

FCDIC Report 41st Issue (No.41)

“FCDIC Report No.41” is issued on 30th September 2024. Please refer to the following contents. The topics are AZEC by METI and collaboration of Toyota with BMW, and Paris Olympics/Paralympic 2024. It is appreciated if you give us any comment on this new report.

1. Contents of “The Journal of Fuel Cell Technology”, Vol.24 No.2

The booklet is in progress to be published on 30th October and will be uploaded in the FCDIC web-site.

The contents are as follows;

The Special Issue is “Hydrogen supply chain”. Foreword, Essay, Technology Information, Contribution, and Laboratory Introduction are also included.

2. Topics related to fuel cell and hydrogen energy : from 27th July to 27th September, 2024

<Government, Local Government, METI, JICA(Japan International Cooperation Agency), JOGMEC, JETRO, Kitakyushu City>

[Related AZEC(Asia Zero Emission Community) ministerial meeting]

1) ”2nd Asia Zero Emission Community (AZEC) Ministerial Meeting Joint Statement, Jakarta”, Aug. 21, 2024

URL:<https://www.meti.go.jp/press/2024/08/20240821001/20240821001-a.pdf>

In English

1) ”Japan-led zero emission forum agrees to decarbonize 3 key sectors; a 'triple breakthrough,' namely addressing climate change, promoting inclusive economic growth, and achieving energy security simultaneously”, Aug. 22, 2024

URL: <https://mainichi.jp/english/articles/20240822/p2g/00m/0in/010000c>

In English (reported in The Mainichi)

2) ”MOUs towards 2n AZEC ministerial meeting, MOUs introduced on South-East Asia; Thailand, Singapore, Indonesia, Malaysia, Philippines, Vietnam ”, Aug. 31 down-loaded, 2024

URL: <https://www.meti.go.jp/press/2024/08/20240821001/20240821001-5-2.pdf>

In English

For reference, NKH TV on air

“Asia zero emission community agrees to promote decarbonization”, Aug. 21, 2024

URL: www3.nhk.or.jp/nhkworld/en/news/20240821_16/

In English

The members of the Asia Zero Emission Community have agreed to work together on decarbonization.

AZEC is an 11-member group including Japan, Southeast Asian countries and Australia.

It held a ministerial meeting in Indonesia on Wednesday. From Japan, Saito Ken, who is Economy, Trade and Industry Minister, attended.

The participants issued a joint statement after the meeting. It says they agreed to promote decarbonization, in consideration of each country's geographic factors, economic situation and other circumstances.



The statement also says they will step up cooperation in electric power, transportation and industry.

The countries will promote the shift of fuel for thermal power generation to hydrogen and ammonia, which do not emit carbon dioxide. They will collaborate to build supply chains for next-generation sustainable aviation fuel, or SAF, and biofuel for automobiles.

The members also plan to further cooperate to introduce renewable energy and promote energy saving at industrial parks.

Japan plans to provide other Asian countries with the technologies in areas Japan excels, including hydrogen, ammonia and energy saving.

[General Items]

1) **“JICA facilitated the collaboration between Mitsubishi Power and Hydrogen Co. for green hydrogen innovation in India”**, Aug. 7, 2024

URL: https://www.jica.go.jp/english/overseas/india/information/press/2024/1547015_53431.html

In English

2) **“JOGMEC gains equity share of HIF Global LLC, one of the leading e-fuels companies in the world; Japanese version available”**, Aug. 8, 2024

URL: https://www.jogmec.go.jp/english/news/release/news_10_00073.html

In English

3) **“Toyota’s FC R&D and Production hub officially in operation in Peking, max. 10 thousand produced”**, Aug. 30, 2024

URL: <https://www.jetro.go.jp/biznews/2024/08/987d8309f46e6e1f.html>

In Japanese

4) **“Kitakyushu to establish large-scale hydrogen energy hub; Japanese site available”**, Sept. 12, 2024

URL: <https://www.fukuoka-now.com/en/news/kitakyushu-hydrogen-energy-hub/>

In English

5) **“For investment in Kansai; Why not do your business in Kansai? 2024 version”**, Sept. 21 downloaded, 2024

URL: https://www.kansai.meti.go.jp/3-1toukou/_INVEST_support_eng/2024invest_eng/2024

In English

<Business Papers>

[Collaboration of Toyota with BMW]

1) **“Toyota and BMW strengthen collaboration towards the advancement of a hydrogen society; Source: Toyota Motor Corporation”**, Sept 6, 2024

URL: <https://www.jcnnewswire.com/pressrelease/92735/3/Toyota-Motor-Corporation-and-BMW-Group-Strengthen-Collaboration-Towards-the-Advancement-of-a-Hydrogen>

In English

Related Japanese URL: <https://car.watch.impress.co.jp/docs/news/1621441.html>

2) **“BMW, Toyota to strengthen collaboration on fuel cells”**, Sept. 6, 2024



URL: https://www3.nhk.or.jp/nhkworld/en/news/20240906_09/

In English

German automaker BMW said Thursday it will boost joint development of next-generation hydrogen fuel cells with Japan's Toyota Motor. It aims to start its first-ever mass production of a fuel-cell electric vehicle in 2028.

The collaboration will extend to improving infrastructure such as setting up hydrogen stations. Fuel-cell electric vehicles do not emit carbon dioxide because the power is generated by hydrogen.

The advantages of fuel-cell vehicles over other EVs include a range on a par with gasoline engines, and the short time to refuel compared to recharging. But the challenge for automakers in building a market is that fuel-cell vehicles are expensive.

BMW and Toyota aim to lower production costs through co-development, and hope to spur demand by improving refueling infrastructure.

BMW Chairman Oliver Zipse said, "We are committed to making hydrogen-powered cars a practical choice for a wider group of customers."

Toyota President Sato Koji said that the two automakers would deepen their cooperation in realizing a hydrogen society.

3) **"BMW eyes hydrogen-powered rollout in 2028, with Toyota help"**, Spt. 5, 2024

URL: <https://menafn.com/1108642180/BMW-Eyes-Hydrogen-Powered-Rollout-In-2028-With-Toyota-Help>

In English

4) **"Toyota, BMW to expand fuel cell vehicle tie-up in hydrogen push"**, Aug. 27, 2024

URL: <https://mainichi.jp/english/articles/20240827/p2g/00m/0bu/033000c>

In English (The Mainichi,)

[Olympics/Paralympic 2024]

1) **"Action in Paris -- Hydrogen Society; Proof of Concept-Paris 2024 by Toyota"**, Sept. 26 down loaded, 2024

URL: https://www.toyota.co.jp/its/en/2024/pdf/carbon-neutrality_05.pdf

In English

2) **"Mobility for all at Paris 2024. Toyota mobility in use everywhere! – Video available"**, Sept. 18, 2024

URL: <https://toyotatimes.jp/en/newscast/091.html>

In English

3) **"The Paris 2024 legacy-workd-first challenges with hydrogen cartridges - Video available"**, Sept. 25, 2024

URL: <https://toyotatimes.jp/en/newscast/092.html>

In English

[General topics]

1) **"Panasonic begins demonstration using from pure hydrogen fuel cell generators as a heat source for an absorption chiller (air conditioning equipment)"**, July 30, 2024

URL: <https://ejarn.com/detail.php?id=84723>

In English

Related Japanese URL: <https://japan.cnet.com/article/35222092/>

- 2) **“Toyota Times News; A hydrogen cruise without noise or CO₂: A culmination of technology for the future; YouTube available”**, July 31, 2024
URL: <https://toyotatimes.jp/en/newscast/084.html>
In English
- 3) **“Blue Action 009 - CCUS Value Chain/ Maritime CO₂ transport for the future”**, July. 31, 2024
URL: <https://www.mol.co.jp/en/bam/009/>
In English (MOL: Mitsui O.S.K. Lines)
- 4) **“Mitsubishi Heavy Industries and Taiwan Fertilizer sign MoU for joint study on developing fuel ammonia value chain in Taiwan”**, Aug. 9, 2024
URL: <https://www.jcnnewswire.com/pressrelease/92142/3/Mitsubishi-Heavy-Industries-and-Taiwan-Fertilizer-Sign-MoU-for-Joint-Study-on-Developing-Fuel-Ammoni>
In English
- 5) **“DENSO and JERA to jointly develop high-efficiency hydrogen generation technology that combines SOEC with waste heat utilization and to conduct joint demonstration testing at a JERA thermal power station”**, Aug. 5, 2024
URL: <https://www.mes.co.jp/english/press/2023/uploads/20230810ea.pdf>
In English
URL: https://www.jera.co.jp/en/news/information/20240805_1987
- 6) **“The Institute of Cetacean(Whale) Research to develop VTOL(Vertical Take Off and Landing) -UAV; Long-distant autonomy flight; 200km of target with FC drone”**, Aug. 13, 2024
URL: <https://newswitch.jp/p/42563>
In Japanese
Refer also URL: <https://www.icrwhale.org/220328ReleaseJp.html> (Photo available in Japanese)
- 7) **“ClassNK published estimated leak frequencies of ammonia fuel from onboard components for ammonia-fueled ships for achieving reasonable and reliable risk assessment”**, Aug. 30, 2024
URL: https://www.classnk.or.jp/hp/en/hp_news.aspx?id=12062&type=press_release&layout=1
In English
- 7) **“ClassNK alternative fuels insight; ver.2.0 Sept. 2024, pp.91”**, Spt. 6 down-loaded, 2024
URL: https://download.classnk.or.jp/documents/ClassNKAlternativeFuelsInsight_e.pdf
In English
- 8) **“The Nippon Foundation Zero Emission Ship Project: Completion of hydrogen Engine R&D Center to promote decarbonization in ships; Regime including project road-map available (Japanese Site URL also available)”**, Sept. 4, 2024
URL: <https://www.nippon-foundation.or.jp/en/news/articles/2024/20240904-103973.html>
In English
Corresponding Japanese URL: <https://www.nippon-foundation.or.jp/en/news/articles/2024/20240904-103973.html>



9) **"Nissan to sell electricity to households, collaboration with Osaka Gas"**, Sept. 6, 2024

URL: <https://jen.jiji.com/jc/eng?g=ind&k=2024090600295>

In English

10) **"Transforming cities and lifestyles--Racing toward a hydrogen society at round 3 in autopolis, photo available"**, Sept. 12, 2024

URL: https://toyotatimes.jp/en/report/hpe_challenge_2024/005_1.html

In English

11) **"Toyota to invest in hydrogen fund to Iwatani Corp., MUFG Bank, Sumitomo Mitsui Banking Corp. and Bank of Fukuoka also plan to invest in the Japan Hydrogen Fund"**, Sept. 13, 2024

URL: <https://jen.jiji.com/jc/i?g=ind&k=2024091300798>

In English

12) **"Approval in Principle (AiP) acquired from two classification societies for low-pressure type liquified CO₂ carriers undergoing pursuit of standardization toward realization of large-scale international transportation from 2028 onwards, 6 companies included by NYK Line other than MOL(Mitsui Line)"**, Sept. 18, 2024

URL: <https://www.mol.co.jp/en/pr/2024/24107.html>

In English

13) **"TOYOTA L&F to newly sale 2.5t type FC folk lift"**, Sept. 17, 2024

URL: <https://www.toyota-shokki.co.jp/news/2024/09/17/008715/index.html>

In Japanese

[Market]

1) **"World market for auto-industry 2024-2028: detailed content and free sample available by GII"**, July 30, 2024

URL: <https://newscast.jp/news/0759181>

In Japanese

2) **"World market on SOFC; growth, profit, size 2024-2030; detailed information available"**, August 1, 2024

URL: <https://www.the-miyanichi.co.jp/special/dreamNews/detail.php?id=0000302102>

In Japanese

3) **"Market on high-temperature FC, application, type, regional 2024-2034; detailed contents and free sample available"**, Aug. 5, 2024

URL: <https://newscast.jp/news/3533838>

In Japanese

4) **"Global market on FC microgeneration 2024"**, Aug. 15, 2024

URL: <https://www.ipros.jp/product/detail/2001394185/>

In English

5) **"Electric mid- and large(9-14m) bus global market report 2024; free sample available"**, Aug. 12, 2024

URL: <https://www.gii.co.jp/report/tbrc1531938-electric-mid-large-14m-bus-global-market-report.html>
In Japanese

6) "FC UAV market CAGR to be at 13.4% USD 5.4 billion by 2032", Sept. 22, 2024

URL: <https://menafn.com/1108592094/Fuel-Cell-UAV-Market-CAGR-To-Be-At-134-USD-54-Billion-By-2032-Aerovironment-Inc-Energyor-Technologies>

In English

7) "FC consumer market 2024-2030, under COVID 19, sample copy, contents am figures available", Aug. 29, 2024

URL: <https://pando.life/article/138570>

In English

8) "Automotive fuel cell vehicle market growth from USD 1.03 billion in 2023 to USD 37.60 billion by 2030 CAGR of

49.1%", Sept. 3, 2024

URL: <https://menafn.com/1108628895/Automotive-Fuel-Cell-Vehicle-Market-Growth-From-USD-103-Billion-In-2023-To-USD-3760-Billion-By-2030-CAGR-Of-4914>

In English

9) "Global FCV research on type, technology, milage and region 2022-2032; detailed contents, free sample, and link to the related", Sept. 20, 2024

URL: <https://japan.cnet.com/release/31028720/>

In Japanese

<General papers & other publications>

1) "Improvement of proton conductivity under non-humidity aligned chirality of organic molecule, Prof. Akutagawa; original article available", Aug. 6, 2024

URL: <https://www.tohoku.ac.jp/japanese/2024/08/press20240806-01-Chiral.html>

In Japanese

2) "Effective new catalyst brings hope for cleaner energy, wastewater treatment, and green chemistry; Hollaido Univ., original article available, titled by 'Electrocatalytic ammonia oxidation to nitrite and nitrate with NiOOG-Ni'", Aug. 8, 2024

URL: <https://www.global.hokudai.ac.jp/blog/effective-new-catalyst-brings-hope-for-cleaner-energy-wastewater-treatment-and-green-chemistry/>

In English

3) "Atomic layer engineering of Pd nanosheet for an enhanced hydrogen evolution reaction—Nagoya Univ., DOI available", Aug. 7, 2024

URL: <https://mosada-lab-nagoya.com/blog/atomic-layer-engineering-of-pd-nanosheets-for-an-enhanced-hydrogen-evolution-reaction/>

In English

4) "Operando identification of reactive electron species driving photocatalytic hydrogen evolution on metal-



loaded oxide --Unveiling actual role of metal co-catalysts, Detailed PDF and DOI available in JACS”, Aug. 29, 2024

URL: <https://www.soken.ac.jp/en/news/2024/20240829.html>

In English

5) “Breakthrough in proton barrier films using pore-free graphene oxide; Kumamoto Univ. Prof. S. Ida and Ass. Prof. K. Hatakeyama”, Sept. 13 down-loaded, 2024

URL: <https://www.kumamoto-u.ac.jp/sp/en/news/688/>

In English

6) “Performance of a Fe-N-C catalyst in single-chamber MFC air-cathode at neutral media; full paper available, Prof. Tsujiguchi, Tsukuba Univ., Microbial FC”, Sept. 21 down-loaded, 2024

URL: https://www.jstage.jst.go.jp/article/electrochemistry/92/2/92_23-68141/_html/-char/en

In English

**The URLs are not always permanent. The article and its URL are examined this month.*

3. H2&FC Expo 2024 Autumn and 2025 Spring

The H2&FC Expo 2024 Autumn is held on Oct. 2 ~ 4 in Makuhari-Messe, Chiba Prefecture.

The H2&FC Expo 2025 Spring will be held on Feb. 19 ~ 21 in Tokyo Big-site, Tokyo

Please refer to URL(Japanese page) : <https://www.wsew.jp/hub/ja-jp/about/fc.html>

And URL(English page) : <https://www.wsew.jp/hub/en-gb/about/fc.html>

4. Future Events

<International>

The 33rd Fuel Cell Symposium, 22nd to 23rd May, 2025 by hybrid in Tokyo and online

Basically in Japanese. English presentation is acceptable.

<Domestic>

The 40th FCDIC Seminar, Nov. 13, 2024 hybrid in Tokyo and online: 6 lectures are prepared.

In Japanese

The 38th Terakoya-style Fuel Cell Lecture, Dec. 4, 2024 in Tokyo: Basic lectures. In Japanese