

FCDIC Report 37th Issue (No.37)

“FCDIC Report No.37” is issued on 30th January 2024. Please refer to the following contents.

It is appreciated if you give us any comment on this new report.

1. “Fuel Cell RD & D in Japan 2023”, Annual Report of FCDIC

Annual Report will be published on 22nd December, including contribution by METI on strategy of Japan.

2. Bulletin of “The Journal of Fuel Cell Technology”

Vol.23 No.3, edition is issued on 30th January 2024. It is specially issued on the procurement of hydrogen fuel for fuel cells.

3. Topics related to fuel cell and hydrogen energy : from November 26, 2023 to January 27, 2024

<METI, ENV(Ministry for Environment), JBIC(Japan Bank for International Cooperation), JETRO, Yokohama City>

1) “Japan climate transition bond framework/PDF 42pp”, Dec. 1, 2023

URL:https://www.meti.go.jp/policy/energy_environment/global_warming/transition/climate_transition_bond_framework_eng.pdf

In English

2) “Recent developments of the joint crediting mechanism (JCM)/PDF 27pp”, Nov. 28, 2023

URL: <https://www.env.go.jp/content/000129307.pdf>

In English

3) “World Hydrogen 2024 Summit & Exhibition/May 13-15,2024 in Rotterdam, Netherlands”, Dec. 2 Down-loaded, 2023

URL: <https://www.jetro.go.jp/en/database/j-messe/tradefair/detail/132059>

In English

4) ” WHE 2024 - The 2nd World Hydrogen Energy Industry Expo/August 8-10, 2024 in Guangzhou, China” , Dec. 2

Down-loaded, 2023

URL: <https://www.jetro.go.jp/en/database/j-messe/tradefair/detail/132069>

In English

5) “Hydrogen is taking off in Japan/That's good news for global investors and innovators”, Dec. 23, 2023

URL: https://www.jetro.go.jp/en/invest/insights/japan-insight/hydrogen-taking-off-japan.html?_previewDate_=null&revision=0&viewForce=1&_tmpCssPreview_=0%2F%2Fbiznews%2F%2Fevents%2F%2Fevents%2F%2F%2F%2F%2F

In English

6) “Carbon-neutral port initiatives, City of Yokohama”, latest updated on Dec. 6, 2023

URL: <https://www.city.yokohama.lg.jp/lang/overseas/port/kankyo/cnp/initiatives.html>

In English



- 7) **“JBIC signs MOU with the Republic of Namibia, promoting cooperation for supporting Japanese companies business preserving environment in Namibia”**, Dec. 4, 2023
URL: https://www.jbic.go.jp/en/information/press/press-2023/press_00139.html
In English
- 8) **“High Pressure Safety Act etc. to be integrated on Road Transport Vehicle Act for regulation of FCV”**, Dec. 21, 2023
URL: <https://www.meti.go.jp/press/2023/12/20231221003/20231221003.html>
In Japanese
- 9) **“Komatsu cooperatively develops FC-unit for mining truck with GM more than 2MW”**, Dec. 18, 2023
URL: <https://www.jetro.go.jp/biznews/2023/12/6da23e24949ba9c4.html>
In English
- 10) **““Asia zero emission community progress report 2023”, 166pp/PDF available”**, Dec. 18, 2023
URL: <https://www.meti.go.jp/press/2023/12/20231218004/20231218004-3.pdf>
In English
- 11) **“MOUs towards AZEC leaders meeting, 69pp (Dec. 2023)”**, Dec. 23, 2023 Down-loaded
URL: <https://www.meti.go.jp/press/2023/12/20231218004/20231218004-9.pdf>
In English
- 12) **“City of Yokohama/Carbon-neutral port initiatives”**, Dec. 27, 2023 latest updated
URL: <https://www.city.yokohama.lg.jp/lang/overseas/port/kankyo/cnp/initiatives.html>
In English
- 13) **“Promotion of the deployment of next-generation car”**, Jan. 4, 2024 latest updated
URL: https://www.city.yokohama.lg.jp/kurashi/machizukuri-kankyo/ondanka/etc/jisedai_car/zisedaizidousya.html
In English
- 14) **“Kansai METI to publish “The data of Hydrogen-related companies in Kansai, by production, transport/storage, application, list companies available”**, Jan. 13, 2024 down-loaded
URL: https://www.kansai.meti.go.jp/5-1shiene/smart_energy_initiative/hydrogen_data/index.html
In Japanese
- 15) **“Minister Saito holds online meeting with H.E. Mr. Jurabek Mirzamahmudov, minister of energy, Uzbekistan”**, Jan. 9, 2024
URL: https://www.meti.go.jp/english/press/2024/0109_003.html
In English

<Business Papers and Sites>

[General topics]

- 1) **“Japan Post to implement FC truck for carbon neutral in 2050: Specification, car image and detailed explanation available”**, Nov. 30, 2023
URL: https://www.post.japanpost.jp/notification/pressrelease/2023/00_honsha/1130_02.html



In Japanese

- 2) **"Iwatani Corp. Research Center installs Panasonic fuel cell to reduce 40% of CO₂ totally 100kW(5kWx20): photo available"**, Nov. 28, 2023
URL: <https://newswitch.jp/p/39440>
In Japanese
- 3) **"Power supplied in a shelter demonstration test to prepare a disaster in Miyagi-Pref.: video available"**, Nov. 28, 2023
URL: <https://www.khb-tv.co.jp/news/15069125>
In Japanese
- 4) **"Heavy-duty FC truck "Hino Profia Z FCV Prototype in Tokyo Mobility Show 2023"**, Nov. 26, 2023
URL: https://www.japan-mobility-show.com/en/gallery/photo/02_020_Hino/015.html
In English
- 5) **"UK concerned about Japan's co-firing plants to curb emissions"**, Nov. 27, 2023
URL: <https://www.japantimes.co.jp/business/2023/11/27/economy/uk-concerns-over-japan-emissions/>
In English
- 6) **"EU Commission announces electricity grid action plan"**, Nov. 28, 2023
URL: <https://jp.reuters.com/article/eu-energy-electricity-idAFL8N3CT28J>
In English
- 7) **"TOYOTA establishes 'Hydrogen Factory Europe', Europe to be considered the largest FC market/ Photo of Pick-up truck and press conference"**, Dec. 5, 2023
URL: <https://response.jp/article/2023/12/05/377247.html>
In Japanese
- 8) **"JR Tokai (Central) forging first train running on carbon-free hydrogen engine"**, Dec. 3, 2023
URL: <https://www.asahi.com/ajw/articles/15064261>
In English
- 9) **"Kawasaki Thermal Engineering/member of Kawasaki Heavy Industries, to launch hydrogen "mixed-fireinf" large capacity once-through boiler: specification and line-up available"**, Dec. 9, 2023 down loaded
URL: https://www.khi.co.jp/corp/kte/product/boiler/hydrogen_if_en/
In English
- 10) **"Mitsubishi, Adu Dabi sign deal to collaborate on blue hydrogen and blue ammonia"**, Dec. 8, 2023
URL: https://www.arabnews.jp/en/business/article_110006/
In English
- 11) **"GM expands its vision of an all-electric future to include the heaviest-duty applications, developed with Komatsu- GM and Komatsu collaborate on hydrogen fuel cell-powered mining truck"**, Dec. 13, 2023
URL: <https://www.komatsu.jp/en/newsroom/2023/20231213>
In English



12) **“ITOCHU and Osaka Gas announce to invest in Everfuel A/S, which is promoting one of the world's largest green hydrogen production project in Denmark”**, Dec. 13, 2023.

URL: <https://www.itochu.co.jp/en/news/press/2023/231213.html>

In English

13) **“Energy mix for Japan's carbon neutrality by 2050: Analysis of marginal cost of an electricity supply based on 100% renewable energy: original paper URL available”**, Dec. 16, 2023 Down-loaded

URL: https://eneken.ieej.or.jp/en/report_detail.php?article_info__id=11502

In English

14) **“JR Central discloses hydrogen driven railway, Fuel cell (80 kW) and Hydrogen Engine (141 kW), 10-20 years later/ Both photos available”**, Dec. 23, 2023 Down loaded

URL: <https://newswitch.jp/p/39735>

In Japanese

14) **“JR Central developing train running on hydrogen fuel cells”**, Dec. 18, 2023

URL: https://www3.nhk.or.jp/nhkworld/en/news/20231218_38/

In English

Engineers at Central Japan Railway are developing a train that runs on hydrogen fuel cells and produces zero carbon dioxide emissions. The company says the use of such clean energy can help decarbonize the railway industry.

JR Central demonstrated the technology at a research facility in Aichi Prefecture on Monday. Engineers tested the train on a railway track to check it had sufficient power to run and accelerate.

The cells generate electricity from the chemical reaction between hydrogen fuel and oxygen. They emit only water. The train also gets power from storage batteries.

The company says the goal of the research is to develop hydrogen-powered trains to replace diesel-fueled models now in use.

Tanaka Hidemitsu of Central Japan Railway said "To decarbonize the industry it is necessary to reduce use of diesel engines."

15) **“Kobe Steel adds hydrogen-related technologies to the WIPO green database”**, Dec. 19, 2023

URL: https://www.kobelco.co.jp/english/releases/1214307_15581.html

In English

16) **“Japan Gas Association at UN Climate Conference-United Arab Emirates (COP28), Pavillion, Side-events including e-methane initiatives”**, Dec. 20, 2023

URL: https://www.gas.or.jp/pdf/en/newsrelease/newsrelease_20231220.pdf

In English

17) **“Rolls-Royce starts new set of ground-breaking hydrogen research test/ Aviation application”**, Dec. 23, 2023 Down loaded

URL: <https://aviationghana.com/rolls-royce-starts-new-set-of-ground-breaking-hydrogen-research-tests/>

In English

18) **“‘Phenix’, fuel cell drone by Sptronik designed a mission-critical application with long flight: photo and specification available”**, Dec. 28, 2023

URL: <https://www.japantimes.co.jp/news/2023/01/05/business/corporate-business/toyota-hydrogen-fuel-car/>



- 19) **“Honda, Tokuyama, and Mitsubishi Corp. to conduct joint demonstration of decarbonizing data center using by-product hydrogen and stationary fuel cell power station designed to reuse fuel cell system from FCEVs, Overview available”**, Dec. 25, 2023
URL: <https://www.mitsubishicorp.com/jp/en/pr/archive/2023/html/0000052615.html>
In English
- 20) **“Development of a medium-sized hydraulic excavator powered by a hydrogen fuel cell: Video, System available”**, Dec. 30, 2023 Down loaded
URL: <https://www.komatsu.jp/en/aboutus/brandcommunication/hydrogen-fuel-cell>
In English
- 21) **“Isuzu, Honda begin demonstration testing today of fuel cell powered heavy-duty truck on public roads in Japan: Outline of the demonstration driving available”**, Dec. 25, 2023
URL: <https://www.jcnnewswire.com/english/pressrelease/88306/2/Isuzu,-Honda-Begin-Demonstration-Testing-Today-of-Fuel-Cell-Powered-Heavy-duty-Truck-on-Public-Roads>
In English
- 22) **“Hitachi Energy unveils new emission-free alternative to diesel-powered generators: photo available”**, Dec. 25, 2023
URL: https://highlights.hitachi.com/_ct/17671641
In English
- 23) **“Mizuho aims to hasten renewable energy technology”**, Jan. 5, 2024
URL: <https://sustainable.japantimes.com/esg/183>
In English
- 24) **“ENEOS; Equity participation for building hydrogen supply chain between Japan and the U.S. clean hydrogen to be produced in the Gulf of Mexico”**, Jan. 11, 2024
URL: https://www.eneos.co.jp/english/newsrelease/2023/pdf/20240111_01.pdf
In English
- 25) **“Kawasaki and three other engineering firms sign agreement for liquified hydrogen supply chain: Toyo Eng., JGC Corp., Chiyoda Corp.”**, Jan. 11, 2024
URL: https://www.chiyodacorp.com/media/240111_e.pdf
In English
- 26) **“Ynmar gets AIP (Approval in Principle) firstly in Japan for the ‘Fuel cell system for ships’ from Class NK: Max. output of 300 kW, parallel arrangement and verified number of the single cell”**, Jan. 19, 2024
URL: <https://prt看imes.jp/main/html/rd/p/000000213.000034384.html>
In Japanese
- 27) **“Bosch announced the big investment to hydrogen technology, both fuel cell and engine in CES2924”**, Jan. 15, 2024
URL: <https://response.jp/article/2024/01/15/378494.html>
In Japanese



28) **“Honda-GM fuel cell venture launch commercial production, production cost 1/3”**, Jan. 26, 2024

URL: https://www3.nhk.or.jp/nhkworld/en/news/20240126_26/

In English

Honda Motor and General Motors have started commercial production of hydrogen fuel cell systems.

Honda plans to roll out sport utility vehicles equipped with the system in both Japan and the United States this year.

The two automakers announced on Thursday that production has started at their joint-venture plant near Detroit, Michigan.

They say production costs have been slashed to one-third of the previous level through new materials and other means.

They also say the system's durability has been doubled so that it can operate at temperatures as low as minus 30 degrees Celsius.

Honda has been focusing on the hydrogen business as well as development of electric vehicles as part of its efforts to achieve carbon neutrality.

"We want customers to know that fuel cells are reliable enough to withstand practical use. We are working to get them widely used as soon as possible," said Suzuki Tetsuo, vice president of the Fuel Cell Manufacturing System joint venture.

Honda also aims to sell the fuel cell system as power-generation equipment to other companies.

29) **“Report on Maritime application of hydrogen propulsion: Progress and challenges of hydrogen fuel propulsion for different type projects by JTTRI/ PP.17”**, Jan. 23, 2024

URL: https://www.jttri.or.jp/topic_europe_20240123.pdf

In English, JTTRI: Japan Transport and Tourism Research Institute

30) **“Tokyo Gas and Osaka Gas join Masdar and INPEX in a feasibility study to produce e-methane in Abu Dhabi, UAE”**, Jan. 23, 2024

URL: https://www.osakagas.co.jp/en/whatsnew/_icsFiles/afieldfile/2024/01/23/240123.pdf

In English

31) **“GE Verona and IHI move to the next phase of the technology roadmap aiming to develop a 100%- ammonia capable gas turbine combustion system by 2030”**, Jan. 24, 2024

URL: https://www.ihico.jp/en/all_news/2023/resources_energy_environment/1200574_3523.html

In English

[Market information of fuel cell and hydrogen]

1) **“Effort to transform energy flows for achieving carbon neutrality in Japan; Key research finding 2023/No. 3394”**,

Nov. 27, 2023

URL: https://www.yanoresearch.com/en/press-release/show/press_id/3394

In English

2) **“World market report on FC test apparatus 2023-2029: YH Research, contents available”**, Dec. 11, 2023

URL: <https://tomoruba.eiicon.net/blogs/15671>

In Japanese,

3) **“Global alkaline fuel cells market analysis report 2024-2031/108pp: contents available”**, Dec. 16, 2022

URL: <https://menafn.com/1107607702/Global-Alkaline-Fuel-Cells-Market-Analysis-Report-2024-2031-108-Pages-Report>

In English

4) **“Fuel cell power generation system market: Witness an outstanding growth during 2024-2031 with leading regions and countries data: contents”**, Dec. 22, 2023



URL: <https://menafn.com/1107647816/Fuel-Cell-Power-Generation-Systems-Market-Witness-An-Outstanding-Growth-During-2024-2031-With-Leading-Regions-And-Countries-Data>

In English

5) **“Global market of hydrogen production technologies and components: Key research findings 2023 to reach 148,000 thousand tons by 2040/Yano Research Inst.”**, Dec. 25, 2023

URL: https://www.yanoresearch.com/en/press-release/show/press_id/3424

In English

6) **“Global market report on hydrogen and fuel cells. YH Report/ URL available for the detailed contents and free sample”**, Jan. 4, 2024

URL: <https://newscast.jp/news/2670717>

In Japanese

7) **“Global hydrogen liquidizer cold box market insight, forecast to 2030: free sample available”**, Jan. 4, 2024

URL: <https://www.gii.co.jp/report/qyr1399923-global-hydrogen-liquidizer-cold-box-market.html>

In English

8) **“Global market of data of stationary FCs/ YH Research, Contents and URL on free sample available”**, Jan. 11, 2024

URL: <https://newscast.jp/news/7117680>

In Japanese

9) **“Hydrogen fuel cells will record strong growth by 2040 to power heavy-duty trucks and clean logistics, finds Auto 2x”**, Jan. 12, 2024

URL: <https://menafn.com/1107715054/Hydrogen-Fuel-Cells-Will-Record-Strong-Growth-By-2040-To-Power-Heavy-Duty-Trucks-And-Clean-Logistics-Finds-Auto2x>

In English

10) **“Hydrogen hubs market worth \$5.9 billion by 2030—Exclusive report by marketsandmarkets™”**, Jan. 12, 2024

URL: <https://menafn.com/1107713132/Hydrogen-Hubs-Market-Worth-59-Billion-By-2030-Exclusive-Report-By-Marketsandmarketstm>

In English

11) **“FC market/ Prospect, growth, scale, share, trend, analysis in 2024-2032:contents and sample available”**, Jan. 16, 2024

URL: <https://newscast.jp/news/2075756>

In Japanese

12) **“Market on PEM materials/ global industries, scale, share, growth, trend and prospect in 2023-2031, GII: Abstract, detailed contents and free sample available”**, Jan. 26, 2024

URL: <https://newscast.jp/news/8746276>

In Japanese

13) **“Trend and prospect of global market of FC boat by type, application, FC maker, region in 2024-2030: abstract and free sample available”**, Jan. 24, 2024

URL: <https://tomoruba.eiicon.net/blogs/44378>



14) **“Global portable fuel cell market report 2023-2028 - High initial costs and nascent hydrogen infrastructure spark industry collaboration for solutions”**, Jan. 26, 2024

URL: <https://menafn.com/1107773065/Global-Portable-Fuel-Cell-Market-Report-2023-2028-High-Initial-Costs-And-Nascent-Hydrogen-Infrastructure-Spark-Industry-Collaboration-For-Solutions>

In English

15) **“Green hydrogen market: Environmental future—APAC dominate by Japan, South Korea, China, Singapore, Australia, Taiwan”**, Jan. 24, 2024

URL: <https://menafn.com/1107761510/Green-Hydrogen-Market-Environmental-Future-APAC-Dominate-By-Japan-South-Korea-China-Singapore-Australia-Taiwan>

In English

<General papers & other publications>

1) **“Evaluation of correlation of the catalyst surface hydrophilic and dispersion/durability of ionomer”**, Nov. 28, 2023

URL: https://www.ne-chemcat.co.jp/new_info/pdf/5dde4a7113d58276c43aa1cfafddf7c8a763abfe.pdf

In Japanese,

2) **“New strategy improves perovskites' oxygen reduction performance in hydrogen fuel cells”**, Dec. 15, 2023

URL: https://www.tohoku.ac.jp/en/press/new_strategy_improves_perovskites_oxygen_reduction_performance_hydrogen_fuel_cell.html

www.tohoku.ac.jp/en/press/new_strategy_improves_perovskites_oxygen_reduction_performance_hydrogen_fuel_cell.html

In English

3) **“The 'one-pot' nanosheet method catalyzing a green energy revolution”**, Dec. 15, 2023

URL: <https://www.nagoya-u.ac.jp/researchinfo/result-en/2023/12/20231212-01.html>

In English,

4) **“Towards next-generation nanocatalysts to revolutionize active electron transfer/DOI available JAIST:Japan Advanced Institute of Science and Technology”**, Dec. 16, 2023, down loaded

URL: <https://www.jaist.ac.jp/english/whatsnew/press/2023/12/14-1.html>

In English

5) **“Research News: An integrated approach to discovering stable and low cost electrocatalysts/metal oxide catalysts, published in the journal Advanced Science on Dec 7, 2023 Sb₂WO₆, DOI available”**, Dec. 21, 2023

URL: https://www.tohoku.ac.jp/en/press/integrated_approach_to_discovering_stable_and_low_cost_electrocatalysts.html

In English

6) **“New material allows for better hydrogen-based batteries and fuel cell by Riken, using hydride ions(H-) reference available”**, Dec. 23, 2023

URL: https://www.riken.jp/en/news_pubs/research_news/pr/2023/20231222_2/index.html

In English

**The URLs are not always permanent. Down-load was done on the day examined.*

5. Future Events

<International>

FC Expo 2024 Spring, February 28 to March 1, 2024 in Tokyo

URL: <https://www.wesw.jp/hub/en-gb/about/fc.html>

FCDIC co-organizes and exhibits every year.

The 30th Fuel Cell Symposium, May 23 to 24, 2024 in Tokyo

Basically in Japanese. English presentation is acceptable. It could be held by hybrid at venue and on-line.

Sponsorship opportunities: Gold, Silber, Bronze

HYPOTHESIS XIX Hiroshima 2024: HYdrogen POver THEoretical & Engineering Solutions International Symposium, July 14 to 18, 2024 in Hiroshima (FCDIC Co-organized)

URL: <https://www.hypothesis.ws>