executive Officer, President of Power Generation Company  
Hokkaido Electric Power Co., Inc., Susumu Saito, Member of the Board, Executive Officer

< About Each Company >

Woodside Energy Ltd.

Headquarters: Perth, Australia

Established: January, 1954

Representative: Meg O'Neill, Chief Executive Officer

Website: <https://www.woodside.com.au/>

Japan Oil, Gas and Metals National Corporation

Headquarters: Tokyo, Japan

Established: February, 2004

Representative: HOSONO Tetsuhiro, Chairman & CEO

Website: <http://www.jogmec.go.jp/english/index.html>

Marubeni Corporation

Headquarters: Tokyo, Japan

Established: December, 1949

Representative: Masumi Kakinoki, President and CEO

Website: <https://www.marubeni.com/en/>

Hokuriku Electric Power Company

Headquarters: Toyama, Japan

Established: May, 1951

Representative: Koji Matsuda, Representative Director & President

Website: <http://www.rikuden.co.jp/english/index.html>

The Kansai Electric Power Co., Inc.

Headquarters: Osaka, Japan

Established: May, 1951

Representative: Nozomu Mori, Director, Representative Executive Officer, President

Website: <https://www.kepco.co.jp/english>



**Marubeni**

 Hokuriku Electric Power Company



Tohoku Electric Power Co., Inc.



Tohoku Electric Power Co., Inc.

Headquarters: Sendai, Japan

Established: May, 1951

Representative: Kojiro Higuchi, President and Representative Director

Website: <https://www.tohoku-epco.co.jp/english/index.html>

Hokkaido Electric Power Co., Inc.

Headquarters: Sapporo, Japan

Established: May, 1951

Representative: Yutaka Fujii, President and Representative Director

Website: <https://www.hepco.co.jp/english/>

<Graphics of the Lower-Emissions fuel ammonia supply chain between Australia and Japan>

