

## **Field trial of 100% hydrogen combustion water heater conducted in Australia**

- Agreement signed with Australian energy infrastructure company to contribute to realizing  
a hydrogen society -

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Noritz Corporation (Head office: Kobe City, Hyogo Prefecture, Japan; President and CEO: Satoshi Haramaki) and Group company Dux Manufacturing Ltd (Location: Australia; hereinafter ‘Dux’) will start a field trial of a 100% hydrogen combustion residential water heater in December 2024 in collaboration with ATCO Gas Australia Pty Ltd (hereinafter ‘ATCO’), a Western Australia-based energy infrastructure company, in order to accelerate efforts towards achieving carbon neutrality.



Photo of MOU signing ceremony on  
22<sup>nd</sup> Oct

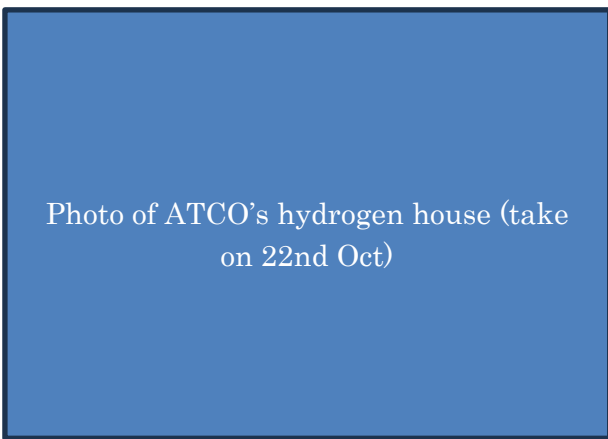


Photo of ATCO's hydrogen house (taken  
on 22<sup>nd</sup> Oct)

In December 2023, Noritz developed a prototype of a 100% hydrogen combustion residential water heater. Since then, Noritz have been promoting product development and testing aimed at practical application both in Japan and overseas, with the aim of early market introduction once hydrogen infrastructure is in place.

In 2019, the Australian and Western Australian Governments announced their initial Hydrogen Strategy, accelerating government-led transition to clean energy. With funding from both governments, ATCO opened the Clean Energy Innovation Hub (CEIH) in 2019 to conduct research and trials on ways to utilize hydrogen. ATCO is currently conducting an experimental project in which renewable hydrogen\* produced within the CEIH is mixed with natural gas and supplied to around 3,000 households connected to the gas distribution network. Additionally, ATCO built a hydrogen house within the CEIH premises and gradually conducting field trials on equipment compatible with 100% hydrogen combustion.

Noritz, Dux, and ATCO have now signed a memorandum of understanding and will begin the field trial of a domestic water heater in ATCO's hydrogen house. In this field trial, a 100% hydrogen combustion residential water heater developed by Noritz will be installed in ATCO's hydrogen house, and its operation in daily life will be verified for approximately two years from December 2024. We will evaluate reliability through long-term operation and demonstrate whether a safe, stable supply of hot water is possible even in a hydrogen society. Dux will be responsible for equipment maintenance during the field trial. Working with Dux, Noritz will contribute to the realization of a hydrogen society in Australia by leveraging our proprietary hydrogen combustion technology.

\* Hydrogen produced using renewable energy sources without emitting CO2 during the manufacturing process.

## Noritz Group's sustainability initiatives

In its "V-Plan 26" medium-term management plan announced in February 2024, Noritz defined three keywords - "sustainability," "well-being," and "care" - to provide "a society where people can live rich lives while contributing to the earth." We see hydrogen energy as one of the new technologies that will play an important role in the future energy mix towards 2050. Even in the carbon-neutral society that we aim for in 2050, we will continue to respond to energy diversification and strive to fulfill our mission of providing "a rich lifestyle with hot water."

## Overview of the demonstration experiment

### Place

ATCO Gas Australia

Clean Energy Innovation Hub

### Field trial period

Approximately two years from December 2024

### Verification details

1. Operating a 100% hydrogen combustion residential water heater in a mode suited to practical use
2. Reliability evaluation after two years of long-term operation

### Roles of each company in the field trial

1. ATCO: Provision of the experimental field, supply of hydrogen energy, installation of the hydrogen combustion water heater
2. Noritz: Provision of the hydrogen combustion water heater prototype, analysis of the field trial results
3. Dux: Maintenance of the hydrogen combustion water heater during the field trial



## Clean Energy Innovation Hub

ATCO's Clean Energy Innovation Hub (CEIH) is an operational model of solar, battery and renewable hydrogen production through electrolysis, in which renewable hydrogen is produced from the vast array of solar panels on site to generate electricity which powers an electrolyser to create the renewable hydrogen.

Through this ATCO is:

CEIH photo or system diagram etc.

- Powering its site as a microgrid
- Blending hydrogen into the gas distribution network to reduce emissions – we're currently blending five per cent, and that will soon increase to 10% in a test bed of around 3,000 adjacent homes;
- Generating electricity from stored hydrogen through an on-site fuel cell; and
- Refuelling zero-emissions hydrogen fuel cell vehicles that are part of ATCO's fleet.

## Company Profile

### ■ATCO Gas Australia Pty Ltd

overview	A subsidiary of ATCO Ltd, a Canadian-based company that operates electricity and gas distribution, water supply, and logistics businesses in over 100 countries.
location	Level 12, 2 Mill Street, Perth, Western Australia, Australia
Representative	John Ivulich
Established	1998
Business Contents	Gas supply, natural gas power generation business, hydrogen business development, etc., mainly in Western Australia
HP	<a href="https://www.atco.com/en-au/contact-us/atco-australia.html">https://www.atco.com/en-au/contact-us/atco-australia.html</a>

### ■Dux Manufacturing Ltd

overview	A leading Australian manufacturer of tank-type (storage-type) water heaters. Noritz Group companies acquired in 2014
location	Lot.1 Collins Road Moss vale, NSW 2577
Representative	Simon Terry
Established	1915
Business Contents	Manufacture of electric and gas tank water heaters, sales of tank and tankless water heaters, etc.
HP	<a href="https://www.dux.com.au/">https://www.dux.com.au/</a>

## Reference: Main features of the 100% hydrogen combustion water heater developed by Noritz

### 1. Safely provide stable hot water

The system employs an abnormal combustion prevention structure that prevents abnormal combustion, which is a challenge when handling hydrogen, and safely shuts down the unit in the unlikely event that an abnormality does occur.

### 2. Maintains the same ease of use and comfort as conventional gas water heaters

It achieves the same maximum capacity (24 liters/minute) and minimum capacity (2.4 liters/minute) as conventional gas water heaters, providing a stable supply of hot water from maximum to minimum flow rates.

### 3. Supports switching from conventional gas to hydrogen

Even as energy sources diversify, with a low-carbon phase leading up to 2030 and a carbon-neutral phase toward 2050, it will be easy to switch from conventional gases to hydrogen by replacing gas flow adjustment parts and switching software.



- Press release regarding details of the "100% Hydrogen Combustion Water Heater"  
(announced December 14, 2023)

<https://www.noritz.co.jp/company/news/2023/20231214-005501.html>

The information contained in the news release is correct at the time of publication.  
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