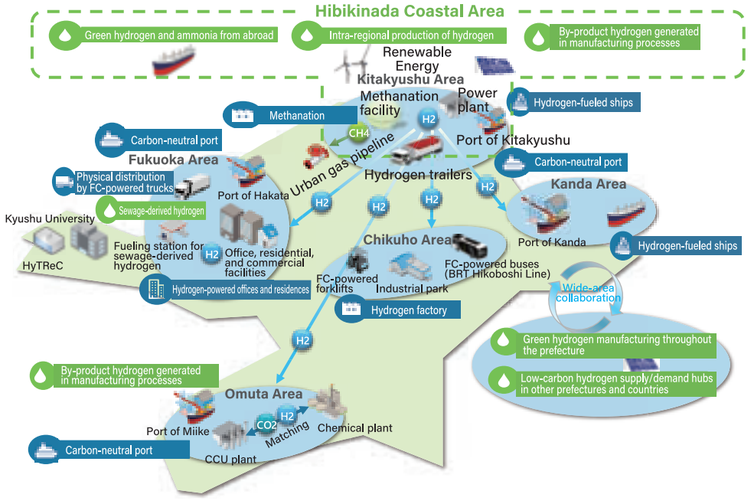
Construction of a Large-scale Hydrogen Site in the Kitakyushu Hibikinada Coastal Area

Fukuoka Prefecture's Advantages

1. The establishment of a hydrogen site of the largest scale on the Sea of Japan side will contribute to energy security
2. A diverse mix of hydrogen sources will ensure a steady supply of hydroge
3. The area has strong potential for large hydrogen demand
4. A framework that includes Kyushu University can be established to provide integral support from information collection to business development



Introduction of FC Mobility and Development of Hydrogen Stations

- Introduction of 16 FC trucks and 12 commercial trucks (5 commercial trucks for the first time in Western Japan; 3 school lunch delivery trucks & 1 garbage collection truck for the first time nationwide)
  Other: Introduction of 1 ambulance (for the first time nationwide)
- IIntroduction of FC buses to Hitahikosan Line BRT
- Commencement of the commercial operation of hybrid FC vessels for the first time in Japan
- Advance development of 9 hydrogen stations, including at the prefectural office (4th nationwide)


FC truck departure ceremony


Hybrid FC vessel HANARIA


BRT Hikoboshi Line


FC garbage collection truck and FC ambulance
[Photo provided by Fukuoka City]

Land acquisition support

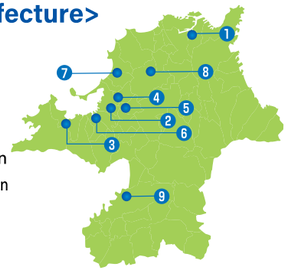
Consistent support, from the introduction of candidate sites to negotiations with land owners

Financial support

Support by means of prefectural subsidies in addition to national subsidies

<Hydrogen stations in Fukuoka prefecture>

1. Iwatani Hydrogen Station Kokura
2. Iwatani Hydrogen Station Fukuoka Government Office
3. Dr. Drive Self Ito SS Hydrogen Station
4. Dr. Drive Self Fukuoka Airport SS Hydrogen Station
5. Dr. Drive Self Dazaifu Interchange SS Hydrogen Station
6. Fukuoka City Chubu Sewage Treatment Center Hydrogen Station
7. Dr. Drive Self Koga SS Hydrogen Station
8. Fukuoka-Miyata Hydrogen Station
9. Hydrogen Station Kurume



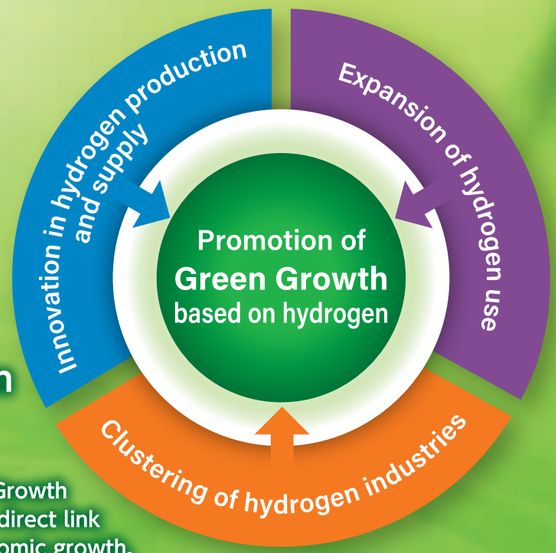
(As of December 2024)

福岡県水素グリーン成長戦略会議

Fukuoka Prefecture Hydrogen Green Growth Strategy Conference
(Secretariat: Automotive and Hydrogen Industry Promotion Division, Department of Commerce and Industry, Fukuoka Prefectural Government)
7-7 Higashikoen, Hakata-ku, Fukuoka-shi, Fukuoka 812-8577
Phone: 092-643-3448 Fax: 092-643-3847 E-mail: info@f-suiso.jp URL: https://www.f-suiso.jp/

Fukuoka Prefecture Hydrogen Green Growth Strategy Conference

Promoting Fukuoka Prefecture as a Front Runner in Realizing a Hydrogen Society via Industry-Academia-Government Collaboration



To realize carbon neutrality across the industrial sectors and throughout society, we will pursue initiatives to achieve Green Growth based on the use of hydrogen and create a direct link between environmental measures and economic growth.

Fukuoka Prefecture Hydrogen Green Growth Strategy Conference

Establishment
August 2, 2022

Chairman
Naoki Sato <Nippon Steel Corporation>

Vice Chairmen
Manabu Tsuyoshi <Iwatani Corporation>
Yuichiro Fujiyama <ENEOS Corporation>
Yoshiharu Senda <Kyushu Electric Power Co., Inc.>
Nobutaka Iwahara <Toyoto Motor Kyushu Co., Ltd.>
Kazunari Sasaki <Kyushu University>

Advisors
Seitaro Hattori <Governor of Fukuoka Prefecture>
Mitsuaki Hoshino <Director, Kyushu Bureau of Economy, Trade and Industry>
Masashi Norihisa <Director, Kyushu Regional Environmental Office>
Kazuhisa Takeuchi <Mayor of Kitakyushu City>
Soichiro Takashima <Mayor of Fukuoka City>
Tatsuro Ishibashi <President of Kyushu University>

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- Nippon Steel Engineering Co., Ltd.

Deputy Secretary
- Hydrogen Energy Test and Research Center

Secretaries
- Iwatani Corporation
- Kyushu Electric Power Co., Inc.
- Saibu Gas Co., Ltd.
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- ENEOS Co., Ltd.
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- Toyota Motor Kyushu Co., Ltd.
- Honda R&D Co., Ltd.
- Mitsubishi Heavy Industries, Ltd.
- Panasonic Corporation
- Kyushu University International Research Center for Hydrogen Energy
- Kyushu University Research Center for Hydrogen Industrial Use and Storage
- Saga University
- Kyushu Bureau of Economy, Trade and Industry
- Kyushu Regional Environmental Office
- Fukuoka Prefecture
- Kitakyushu City
- Fukuoka City

Members
922 companies and institutions

(As of December 2024)

福岡県水素グリーン成長戦略会議

2 Visions of the New Strategy

1 Roll out industrial policies in response to the creation of an enormous hydrogen market and the trend toward decarbonization

- An enormous hydrogen market has emerged that is worth 160 trillion yen. Measures are needed to support entry into this potential growth industry.
- Manufacturing industries in Fukuoka are also pressed to respond to the decarbonization trend and require support for introducing hydrogen technologies.

2 Transition from gray hydrogen to blue hydrogen and further to green hydrogen

- The 2050 Carbon Neutrality Declaration will hereafter promote a shift from gray hydrogen to blue hydrogen and further to green hydrogen.
- Emphasis will be placed on initiatives in the green hydrogen sector by leveraging our strengths as an advanced renewable energy region.

Fukuoka Prefecture Hydrogen Green Growth Strategy

3 Pillars of the New Strategy

1 Innovation in hydrogen production and supply

The dissemination of green hydrogen requires a cost reduction and diversification of hydrogen production and supply

[Example initiatives]

Construction of a large-scale hydrogen center in the Kitakyushu Hibikinada coastal area

Diverse hydrogen sources will be promoted, including hydrogen from abroad, green hydrogen produced from renewable energy sources, and by-product hydrogen generated in manufacturing processes.

Promotion of industry-government-academic exchanges with foreign countries in the hydrogen sector

- Initiatives will be promoted based on the MOU on cooperation in the hydrogen sector signed with New South Wales, Australia.
- To diversify import sources, personnel will be dispatched to UAE to conduct a local survey on its potential to become a hydrogen exporting country.

Promotion of R&D for high-efficiency hydrogen production, including the development of a next-generation water electrolysis device and other technologies

- R&D of high-efficiency hydrogen production technology (high-temperature solid oxide electrolyzer cell)
- R&D of reversible SOEC/SOFC as an international joint undertaking

2 Expansion of hydrogen use

Hydrogen use will be expanded to new applications, including factories, trucks, forklifts, and ships

[Example initiatives]

Introduction of FC-powered mobilities such as FC-powered trucks and forklifts in the transportation and physical distribution sectors

A virtuous cycle will be created for disseminating FC-powered mobilities, by simultaneously promoting the introduction of FC-powered trucks/forklifts and hydrogen-powered ships by transport companies in Fukuoka and developing hydrogen stations.

Introduction of FC-powered mobilities to commercial vehicles such as local transportation and garbage collection trucks

All districts in Fukuoka will be encouraged to introduce hydrogen to commercial vehicles such as local transportation and garbage collection trucks.

Development and dissemination of a "hydrogen factory package" to contribute to the decarbonization of factories

Companies based in Fukuoka will play a central role in developing low-cost, high-efficiency stationary fuel cell units as an all-prefecture initiative.
A hydrogen factory package that combines stationary fuel cells and renewable energy facilities will be offered nationwide.

3 Clustering of hydrogen industries

High-growth hydrogen industries need to be clustered for maximum benefit

[Example initiatives]

Establishment of the Fukuoka Hydrogen Green Innovation Support Center

Fukuoka and Kyushu University will work together to provide one-stop support for inquiries related to the hydrogen sector, including inquiries about (1) entering the hydrogen industry, (2) introducing hydrogen technologies, and (3) planning and arranging social demonstration projects via industry-academia-government collaboration.

Support for the development of new green hydrogen products by companies in Fukuoka

Subsidies and matching support will be provided as appropriate to each development phase, such as the R&D, demonstration, and social implementation stages.

Examples of subsidized product development (among others)

Precision plating of GFRP parts <Kyushu Denka Co., Ltd.>

Emergency release system for high-pressure hydrogen gas and liquid hydrogen <Toki Engineering Co., Ltd.>

Hydrogen fuel gas measuring device <Yabegawa Electric Industries, Ltd.>

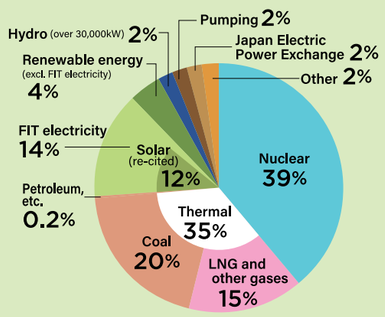
Enhancement and reinforcement of the Hydrogen Energy Human Resources Center

Business-oriented programs will be organized, anticipating that hydrogen technologies will advance to the social implementation stage.

Fukuoka is an advanced region in the use of hydrogen and renewable energy

With a CO_2-free power supply ratio of 60%, Kyushu has already achieved the government's 2030 target.
Fukuoka is also promoting the creation of a wind power generation site off the coast of Hibikinada.

Kyushu Electric's energy sources (FY2023 result)



60% are CO_2-free energy sources
(where the government's 2030 target is 56 to 60%)

Kyushu University

The university is home to a cluster of world-leading research institutions for hydrogen and fuel cells and supports the R&D of hydrogen, from production to transportation, storage, and utilization.

HYDROGENIUS
(Research Center for Hydrogen Industrial Use and Storage)

NEXT-FC
(Next-Generation Fuel Cell Research Center)

I^2CNER
(International Institute for Carbon-Neutral Energy Research)

HyTReC

～World's highest-performance hydrogen product testing facility～

Hydrogen Energy Test and Research Center

HyTReC supports small and medium venture companies in their R&D and product testing activities as a third-party institution that evaluates the performance and reliability of hydrogen products.

- Public testing institution for hydrogen products
- Prototypes, etc.

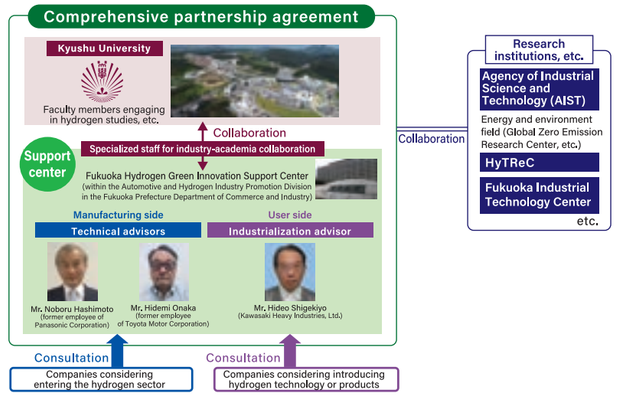
○Gas cycle tests ○Burst tests
○Hydraulic cycle tests ○Expansion measurement, etc.

Conducting a durability test using hydrogen gas

Measuring the expansion of a large hydrogen cylinder

Fukuoka Hydrogen Green Innovation Support Center

The center provides one-stop responses to inquiries related to (1) entering the hydrogen sector, (2) procuring hydrogen and introducing hydrogen technologies and products, and (3) planning and arranging demonstrations and projects.
Three advisors are dispatched as necessary for each inquiry, and researchers and companies are matched up through a specialized staff who works in collaboration with Kyushu University.



Support provided by the Strategy Conference

One-stop support, from information provision to support for feasibility studies, product development, and customer matching

Dispatch of advisors

Former employees of major manufacturing companies who serve as advisors are dispatched to companies considering entering the hydrogen sector or utilizing hydrogen, to provide information on the current situation of the hydrogen industry and advice on potential fields and hydrogen utilization measures.

Component study sessions

Instructors from major manufacturing companies of hydrogen devices are invited to introduce product structures and components and hold seminars on technologies sought by manufacturers.

Product development support

Target: Feasibility studies of seed technologies and full-fledged product development conducted by industry-government-academia collaboration teams
Subsidy amount:
[Feasibility study] Up to 5 million yen
[Commercialization research] Up to 25 million yen (three years)

Support for participation in trade fairs

Support is provided to companies seeking to participate in trade fairs such as the FC EXPO to expand their markets for the hydrogen products they develop independently.