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Post Show Report



U July 5-7, 2023 O Shanghai Automobile Exhibition Center

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Event Overview-Past Review



November 7-8, 2016 Beijing

1 plenary session 4 forums 1 working group meeting 500 delegates

November 7-8, 2017 Rugao, Jiangsu

1 plenary session 4 forums 1 working group meeting 16 exhibitiors 1,100 delegates

October 23-25, 2018 Rugao, Jiangsu

1 plenary session 1 leadership forum 5 forums 1,500 delegates 52 exhibitions 6,000m² exhibition area 2,626 professional visitors

September 26-28, 2019 Rugao, Jiangsu

1 plenary session 6 forums 5 side events 1,500 delegates 111 exhibitiors 10,000m² exhibition area 4,233 professional visitors

September 14-16, 2020

Jiading, Shanghai

1 plenary session 4 forums 1,000 delegates 127 exhibitiors 10,000m² exhibition area 5,567 professional visitors June 8-10, 2021 Jiading, Shanghai

FGVC

1 plenary session 8 forums 2 side events 1,100 delegates 228 exhibitiors 14,000m² exhibition area 7,358 professional visitors

/01 Event Overview-2023 Overall Review



The International Hydrogen and Fuel Cell Vehicle Congress & Exhibition 2023 (FCVC 2023) took place from July 5 to 7, 2023, at the Shanghai Automobile Exhibition Center. The theme of FCVC 2023 was 'Pioneer through Demonstration: Hydrogen Powers the Future'. The event encompassed 1 Plenary Session, 3 high-end Closed-door Meetings, and 8 forums. The exhibition area spanned 20,000 square meters, featuring the participation of 300 domestic and foreign companies & brands. FCVC 2023 also hosted a range of captivating events during the same period, including technical theater presentations, new product releases, technical visits, and activities to popularize scientific knowledge. Serving as a professional platform for the industry, FCVC 2023 facilitated the collaborative advancement of hydrogen and fuel cell vehicle technology, aiming to achieve a mutually beneficial outcome for the industry.



- Rugao Municipal People's Government
- China FAW Group Co., Ltd.

/01 Event Overview-2023 Sponsors





102 Conference Review-Meeting Overview



Theme

Centered around the theme of 'Pioneer through Demonstration: Hydrogen Powers the Future,' the conference content was carefully designed and orchestrated. It comprised one plenary session and eight forums.



Vehicle Field

Theme: Exploring New Stages for Hydrogen Fuel Cell Demonstration Application



- Forum 1: Hydrogen Fuel Cell Vehicle Demonstration Application and Commercialization
- Forum 2: Innovative Practice of Multi-field Application of Hydrogen
 and Fuel Cell
- Forum 5: Key Technologies of Fuel Cell Stacks and Core Parts



- Forum 3: Clean Hydrogen Production and Commercialization Pathway
- Forum 4: Hydrogen Infrastructure and Storage and Transportation Technology
- Forum 6: Key Equipment Technology in Hydrogen Industry

Forum 7: Standards, Regulations and Evaluation Technology of Fuel Cell and Hydrogen

/02 Conference Review-Plenary Session



Scaling Up the Congress

During FCVC2023, **5 academicians, 7 government leaders, 22 domestic and foreign industry organizations , and business leaders** were invited to deliver speeches. The scale of the congress has been upgraded from previous years. Heads of hydrogen energy from ten leading companies, including SAIC Motor, Toyota, Hyundai Motor, REFIRE Group, Cummins Inc., Yutong Group, Shanghai Sunwise Energy Systems Co., Ltd., Faugia, and Anglo American, delivered speeches.

Academicians

OUYANG Minggao, Academician of the Chinese Academy of Science, Chairman of International Hydrogen Fuel Cell Association

PENG Suping, Professor of China University of Mining and Technology, Academician of Chinese Academy of Engineering

CHEN Xuedong, Deputy General Manager and Chief Engineer of China National Machinery Industry Corporation, Academician of Chinese Academy of Engineering

LV Jian, Academician of the French National Academy of Technology,Dean and Chair Professor, Faculty of Engineering, City University of Hong Kong

BAI Yong, Academician of the Norwegian Academy of Technology, Professor, School of Architectural Engineering, Zhejiang University

Industry Organizations & University Experts

ZHANG Jinhua, Secretar General of China Society of Automtive Engineers, Standing Vice Chairman of International Hydrogen Fuel Cell Association

HOU Fushen, Deputy Secretar General of China Society of Automtive Engineers

WANG Ju, Secretary General of International Hydrogen Fuel Cell Association

ZHAO Fuquan, Dean & Professor of Tsinghua Automotive Strategy Research Institute (TASRI)

ZOU Ciyong, Deputy Director-General, United Nations Industrial Development Organization (UNIDO)

Jaedo Moon, Chairperson of the Global Alliance of Hydrogen Industry Associations (GHIAA), Executive Board Member of International Hydrogen Fuel Cell Association

YU Zhuoping, Professor of Tongji University, Standing Executive Board Member of International Hydrogen Fuel Cell Association

Rebecca MASERUMULE, Chairperson of the International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE), Standing Executive Board Member of International Hydrogen Fuel Cell Association

Government Leaders

MIAO Changxing, Counselor (DG level) of the First Division of Equipment Industry, Ministry of Industry and Information Technology (MIIT)

WANG Qinglin, Counselor (DG level) with Department of International Affairs, China Association for Science and Technology (CAST)

XU Jing, Director of National Science and Technology Library, Special Counsellor of International Hydrogen Fuel Cell Association

Klaus BONHOFF, Director General for Policy Issues of German Federal Ministry for Digital and Transport (BMDV)

HAN Dadong, Head of Intelligent Manufacturing Promotion, Shanghai Municipal Commission of Economy and Informatization

LI Feng, Deputy District Head, Jiading District, People's Government of Shanghai

WU Feng, Director of the Vehicle Management Department of the First Division of Equipment Industry, Ministry of Industry and Information Technology (MIIT)

Enterprise Seniors

François TARDIF, Executive Vice President of Faurecia Asia, Vice Chairman of International Hydrogen Fuel Cell Association

Benny OEYEN, Executive Head of Market Development, PGMs of Anglo American Group ZU Sijie, Vice President& CTO of SAIC Motor Corporation, Vice Chairman of International Hydrogen Fuel Cell Association

Mitsumasa YAMAGATA, President of Hydrogen Factory of TOYOTA MOTOR CORPORATION

SeungChan OH, General Manager of HTWO Guangzhou Co., Ltd (HTWO Guangzhou)

Robin LIN, Chairman & President of REFIRE GROUP, Standing Executive Board Member of International Hydrogen Fuel Cell Association

SUO Guotao, Chief Engineer of Cummins China Engine Division

12 Conference Review-Plenary Session



Theme

Exploring New Stages for Hydrogen Fuel Cell Demonstration Application

Expert opinion

Keywords

Demonstration Application Application Scenario Green Hydrogen Demand Domestication Cost Policy Support The increasing demand for green hydrogen is propelling the rapid expansion of the electrolytic water hydrogen production equipment market. Currently, alkaline electrolytic water hydrogen production is grappling with challenges related to equipment safety and electrolysis efficiency. Additionally, hydrogen storage and transportation remain vulnerable points in the hydrogen energy industry chain, with the price of 70MPa on-board hydrogen storage cylinders being high and development progressing slowly.—— *Prof. Ouyang Minggao*

The next 10-20 years will constitute a crucial period for the advancement of China's hydrogen energy and fuel cell industry. This progression must be tightly intertwined with China's energy development objectives. Strategic planning, policy formulation, technological advancements, funding allocation, and international collaboration need to be actively considered. Through reform and innovation, the industry should address development challenges and contribute to achieving the high-quality growth of hydrogen energy and fuel cells.—*Prof. Peng Suping*

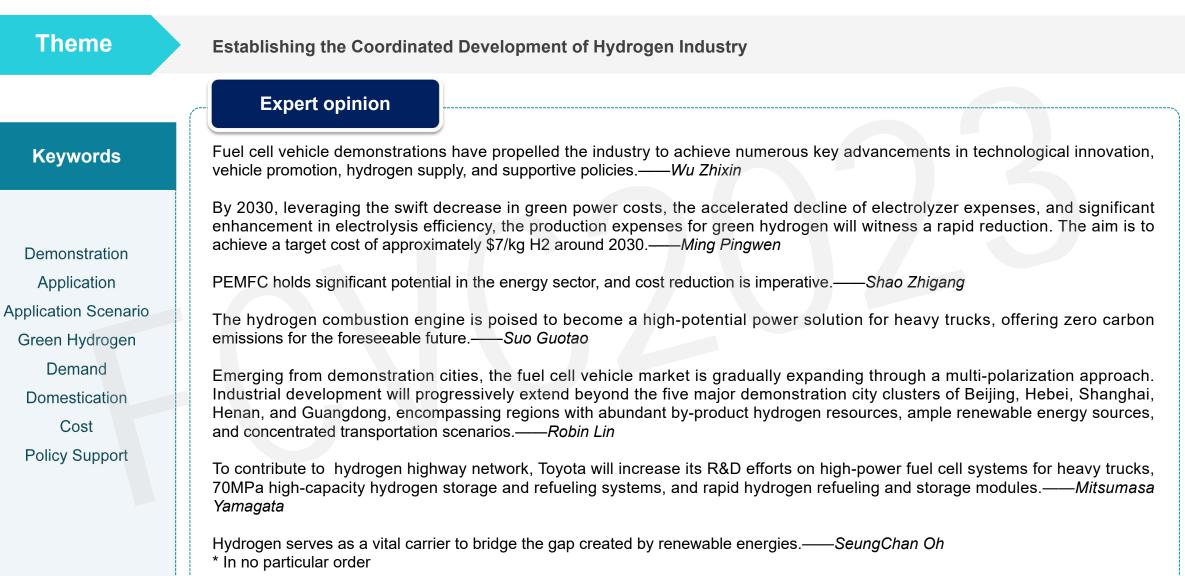
China's hydrogen energy storage and transportation technology still encounters challenges in key areas such as technology, localization of essential equipment, and cost.— *Prof. Chen Dongxue*

Alkaline electrolytic water-to-hydrogen equipment enjoys a stronger market presence compared to proton exchange membrane hydrogen equipment. Various electrolytic water hydrogen production technologies are applied in diverse scenarios due to differences in their response speed, cost-effectiveness, and single tank size.—— *Prof. Lu Jian*

High-pressure gaseous hydrogen storage technology is well-established, with the 35MPa Type III cylinder remaining the predominant choice for hydrogen storage in China, while the Type IV cylinder represents the future direction of development.—— *Prof. Bai Yong*

* In no particular order

102 Conference Review-Plenary Session



Conference Review-Forums



Hydrogen Fuel Cell Vehicle Demonstration Application and Commercialization

Currently, the world is in the midst of an energy transition, and large-scale hydrogen production stands as a crucial route towards achieving global energy transformation. The swift advancement of new energy technologies and the expansion of application contexts have spurred industrial demand for hydrogen utilization, further unlocking the potential of the hydrogen industry. This forum will address the commercialization and demonstration of fuel cell vehicles from various perspectives.

Innovative Practice of Multi-field Application of Hydrogen and Fuel Cell

Hydrogen and fuel cell technology are paving the way for new market opportunities. Forum 2

showcased various application cases to highlight the accomplishments of hydrogen in diverse

Data Analysis Business Model Application Scenario

> Drone Industrial Vehicles

Renewable Energy Precious Metals Electrolyzer

Clean Hydrogen Production and Commercialization Pathway

fields and application scenarios.

Clean hydrogen is pivotal in attaining net-zero emissions and enhancing the global energy landscape. The advancement of low-carbon technologies, such as hydrogen production from renewable sources, is fundamental for all nations to meet their climate objectives. This forum will center on clean hydrogen production technologies, encompassing various hydrogen production theories, with the aim of examining global clean hydrogen and its path to commercialization.

Hydrogen Infrastructure and Storage and Transportation Technology

Hydrogen infrastructure development is a prerequisite for the advancement of hydrogen technologies. As such, this forum primarily centers on hydrogen standard systems for vehicles. It aims to reinforce the design and performance testing specifications for hydrogen refueling stations and storage as well as transportation equipment, thereby guaranteeing the safety of the entire industry chain.

Hydrogen Storage and Transportation



燃料电池汽车商业化应用关键影响

分论坛 2:氢能及燃料电池多领域应用创新

因素及就绪程度分析方法研究



F@VC 2023

08

Conference Review-Forums













Key Technologies of Fuel Cell Stacks and Core Parts

Key Equipment Technology in Hydrogen Industry

storage solutions, testing, and verification.

Hydrogen plays a vital role as an energy carrier. Serving as a primary link between transportation, power generation, and energy storage, hydrogen stands as a critical element in achieving carbon neutrality. The fuel cell serves as the key conversion device for hydrogen, crucial for power generation. This forum will center on six pivotal technologies: electric reactor, membrane electrode, bipolar plate, proton exchange membrane, catalyst, and carbon paper-all of which are fundamental to the electric reactor's core technologies.

Hydrogen application technology serves as the foundation and assurance for the sustainable

lifecycle of hydrogen production, storage, transportation, and refueling. This session will concentrate on subjects including production technology, equipment application, hydrogen

development of the fuel cell vehicle industry. Currently, there are still challenges across the entire

Cost Refinement and Industrialization

> Hydrogen Storage and Equipment

Standards, Regulations and Evaluation Technology of Fuel Cell and Hydrogen This forum will extend invitations to experts from international institutions to delve into the establishment of hydrogen and fuel cell vehicle standard systems, advancements in standardization, and the latest developments in standard creation and revision.

Standards and Verification

Collaboration and Investment Trend of International Hydrogen Industry Taking an international standpoint, we will deliberate on the fresh trends, novel concepts, and emerging opportunities in the hydrogen industry's developmental phase. Emphasis will be placed on investment as a catalyst for propelling industry advancement.

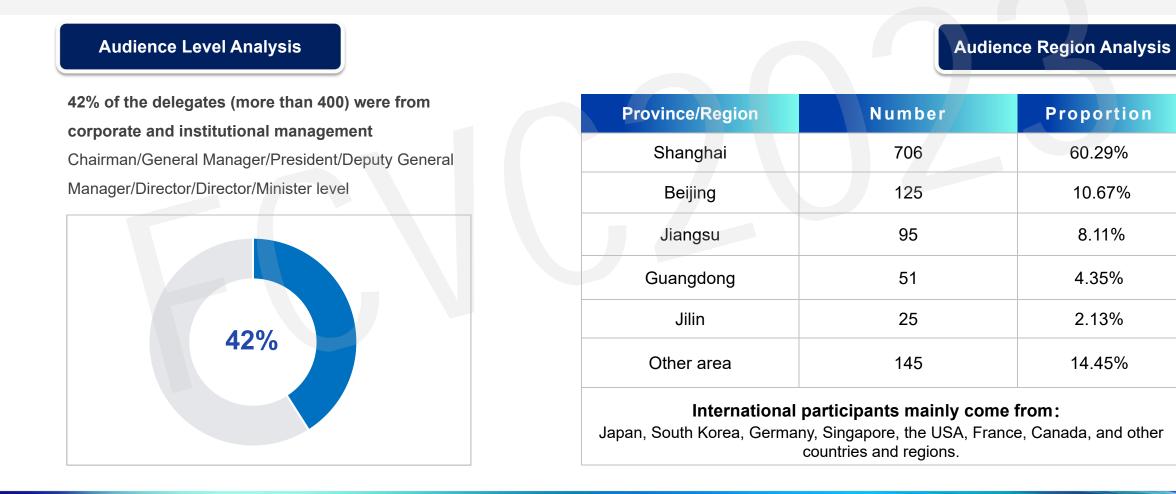
Hydrogen Investment





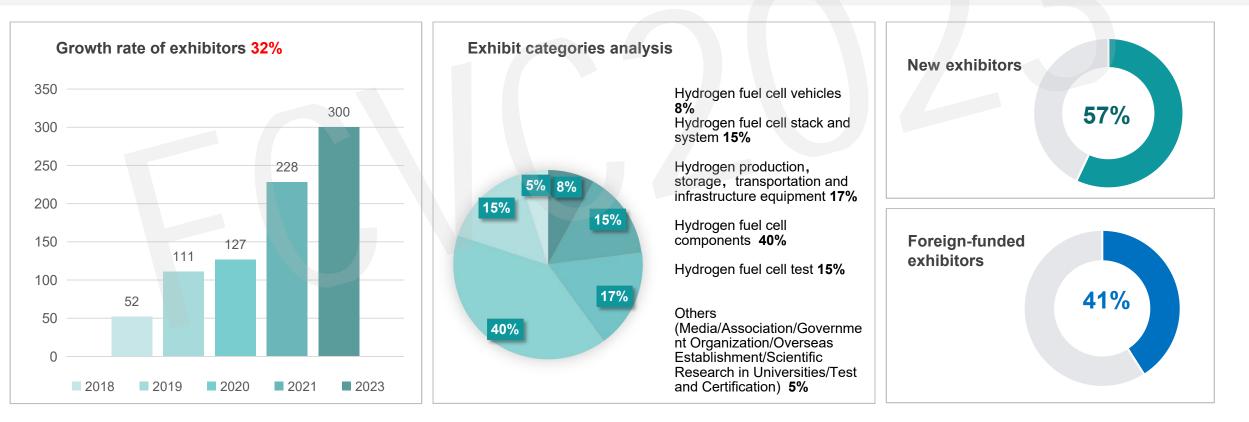
/ Conference Review-Conference Audience

A total of **1,200+** attendees participated in the conference, with **42%** at the management level. The domestic audience totaled over **1,100** individuals, with the top five provinces being **Shanghai**, **Beijing**, **Jiangsu**, **Guangdong**, **and Jilin**. These provinces accounted for a total of **1,002** attendees, representing **86%** of the total, and are also active regions in the development of the hydrogen and fuel cell vehicle industry.



/[] Exhibition Review-Exhibitor Overview

- Exhibition highlights: After five years of development, FCVC technology exhibition has become one of the most professional, largest and most influential exhibition events in the industry.
- Exhibitor overview: 20,000m² exhibition area, 300 exhibitors took part in FCVC 2023, the scale of the exhibition increased by **32%**; 170 exhibitors participated for the first time, accounting for **57%**; foreign-funded enterprises and brands reached 124, accounting for **41%**.
- Category of exhibits: hydrogen fuel cell vehicles and fuel cell stack and system accounted for 23%, hydrogen production, storage, transportation and infrast equipment accounted for 17%.



/[] Exhibition Review- Exhibitors (Partial)



FCVC

/[] Exhibition Review- International Pavilion

FCVC

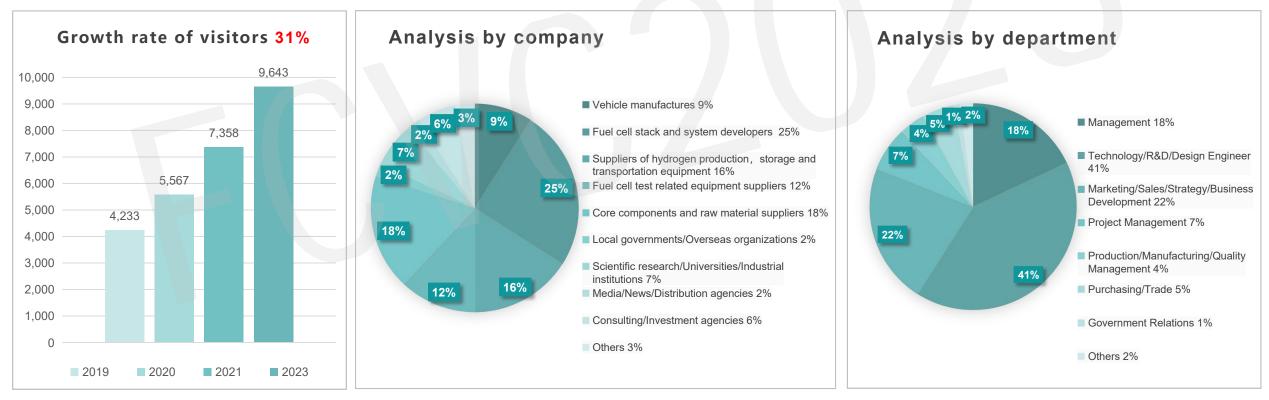
The internationalization of FCVC 2023 has been further enhanced, with international exhibitors accounting for 41%. FCVC 2023 partnered with institutions such as the Consulate General of Canada, Canadian Hydrogen and Fuel Cell Association, Consulate General of South Korea, KOREA TRADE-INVESTMENT PROMOTION AGENCY, Consulate General of the Netherlands, and HyNed to organize the Canada Pavilion, Korea Pavilion, Netherlands Pavilion, and Germany Pavilion. More than 30 international exhibitors participated in the event, showcasing their latest R&D technologies and products. This initiative serves to foster increased exchange and cooperation between domestic and foreign enterprises.



/03 Exhibition Review-Scale of Visitors

- **Number of visitors:** 9,643 (excluding exhibitors) **Total visits:** 25,000+ in three days
- Overall scale of visitors: 10,000+ (including over 2200 exhibitors)
- Visitors from vehicle, stack system, hydrogen storage and transportation companies accounted for **50%**.
- **18%** of the visitors were from management sector, **41%** of the visitiors were technology /R&D/ design engineers.





/[] Exhibition Review-Group of Visitors

FCVC 2023 organized more than 20 visitor groups, inviting the industry's core scientific research units, universities, vehicle companies, energy companies, core parts and components enterprises to visit the exhibition.



Other professional visitor groups:

- Aerospace Hydrogen Energy
 (Shanghai) Technology Co., Ltd.
- D.R,(Zhejiang) Powertrain Technology Co., Ltd.
- G-Power
- Suzhou Hydrogine Power Technology Co., Ltd.

- Huachang Energy
- Parker Hannifin Motion & Control (Shanghai) Co., Ltd.
- Anhui Mingtian Hydrogen
- Suzhou Fanglin Technology CO.,
 - LTD
- Foresight Energy Co., Ltd.

- Shanghai Jiao Tong University
 - CRRC (Shenzhen) Hydrogen Power Technology Co., Ltd.
 - FAW*JieFang
- Shanghai Hytekocean Co., Ltd.
- Air Products





FFVC



/[] Exhibition Review-Highlight Events

- As the highlight events at FCVC, the 2023 Technical Theater remained a focal point. Ten events were organized, including 5 tech sessions, 3 overseas activities, 1 market research report sharing, and 1 business introduction. These offerings provided visitors with the most up-to-date industry insights and cutting-edge technology content, delivering a comprehensive and engaging experience. Twenty technical experts from the exhibitors shared the latest technological advancements and product information.5 Tech sessions, 20 technical experts from the exhibitors shared the latest technology and product content.
- 3 overseas activities were held, featuring sessions from Sweden, Netherlands, and Canada. In these sessions, 20 overseas organizations and senior executives from enterprises presented the latest industry development trends, technological advancements, and commercial applications, among other topics.
- 1 Market research report sharing and 1 business introduction, 2 enquiry agencies and 4 personnel of China SAE released the latest market consulting reports and the research progress of China SAE in the field of hydrogen energy.

Date	Time	Agenda
July 5th	09:40-11:00	Tech Session A-Research Progress and Latest Application of Stack System
	11:10-12:10	Testing Session
	13:30-14:50	Sweden Session
	15:00-16:40	Tech Session B-Core Parts Processing and Manufacturing Technology
July 6th	09:30-10:50	Tech Session C-Core Parts Processing and Manufacturing Technology
	11:00-12:30	Netherlands Session
	13:10-14:30	Tech Session D-Core Parts Processing and Manufacturing Technology
	14:40-16:50	Canada Session
July 7th	09:40-10:20	Market Research Report Sharing
	10:20-11:40	Hydrogen Related Business Introduction of China SAE



EGVC



/[] Exhibition Review-Highlight Events

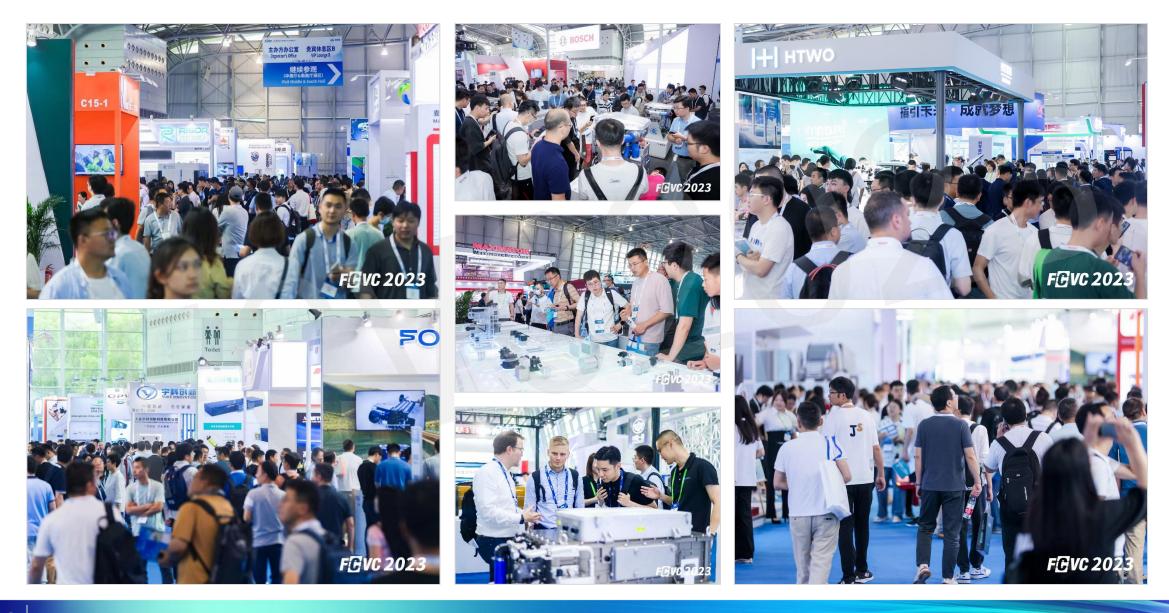


Being a prominent event platform in the industry, FCVC annually hosts a range of release and signing ceremonies on-site. The activities for 2023 include:

- New Product Release: BOSCH: High Performance Reactor Test Bench Release Session
- Signing Ceremony: Hyfun signed a purchase agreement with Pujiang Gases
- Others: The fuel cell testing center of REFIRE has been certified by TÜV



/) Exhibition Review-Spotlight Moments



FCVC

/04 Concurrent Events-IHFCA Executive Board Meeting



The Third Session of the First Executive Board Meeting of the International Hydrogen Fuel Cell Association was successfully convened at the Shanghai Automobile Exhibition Center simultaneously with the 'International Hydrogen and Fuel Cell Vehicle Congress & Exhibition' on July 6, 2023, employing a combination of both 'online + offline' formats. OUYANG Minggao, Chairman of the International Hydrogen Fuel Cell Association, professor at Tsinghua University, and academician of the Chinese Academy of Sciences, presided over the meeting, and the executive board members participated. Throughout the meeting, IHFCA Executive Board members reviewed and deliberated on the "IHFCA 2022-2023 Annual Work Report" as well as the "Regulations for the Management of Branch Institutions of the International Hydrogen Fuel Cell Association."







/04 Concurrent Events-Industry Exchange Meeting

The FCV Demonstration Industry Exchange Meeting was successfully conducted in Shanghai through an offline closed-door session on July 5, 2023. Hou Fushen, Deputy Secretary General of the China Society of Automotive Engineers, hosted the event, which focused on discussing the opportunities and challenges encountered by FCVs. Industry experts and representatives from demonstration cities participated in the meeting, sharing their perspectives.



During the meeting, representatives from demonstration city clusters presented the accomplishments and experiences of these clusters in establishing industrial ecosystems, enhancing the policy environment, fostering market expansion, and elevating technological proficiency. Guided by the principle of "identifying and resolving issues," industry experts and representatives from demonstration city clusters actively exchanged ideas, shared their perspectives, and collaboratively addressed challenges hindering the industry's high-quality growth in the context of demonstration efforts. They proposed targeted and feasible solutions. The attendees concurred that this exchange meeting was characterized by its authenticity, pragmatism, and efficiency, and they suggested that the China SAE should organize more such meetings to further promote the industry's healthy development.

/04 Concurrent Events-FCVC Plant Tour

IHFCA organized a delegation of Chinese and foreign experts to participate in the FCVC plant tour on July 3-4. Representatives from AHP, Powercell, DNV, BOSCH and other leading companies were invited to the headquarters of Sunwise, Shanghai Jiping, REFIRE, Jiading Hydrogen Park and SHPT.



objectives.

/04 Concurrent Events-VIP Dinner

• FCVC 2023 hosted a VIP dinner at Crowne Plaza Shanghai Anting Golf on July 6. To convey our heartfelt appreciation to the industry enterprises for their enduring support and participation in FCVC, an award ceremony was conducted during the dinner. FCVC Outstanding Award, Distinguished Award, and Excellent Partners Award were presented during the ceremony.

EHV

- Anglo American plc and Mr. Benny OEYEN, Executive Head of Market Development, PGMs of Anglo American Group received the Outstanding Award and the Individual Distinguished Award respectively.
- 26 exhibiting companies have won the FCVC Excellent Partners Award for five consecutive years participation in FCVC.



Generation Events-FCVCXH-Class Popularization Event

Hyundai Motor, in collaboration with FCVC, organized a series of events through the H-Class initiative to promote the concept of hydrogen to the broader society. Industry media and students were invited to participate in these events.

FCVC

- Date: July 7th,2023 08:40-12:30
- Location: EV-AI Multi-function Hall (Opposite Shanghai Automobile Exhibition Center)



/05 **Marketing and Media**

Media Partners	 60+ Media Partners: CCTV, Xinhua News Agency, China Daily, Global Times, China Science News, China.org.cn, The Paper, Bloomberg, 21ST CENTURY BUSINESS HERALD, National Business Daily, Sina Auto, Sohu Auto, China Auto News, China Energy News, etc. 80+ reporters attended and participated in activities such as conference coverage and high-level interviews 		
Spot Coverages	 24 interviews in total (11 more than previous years) 1 exclusive interview for officials from organizers, 1 group interview for academician, 13 exclusive interviews for sponsors, 9 exclusive interviews for enterprise seniors 		
Live broadcasting broadcasting . 20+ Live broadcasting, covering: China.org.cn, 21ST CENTURY BUSINESS HERALD, Sina Auto, Sohu Auto, China Auto News, Gasgoo, We-media platforms of China SAE and IHFCA, to live coverage of the plenary meeting and forum 8. 3.2 million+ online watching (a 34-fold increase than previous years)			
2023 国际氢能与燃料电池汽车大会暨展 teternational Hydrogen and Fuel Cell Vehicle Congress & Exhibition C = MSEA FOVC = MSEA FOVC = MSEA FOVC = MSEA FOVC = MSEA FOVC =			

FCVC

/05 Marketing and Media

FGVC

Content Output	

2 CCTV reports (first time)

20+ CCTV reports 300+ Original manuscript & video40+ Posters and long drawings for conferences and exhibitions

Internal Promotion Channels 150,000+ Official website views 2,000+ Electronic invitation readers
120+ Ems-cnpl article 80,000+ Total reading
5,000+ followers increase 15+ Original videos (first time)
400,000 edm&sms

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国际派户

External Promotion Channels

3.5million+ Advertising exposure 1.1million+ PR manuscript reading volume2,000+ visitors invited by the exhibitors



2023国际氢能与燃料电池汽车大会暨展览 会在上海嘉定开幕

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2023国际氢能与燃料电池汽车大会暨展览会开幕



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全体大会

/05 Marketing and Media





International Hydrogen and Fuel Cell Vehicle Congress & Exhibition

See You Next Year!

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