

# **Annual Report for Fiscal 2023**

**(April 1, 2023 - March 31, 2024)**

The High Pressure Gas Safety Institute of Japan (KHK)

## 1. Business Environment and Overview of Operations

Overcoming the COVID-19 pandemic, the Japanese economy continues to recovery at a moderate pace.

In May 2023, the Japanese government downgraded the legal status of COVID-19 to a Class 5 disease under the Infectious Diseases Act, eliminating factors that had constrained the autonomous economic cycle. Under these circumstances, rising global prices caused rising import prices to spill over into Japan's consumer prices, and there have been signs of changes in price trends, as evidenced by an increase in the frequency of price revisions.

The annual spring wage negotiations in 2023 saw the highest growth in 30 years. If wage increases continue and companies begin appropriately passing on increased labor costs to sales prices, it is expected that an economic environment will be created that will prevent a return to deflation based on a virtuous cycle of wages and prices, and consequently lead to a virtuous cycle of growth and distribution.

Turning to the field of high-pressure gas safety, the revised High Pressure Gas Safety Act (enacted in June of 2022) came into effect on December 21, 2023, and in order to promote smart safety, the Accredited Advanced Safety Executor System was launched to certify businesses that can independently ensure a high level of safety while utilizing technology.

Additionally, in order to streamline safety regulations, regulations for fuel cell vehicles, which are subject to both the High Pressure Gas Safety Act and the Road Transport Vehicle Act, have been unified into the Road Transport Vehicle Act.

Furthermore, as part of the goal to achieve carbon neutrality (CN) by 2050, the government, related organizations, and businesses are actively moving towards the social implementation of hydrogen-based energy and carbon dioxide capture and storage (CCS).

On February 13, 2024, the Cabinet approved the following two bills in order to improve the business environment for low-carbon hydrogen and its derivatives and CCS.

- Bill for the Act on Promotion of Supply and Utilization of Low-Carbon Hydrogen and its Derivatives for Smooth Transition to a Decarbonized, Growth-Oriented Economic Structure (Hydrogen Society Promotion Bill)

- Bill for the Act on Carbon Dioxide Storage Businesses (CCS Business Bill)

As a third-party specialist organization for high-pressure gas safety, our institute participated as a committee member in both the Hydrogen Safety Subcommittee and the Industrial Safety Basic System Subcommittee, which are councils for the formulation of these bills.

As the environment surrounding high-pressure gas continues to change, our institute is focusing on hydrogen and CCS. In addition to our work related to the High Pressure Gas Safety Act, we are participating in technology development projects, national councils, and activities of related organizations, and are also actively involved in a wide range of activities from both sides of safety and promotion as an organization specializing in high-pressure gas safety. This includes planning and leading the hydrogen workshop Safety Regulations, Codes, and Standards at the Sixth Hydrogen Energy Ministerial Meeting (September 25, 2023).

In the event of large-scale damage caused by natural disasters, such as the Noto Peninsula Earthquakes in Ishikawa Prefecture that occurred in May 2025 and January 2024, we continued to respond by monitoring the damage, particularly that related to high-pressure gas, and issued warnings.

Regarding our institute's operations in 2023, although general account income decreased, we achieved a reasonable income and expenditure situation due to the fact that the number of participants in legally required training courses increased periodically and that we made efforts to significantly reduce expenditures on personnel and business expenses by continuing to streamline and improve the efficiency of our operations.

## 2. Overview of Financial Statements for Fiscal 2023

### (1) Balance Sheet

	(As of March 31, 2024)	
Assets	2023	2022
	Million Yen	
Current assets	3,669	3,775
Fixed assets	5,628	4,995
Tangible fixed assets	914	936
Intangible fixed assets	440	285
Investments	4,274	3,774
Total	9,298	8,770

### (2) Statement of Profit and Loss

	(From April 1, 2023 to March 31, 2024)	
Expenditure	2023	2022
	Million Yen	Million Yen
Ordinary expenditure	4,479	4,661
Operating expenditure	4,479	4,661
Extraordinary loss	1	0
Corporate taxes, etc.	1	0
Profit for the term	146	30
Total	4,627	4,691

Liabilities/Capital	2023	2022	Income	2023	2022
	Million Yen	Million Yen		Million Yen	Million Yen
Current liabilities	1,372	1,003	Ordinary income	4,626	4,691
Fixed liabilities	2,736	2,725	Operating income	4,557	4,633
Reserve	5,042	5,013	Non-operating income	69	57
Profit for the term	146	29	Extraordinary income	0	0
Total	9,298	8,770	Total	4,627	4,691

## 3. Overview of Each Activity

### 3-1. Inspection, Examination and Accreditation

#### (a) Pre-Assessment of Accredited Completion/ Safety Inspection Executor

This pre-assessment undertaken by KHK is part of the statutory service related to the Ministerial approval of accredited completion inspection executor and safety inspection executor.

Class 1 high pressure gas producers who obtained Ministerial approval as a result of this pre-assessment can replace completion inspections or safety inspections that are conducted by prefectural or municipal governments with self-inspections by the approved producers themselves. When the self-inspections are conducted, the results shall be submitted to jurisdictional prefectural or municipal governments.

#### Number of pre-assessments

	2023	2022
Accredited completion inspection executor	10	14
Accredited safety inspection executor	10	15
Super accredited completion inspection executor	5	0
Super accredited safety inspection executor	5	1

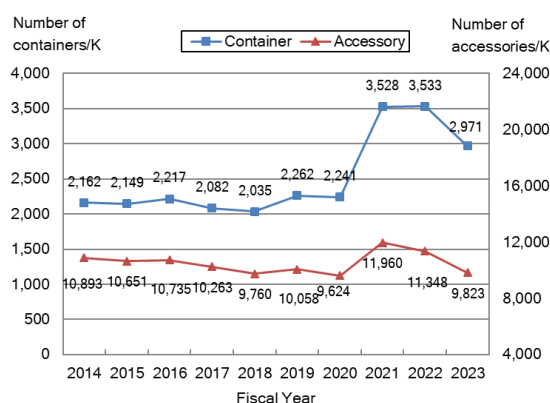
#### (b) Inspections for Pressure Equipment

The High Pressure Gas Safety Act (hereinafter referred to as “HPG Act”) stipulates that the person who has manufactured/ imported a container or accessory shall apply for the Container/Accessory Inspection. We at KHK conduct these inspections.

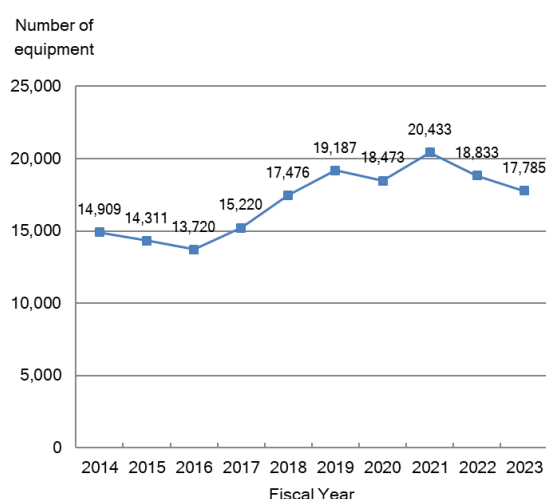
In addition, for preventing explosions or other accidents, the act defines "equipment for high pressure gas production (including storage tanks) "which particularly requires "inspections of its design, material quality, and the process of its manufacturing", as "Designated Equipment." KHK undertakes mandatory inspections of such Designated Equipment at each manufacturing process.

KHK undertakes technical assessments in advance to obtain Ministerial special approval, and also offers services for certification and examination as a part of its optional activities.

In fiscal 2023, the number of application for inspection of containers decreased by 15.9% and that of accessory equipment decreased by 13.44% compared to the previous fiscal year respectively. And the number of application for inspection of Designated Equipment decreased by 5.56% compared to the previous fiscal year.



**Number of Container/Accessory inspections**



**Number of Designated Equipment Inspections**

(c) Safety Inspections of Refrigeration and Air-Conditioning Facilities

**Number of inspections of refrigeration and air-conditioning facilities undertaken by KHK**

	2023	2022
Completion inspection of refrigeration and air-conditioning facilities	28	24
Safety inspection of refrigeration and air-conditioning facilities	1,372	1,497
Approval of specified equipment (unit type refrigeration equipment)	102	113
Transfer of specified equipment (unit type refrigeration equipment)	2	0
Testing of refrigeration apparatus	300	250
Design strength verification test, etc.	130	89

(d) Examination of Liquefied Petroleum Gas (hereinafter referred to as "LPG") alarm, etc.

**Number of examination**

	2023	2022
LPG leak alarm and bulk gas leak sensor	2,373,123	2,539,381
LPG incomplete combustion alarm	21,620	27,099
LPG sensor	1,676	1,790

### 3-2. Education

#### (a) Seminars

During fiscal 2023, KHK held various seminars related to high pressure gas as below; on-site lectures corresponding to the needs of each business facility, safety seminars (such as basic lectures on high pressure gas and seminars on relevant law and regulations), seminars for high pressure gas safety executors (such as safety inspection seminars), and various seminars corresponding to the local needs.

#### (b) Publications

KHK publishes books related to high pressure gas safety such as HPG Act, technical standards, and textbooks for training. During fiscal 2023, KHK published 146 types of books, accounting for a total of 165,157.

### 3-3. Assessment and Registration System

#### (a) Assessment and Registration of Quality Management System

Since being accredited by the Japan Accreditation Board (JAB) as a quality management system certification body in 1994, the KHK ISO Registration Center (KH-ISO Center) evaluates quality management system for operators in accordance with the ISO 9000 series standards, and manages registration and publication of registered organizations. In June 2000, the Center started evaluating and managing registration and publication of registered organizations of the medical device quality management systems, which requires highly technical knowledge among quality management system based on ISO13485. As of the end of fiscal 2023, it performs registration in 31 out of the 39 JAB-accredited classes (classes 1-39). As of the end of fiscal 2023, the number of registrations stands at 701.

#### (b) Assessment and Registration of Environmental Management Systems

For assessment and registration of environmental management systems (ISO14001), the Center became a JAB-accredited certification body in 1996. As of the end of fiscal 2023, it operates registration screenings in 34 out of the 39 JAB-accredited classes (classes 1-39). As of the end of fiscal 2023, the number of registrations stands at 446.

#### (c) Assessment and Registration of Occupational Health and Safety Management Systems.

In March 2000, the Center began evaluating and managing registration and publication of registers for organizations of occupational health and safety management systems based on OSHA18001. In July 2018, the Center initiated management based on newly established ISO 45001. As of the end of fiscal 2023, the number of registrations stands at 31.

#### (d) Assessment and Registration of Food Safety Management Systems

Taking advantage of the framework of quality management, environmental management, and occupational and health management systems, in 2011 the Center started managing registration and publication of registers of organizations based on ISO22000 series as a JAB-accredited body. As of the end of fiscal 2023, the number of registrations based on ISO 22000 stands at 6. Certification of food safety management systems based on FSSC22000 which started in FY2013 was terminated at the end of FY2021 due to the contract with the scheme owner, the FSSC Foundation.

### 3-4. Measures to Promote LPG Consumer Safety

The Liquefied Petroleum Gas Safety Commission operates with contributions from 17 LPG-related organizations, 4 related ministries/agencies, 2 consumer organizations and KHK. In partnership with the Gas Safety Office of Commerce, Distribution and Industrial Safety Policy Group, METI, the commission performed the following safety campaigns during fiscal 2023.

(a) LPG Consumer Safety Campaign

Prepared and distributed LPG safety guides and posters, and advertised in magazines, while provided assistance to safety activities undertaken by prefectural LPG associations.

(b) LPG Consumer Safety Promotion Conference

At the event, the commission offered commendations for LPG retailers and related operators including individuals with the 'METI Minister's Secretariat, Director-General for Commerce, Distribution and Industrial Safety Policy Award,' 'KHK Chairman's Award,' and 'Liquefied Petroleum Gas Safety Commission President's Award,' respectively.

### 3-5. Development and Issue of Technical Standards

To promote safety in activities involving high pressure gas production, sale, consumption, and transportation, KHK establishes technical standards such as KHK Standards (KHKS) as well as reviews existing standards.

Committee organizations undertaking the preparation of technical standards are as follows:

- (a) Pressure Vessel Standards Committee
- (b) Transportable Container Standards Committee
- (c) High Pressure Gas Standards Committee
- (d) Refrigeration and Air-Conditioning Standards Committee
- (e) LPG Standards Committee
- (f) Fitness for Service Standards Committee
- (g) Seismic Design Standards Committee
- (h) Hydrogen and its derivatives Standards Committee

Each committee consists of committee members appointed from among experts who have relevant knowledge and experience in high pressure gas or LPG safety. In response to requests from the chairman of KHK, the Technical Committee decides basic policies for establishing the technical standards. The technical standards are then established by each standards committee section in accordance with the basic policies, and the development and issue procedures maintain fairness and openness as the fundamental rule.

During fiscal 2023, the following standards were confirmed and revised.

(a) Revised technical standards

- Standard for test methods of prototype containers (KHKS 0123)
- Standard for safety valve of acetylene container (KHKS 0125)
- Standard for design and manufacturing of LPG container valve (KHKS 0126)
- Standard for security inspection (related to the Refrigeration Safety Ordinance) (KHKS 0850-4)
- Guidelines for periodic self-inspection (related to the Refrigeration Safety Ordinance) (KHKS1850-4)
- Standard for in-service inspection (for underground rock cavern of LPG storage) (KHK/JOGMEC S 0850-8)
- Guidelines for periodic self-inspection (for underground rock cavern of LPG storage) (KHK/JOGMEC S 1850-8)

- Technical Document on underground rock cavern of LPG storage (KHK/JOGMEC TD 5800)
- Standard for root valve with checking valve for LPG (KHKS 0731)
- (b) Abolished technical standards
  - Standard for checking valve adapter for LPG (KHKS 0732)
- (c) Newly established technical standards
  - Technical Document for explanation of Standard for seismic design of high pressure gas equipment (Level 1) (KHKTD 5861)
  - Technical Document for explanation of standard for seismic design of high pressure gas equipment (Level 2) (KHKTD 5862)
  - Technical Document for evaluation example of standard for seismic design of high pressure gas equipment (Level 1) (KHKTD 5863)
  - Technical Document for evaluation example of standard for seismic design of high pressure gas equipment (Level 2) (KHKTD 5864)

Note: These technical documents explain and supplement the standards for seismic design of high pressure gas equipment.
- (c) Considered technical standards
  - Standard for composite fiber reinforced plastic pressure vessel for compressed hydrogen (KHKS 0225)
  - Standard for hose bands (KHKS 0716)

### 3-6. Statutory Training (Special Account 1)

By HPG Act, high pressure gas producers are required to establish a safety management team consisting of members with a designated high pressure gas production safety management certificate, depending on the type and scale of processing equipment and the type and volume of gas produced. To train certified personnel, KHK offers lectures on each certificate type, and retraining for existing members of safety management teams.

In addition, KHK also provides training courses for the following certificates: high pressure gas sales safety chiefs required at specified high pressure gas dealers, transportation supervisors required for transportation of specified amount of specified high pressure gas, and specific high pressure gas operation safety chiefs required for storage and consumption of specified high pressure gas beyond the designated capacity.

As for the activities related to the Act on the Securing of Safety and the Optimization of Transaction of Liquefied Petroleum Gas (hereinafter referred to as “LPG Act”), KHK offers the following courses: training and retraining of LPG installation engineers for LPG piping facilities used for general consumption, retraining of retail operation chiefs, training and retraining of LPG filling operators, as well as training of safety operators and inspectors of facilities designed to consume LPG.

**Number of applicants for statutory training**

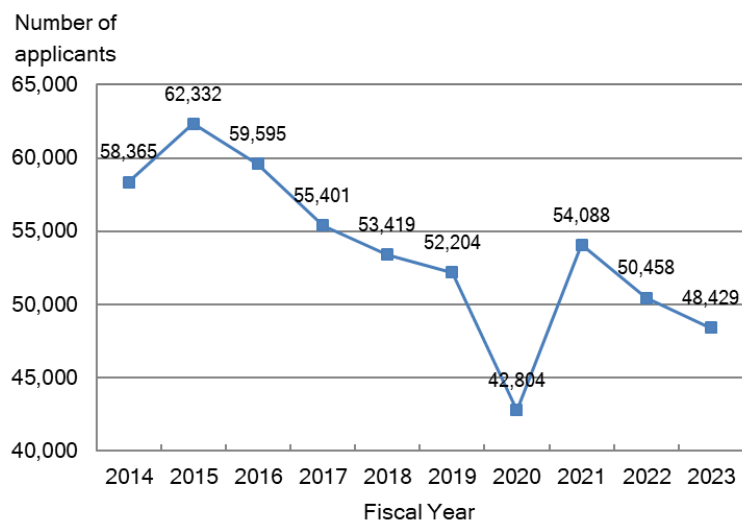
	2023	2022
Qualification Training	43,022	42,209
Re-training (Compulsory training)	42,226	42,535
Total of Statutory training	85,248	84,744

### 3-7. National Qualification Examination (Special Account 2)

HPG Act and LPG Act stipulate that the Minister of Economy, Trade and Industry or prefectural governors must be responsible for conducting the high pressure gas production safety management examination, the high pressure gas sales safety chief examination, and the LPG installation engineer

examination, depending on the classification of examinations.

However, the actual implementation of such examinations was transferred to KHK from the Minister of Economy, Trade and Industry and prefectural governors. The total number of applicants for such examinations in fiscal 2023 was 48,429, which was a decrease of 4.02% compared to 50,458 from the previous fiscal year.



**Number of applicants for National qualification examinations**

### **3-8. Research & Development and Commissioned Studies**

#### **(a) The Research and Development Center**

The research and Development Center at KHK owns testing machines such as tensile/fatigue tests of materials, as well as hydraulic fatigue/explosion tests of pressure equipment including transportable containers, undertaking research and development to enhance high pressure gas safety. In addition, KHK are working on researches commissioned by the government and incorporated administrative agencies (see (b) (5) (6) below).

In fiscal 2023, the Center conducted 16 studies commissioned by private companies, etc.

#### **(b) Commissioned Studies**

KHK conducted the following studies commissioned by the government, etc.

##### **(1) Security measures related to oil and gas supply (i)**

- Consideration towards CBT for national qualifying examinations in accordance with the High Pressure Gas Safety Act
- Research and study for further advancement of seismic design methods for high pressure gas equipment
- Accident information survey of oil refining plants, etc.
- Study on technical trends in the latest cited standards of exemplified standards such as the Designated Equipment Inspection Ordinance, etc.
- Study on a new accreditation system of the high pressure gas

##### **(2) Advanced security regulations for new energy, etc.**

- Development of high pressure gas technical standard for the safe dissemination of new energy technologies, etc.
- Study on safe use of low GWP refrigerant in freezing equipment

##### **(3) Security measures related to oil and gas supply (ii)**

- Safety technology dissemination



- Study on LPG safety regulations
- (4) Development of Technologies for Building a Competitive Hydrogen Supply Chain  
Technology development for common infrastructure development/  
Steel material research and development for Realizing a Hydrogen Society
- (5) Operation performance confirmation and examination work such as safety inspections related to the petroleum gas stockpiling bases
- (6) Research and development project for development of the industrial safety technical standard
  - Training and awards on high pressure gas safety
  - Study on the reviews of regulations related to high pressure gas containers
- (7) Organizing the regulatory status of High Pressure Gas Safety Act and the Railway Business Act for fuel cell railway vehicles and investigating future directions
- (8) Development of Technologies for Building a Competitive Hydrogen Supply Chain /Comprehensive Research and Studies/  
Survey related to organizing issues such as laws and regulations related to water electrolyser
- (9) Development of Technologies for Building a Competitive Hydrogen Supply Chain /Technology development for Building a large-scale Hydrogen Supply Chain/  
Development of simulation methods for large-scale leakage and dispersion from large liquefaction storage tanks and research for establishing installation standards

### **3-10. Collection and Offering of Information, Technical Exchanges**

#### **(a) Collection of Accident Information**

Acting on a commission by METI, KHK compiles a database of high pressure gas and LPG-related accidents and conduct a statistical analysis. See the reference at the end of this brochure.

#### **(b) Organization of Various Conferences and Conventions**

The notable conferences and conventions KHK organized during fiscal 2023 include the following:

##### ➤ National Conference of High Pressure Gas Safety (Tokyo, October 2023)

The conference, which takes place every October, is organized as a part of the annual high pressure gas safety promotion week, hosted by METI in conjunction with KHK. Each year, top-rated plants of safety, persons who have rendered distinguished safety service and excellent production safety managers are awarded in honor of their continuing hard work, support, and resulting outcomes in preventing high pressure gas-related accidents.

##### ➤ Grand Conference of National Association of General High Pressure Gas Safety Organizations (Tokyo, September 2023)

The conference was organized for the purpose of fostering cooperation and discussions among general high pressure gas safety organizations established in prefectures. KHK acted as the administrative secretariat for the conference.

##### ➤ Seminar on Lessons from Accidents and Safety Management Technology

This seminar is held at the venues as well as delivered online live and on demand.

##### ◆ Part of Safety Management Technology (Tokyo, September 2023)

This seminar is for the accredited completion and safety inspection executors and the personnel of three management divisions (equipment, operation, and safety), including those at headquarters management level, of high pressure gas producers at industrial complexes, and it is organized to provide a place of information provision, information exchange, and discussions related to high pressure gas producing equipment, their operations, and safety management activities.

##### ◆ Part of Lessons from Accidents and Safety Measures (Tokyo, September 2023)

The high pressure gas producers that actually caused accidents explained their experience and

post-accident efforts on safety measures so that seminar participants could make use of the information that would be helpful for their future voluntary safety activities, including lessons from accidents and preventive measures.

➤ High Pressure Gas Equipment Manager Meeting (Kyoto, October 2023)

The meeting is organized annually for the purpose of informing high pressure gas equipment personnel (applicants for Designated Equipment Inspection) of question and answers about material, design, welding, and structure-related issues in order to achieve consistent applications across varying issues.

➤ Hydrogen Seminar (Online on demand, March 2024)

The seminar was organized to provide hydrogen-related people with a wide range of the latest trends in hydrogen, including institutional and technical aspects, in view of the realization of a hydrogen-based society.

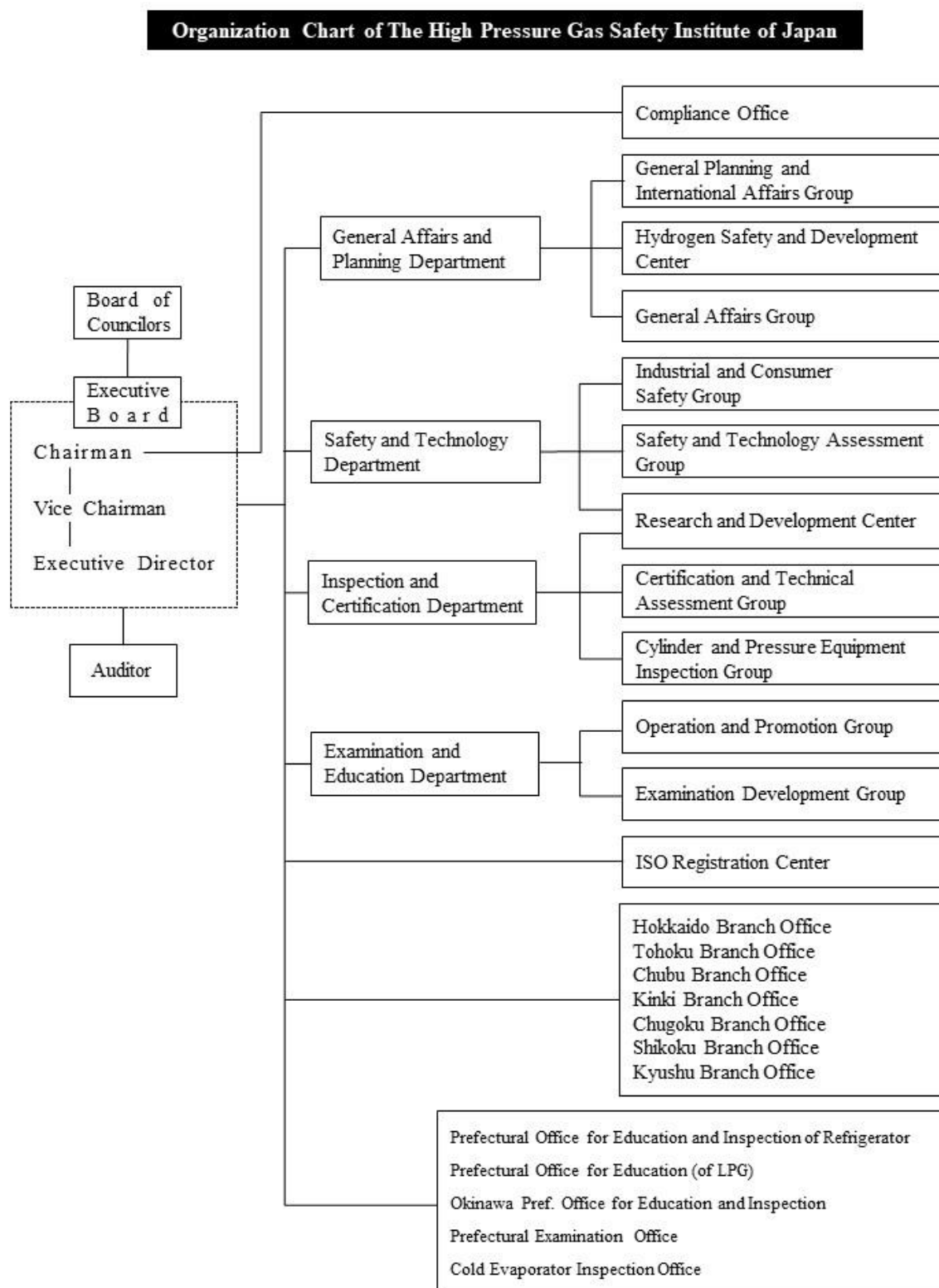
(c) International Technical Exchange

KHK participate as a delegate to online conferences organized by the American Society of Mechanical Engineers (ASME), and also has established good relations with Korea Gas Safety Corporation and Industrial Safety and Health Association of Taiwan.

## 4. Organization

### 4-1. Organization Chart

(January 1st, 2023)



#### 4-2. Membership Status

Types	March 31, 2024	March 31, 2023
Companies	831	829
Organizations	190	190
Individuals	88	82
Supporters	36	37

Contact for inquiries related to this document

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