GREEN HYDROGEN ENERGY:

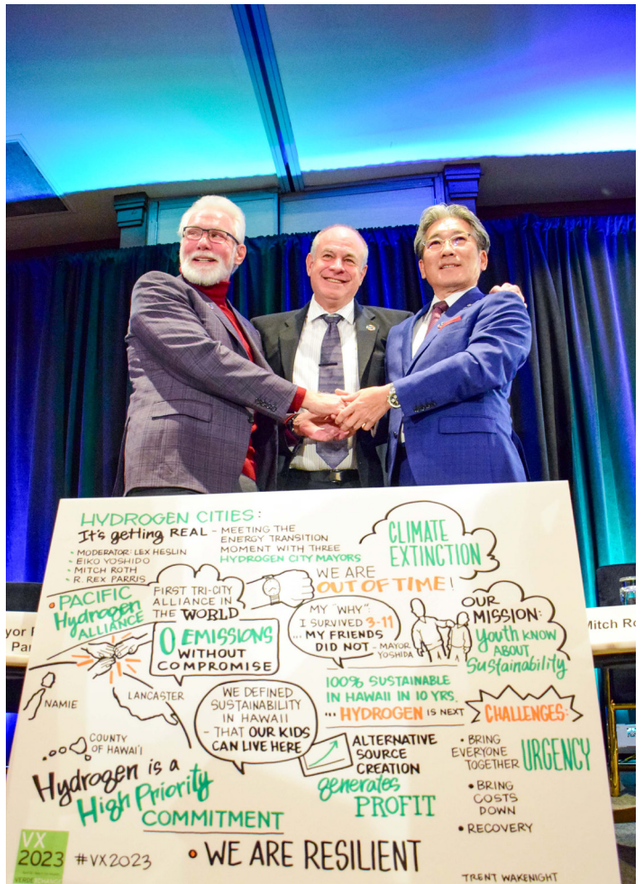
THREE LOCALITIES UNITING UNDER A PACIFIC ALLIANCE

With the goal of spreading the use of green hydrogen energy, which does not emit CO_2, and generating a wave of change, three municipalities in Japan and the United States launched the Pacific Hydrogen Alliance (PHA) in 2023 as an international partnership. This article explores the aim of the alliance, as well as the aspirations of one of its members, Fukushima Prefecture's Namie Town.

Not only does it emit no carbon dioxide either during production or use, it also serves as a good storage medium for surplus power and is easy to transport—this almost dreamlike energy, green hydrogen, has high expectations pinned on it as a key driver for decarbonization. Yet, the path to its widespread use remains uncertain due to many challenges, including cost and technological issues. To initiate changes to that situation at the municipal level, three localities in Japan and the United States joined forces to launch the Pacific Hydrogen Alliance (PHA) as an international partnership in 2023.

The members of the alliance are the City of Lancaster in the state of California and the County of Hawai'i in the state of Hawai'i, both from the United States, and Namie Town in Japan's Fukushima Prefecture. Although Namie may be a small municipality in the nature-rich Tohoku region of northeastern Japan, it has been a world pioneer in the implementation of pilot projects to apply hydrogen ever since the 2020 opening of the Fukushima Hydrogen Energy Research Field (FH2R)—one of the world's largest facilities producing hydrogen mainly through renewable energy.

Since a partnership agreement was signed in 2021, Namie has been deepening its cooperation with the City of Lancaster, a leading U.S. municipality in green hydrogen initiatives. Collaborative ties were expanded in 2022 with the inclusion of the County of Hawai'i when the three municipalities were selected for the global initiative known as H2 Twin Cities. In that new undertaking, Lancaster and Namie act as mentors sharing their expertise with Hawai'i County, which aims to embark on hydrogen utilization. Based on this framework, the three entities established PHA to promote hydrogen from a municipal level and generate a wave of change. "We all share the awareness that rather than waiting for the advent of the hydrogen society, we should create it ourselves. We want to enlarge the circle of like-minded municipalities around the world," said KOBAYASHI Naoki, who leads the New Energy Promotion Section of Namie Town's Office Industrial Promotion Division.



In May 2023, Namie Town Mayor YOSHIDA Eiko (right), Hawai'i County Mayor Mitch Ross (center), and Lancaster Mayor R. Rex Parris (left) announced the establishment of the Pacific Hydrogen Alliance (PHA).

Following the Great East Japan Earthquake in 2011, Namie Town has focused on introducing renewable energy and hydrogen in an attempt to rebuild better. In 2020, the New Energy and Industrial Technology Development Organization (NEDO) began hydrogen production demonstrations at the Fukushima Hydrogen Energy Research Field (FH2R).
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Despite the alliance format, energy situations differ by region, so the three municipalities advance their own plans and share the knowledge and expertise gained thereby for their mutual benefit. They frequently hold web meetings—sometimes once a week. "There are a lot of things that can't be directly applied but are still very informative. These exchanges also present valuable opportunities for us to question our social systems and ways of thinking that may simply be taken for granted."

Other communities are bound to be greatly inspired by how Namie is leading the way in giving concrete form to the lifestyle and structure of a "hydrogen society" that remains largely invisible and verifying it together with its residents. There are now nearly 80 fuel cell vehicles (FCVs) running on the streets of this small town, from school buses and rental cars to mobile supermarkets. Namie is also thoroughly engaged in building up a hydrogen supply chain: pilot projects are underway for the use of hydrogen at industrial parks, public facilities, and commercial facilities, among others, and the town is also exploring low-cost hydrogen supply methods. Hydrogen has now come to be used at various places, including the town office, schools, public baths, and cafés, and ordinary households started its test use in September 2023.

Gaining the understanding of the users—people and companies—is a major challenge in spreading the use of next-generation energy sources such as hydrogen. In 2021, Namie launched the Namie Hydrogen Town Concept, its vision for utilizing hydrogen. While realizing its initiatives in a visible, accessible form for its residents, the town has also striven to provide information at schools and community events so as to deepen understanding and interest. "The awareness of being a 'hydrogen town' is now deeply ingrained in the community. Some businesses and residents actively choose to own FCVs," said Kobayashi. "I look forward to the day when hydrogen is so commonly used that the moniker 'hydrogen town' becomes obsolete. For people at all levels to have easy access to green hydrogen through a variety of procurement methods—that is the ultimate goal of the PHA."

Left: Since September 2023, Namie has been implementing a pilot project delivering small cylinders—filled with hydrogen and weighing around 2 kg each—to ordinary residences and other locations. In this photo, a delivery driver is connecting the cylinder to a residential hydrogen fuel cell.
Right: Although Namie's population decreased significantly—to approximately one-tenth of its former size, or 2,200 people—following the 2011 earthquake, it has already built two hydrogen stations and makes widespread use of FCVs. JIJI