

Building Your Tomorrow Today

Doosan Fuel Cell Sustainability Report 2022



About this Report

Features of the Report

Doosan Fuel Cell releases Doosan Fuel Cell Sustainability Report 2022, its first such publication, to transparently share its annual sustainable management activities and outcomes with internal and external stakeholders. This Report presents Doosan Fuel Cell's willingness and efforts to grow with the community as a sustainable company by aligning its strategies with ESG and its reporting strategies and activities in accordance with DJSI and KCGS evaluation criteria.

Reporting Period

This report describes and reports financial and non-financial activities and outcomes, in both qualitative and quantitative terms, for the period from January 1, 2020 to June 30, 2022. As Doosan Fuel Cell was established in October 2019, some data from the past three years are included to enable stakeholders to view trends, but the reporting period is set to the year after 2020. Quantitative outcomes include the environmental, social, and governance performance of our company over the last two years.

Reporting Scope

The scope of this report encompasses domestic and overseas business worksites, including the headquarters of Doosan Fuel Cell in Iksan, the Seoul office, and the R&D Center. In addition, the report also presents outcomes of primary suppliers while minimizing the impact on suppliers.

Standards Used for Preparation of the Report

This Report was prepared according to the Core Option of the Global Reporting Initiative(GRI) Standards. Reporting issues were selected based on a materiality assessment with the participation of stakeholders.

Report Assurance

This report has been verified by With Accounting Corporation('verifier'), an independent, third-party assurance agency, to secure the reliability of data and prevent ESG greenwashing. The verifier performed an independent assurance engagement in accordance with ISAE 3000(International Standard on Assurance Engagements 3000), Revised Assurance Engagements other than Audits or Reviews of Historical Financial Information, which was established by the IAASB(International Auditing and Assurance Standards Board). The Third-Party Verification Statement can be found on pages 88~89.

Report Inquiry

This report can be downloaded by visiting the Doosan Fuel Cell website(<https://www.doosanfuelcell.com>). Please use the contact address on the right side for inquiries.

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2022 Cover Story



The cover stresses the eco-friendly business of Doosan Fuel Cell and indicates its commitment to establish itself as a sustainable company.



Message from Leadership



Doosan Fuel Cell leads a green hydrogen society by providing clean, stable, and optimized energy solutions.

Dear respected shareholders, customers, and stakeholders,

Despite the increased volatility in the business environment, Doosan Fuel Cell has been able to respond to the market environment quickly and flexibly to accomplish its vision, 'Hydrogen Energy Global No. 1 Player.' In particular, we are strengthening the foundation for future growth through the advancement of business structure and the identification and cultivation of new future technologies and new businesses. I would like to thank all stakeholders, including customers and suppliers, for their unwavering trust and support, and our employees for their passion and hard work.

It has been a long time since 'sustainable management' became the key topic of Doosan Fuel Cell, but the sense of responsibility has come to weigh heavier on us given the increased social interests and expectations. Doosan Fuel Cell has been striving to strengthen its presence in the fuel cell market, diversity the business models, and create economic and social values across the company business. As a provider of renewable energy solutions, we will continue to meet stakeholders' expectations and increase our contribution to society by establishing a global-level management system in terms of both ESG(Environmental, Social, and Governance) and business performance.

A sustainable company is based on a 'sustainable society.'

Doosan Fuel Cell will lead green management through Carbon Neutrality, eco-friendly products, and technology development to cope with climate change that poses threats to the very survival of the human race. We established the safety and health policy this year to protect our employees' life and safety, and we are making every effort to set up a safety management system and prevent accidents by appointing the Chief Safety Health Officer and establishing the EHS sector. Furthermore, we will pursue cooperation for a win-win relationship based on trust and understanding between labor and management, and strive for the protection of human rights in the supply chain and the improvement of working environments in accordance with human rights policies based on the UN Universal Declaration of Human Rights. To fulfill the value of shared growth, we promise to make tireless efforts and provide support to develop a win-win relationship with suppliers and strengthen their competitiveness from the ESG perspective. Intending to consolidate and actively carry out the ESG management system, Doosan Fuel Cell aims to put ESG at the core of management activities by establishing ESG tasks and goals and supervising overall activities in this respect.

Today, we are facing a huge wave of change called 'Industry 4.0,' represented by technologies such as big data and artificial intelligence and a rapidly changing customer and business environment. In order to leverage the opportunities presented by this new environment, Doosan Fuel Cell will work harder to think and innovate based on customer value in the entire production process, from product planning to development. Doosan Fuel Cell will lead the development and supply of highly efficient, eco-friendly power fuel cells according to the government's renewable energy supply policy and take the initiative in the global conversion to a hydrogen society.

I sincerely ask for your continued interest and support for Doosan Fuel Cell's challenges to come.

Thank you.

Doosan Fuel Cell Co., Ltd., CEO **Hyungrak Chung**

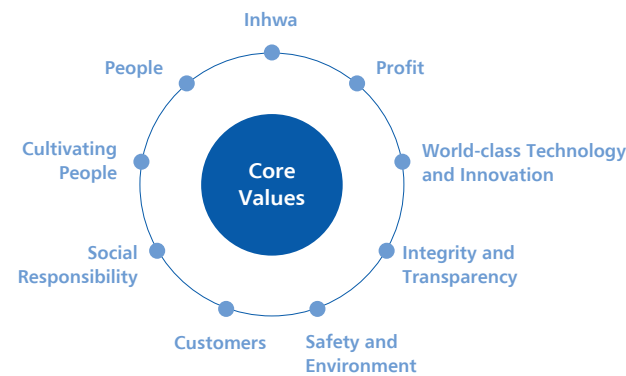
Group and Company Vision

Doosan Fuel Cell aims to create customer value, develop highly efficient and inexpensive products, and achieve sustainable growth based on our corporate vision. Responding proactively to the changing business environment, we will do our best to build a company that grows continuously with society.

Group and Company Vision

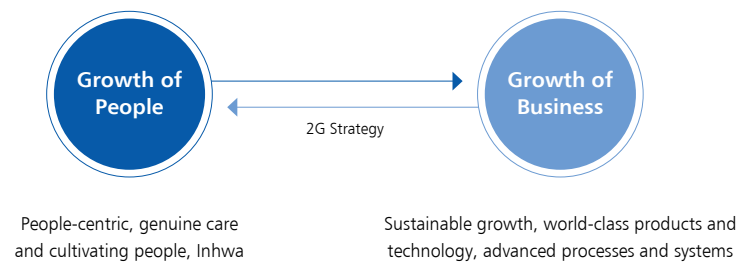
Group Goals
Doosan's ultimate goal is the creation of 'Proud Global Doosan.' In our Vision, each of our employees and all of our stakeholders will benefit from and be proud of their association with Doosan. Every employee takes great pride in being a member of Doosan. Each customer recognizes and appreciates Doosan's high-quality goods and services. Every shareholder values our fair distribution and high levels of profit.

Core Values
Doosan People practice the nine core values of the Doosan Credo everywhere we operate, every day, to build a "Proud Global Doosan". These values guide the way we do business, the way we treat each other and the way we work with our partners. The nine core values of the Doosan Credo are as follows:



Management Strategy

Doosan's strategy is based on '2G(Growth of People, Growth of Business). Here, 2G affirms our firm belief that the growth of people is the driving force behind the growth of the company and the growth of the business creates a virtuous cycle for providing opportunities to individuals and leading people's growth again. Doosan believes that sustained success can only come through people.

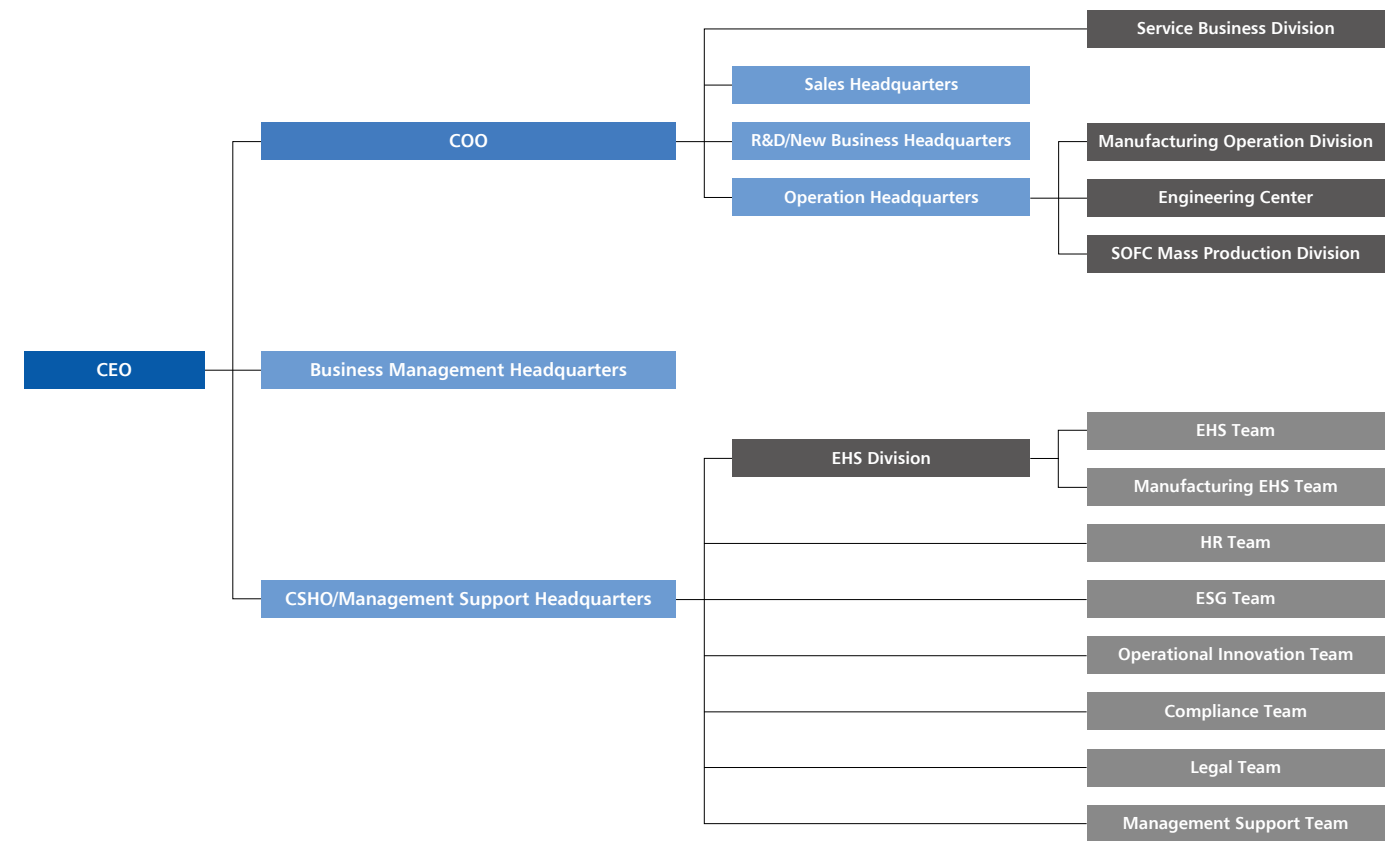


Mid and Long-term Growth Project

Mid and Long-term Direction	Major Tasks	Vision
Securing business competitiveness	<ul style="list-style-type: none"> Increasing competitiveness in securing orders by creating customer value Mass production of SOFC(Solid Oxide Fuel Cell) Expanding business applications, such as hydrogen refueling station solutions, etc. Maximizing operation competitiveness by improving the supply chain of core components 	
New Biz. & Market	<ul style="list-style-type: none"> Increasing exports through new global 3rd markets New hydrogen projects, such as marine fuel cells, land mobility power pack, etc. 	
Carbon-neutral Response	<ul style="list-style-type: none"> Developing high-performance products and CO₂-free response technologies 	

Organization

Doosan Fuel Cell runs its businesses within an organizational system that comprises five headquarters and six sectors. We formed a dedicated ESG organization in December 2021, and established the ESG Committee to promote active and practical ESG management in the fields of environment, society, economy, and governance.



Company Overview

Company Overview

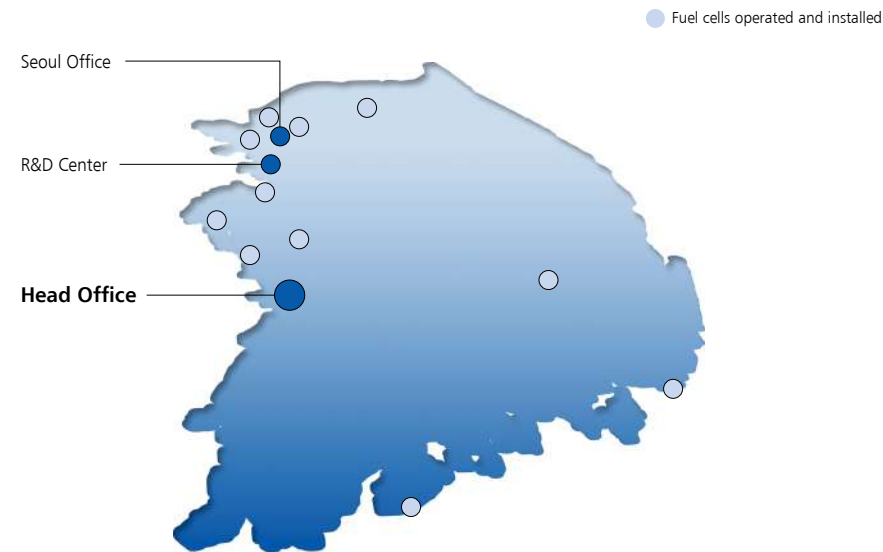
Doosan Fuel Cell was established on October 1, 2019, through an equity spin-off of the fuel cell division of Doosan. The main business of Doosan Fuel Cell is supplying tools and materials for power fuel cells and providing long-term maintenance services for fuel cell power plants. Doosan Fuel Cell has been able to record the highest cumulative share in the domestic power fuel cell market through the provision of highly efficient and safe green fuel cells.

Company Name	Doosan Fuel Cell Co., Ltd.
Date of Establishment	10/1/2019
Chief Executive Officer	Hyungrak Chung, Hooseok Che(Representatives, appointed in March 2022)
Head Office Location	100, Seogam-ro 7-gil, Iksan-si, Jeollabuk-do, Republic of Korea
Major Businesses	Power-generating fuel cell business
Largest Shareholder	Doosan Enerbility Co., Ltd.(34.78%)
Number of Employees	481 persons(as of the end of 2021)
Branch/Corporation	Seoul Office, R&D Center

* The achievements listed above are based on the annual business report for 2021.

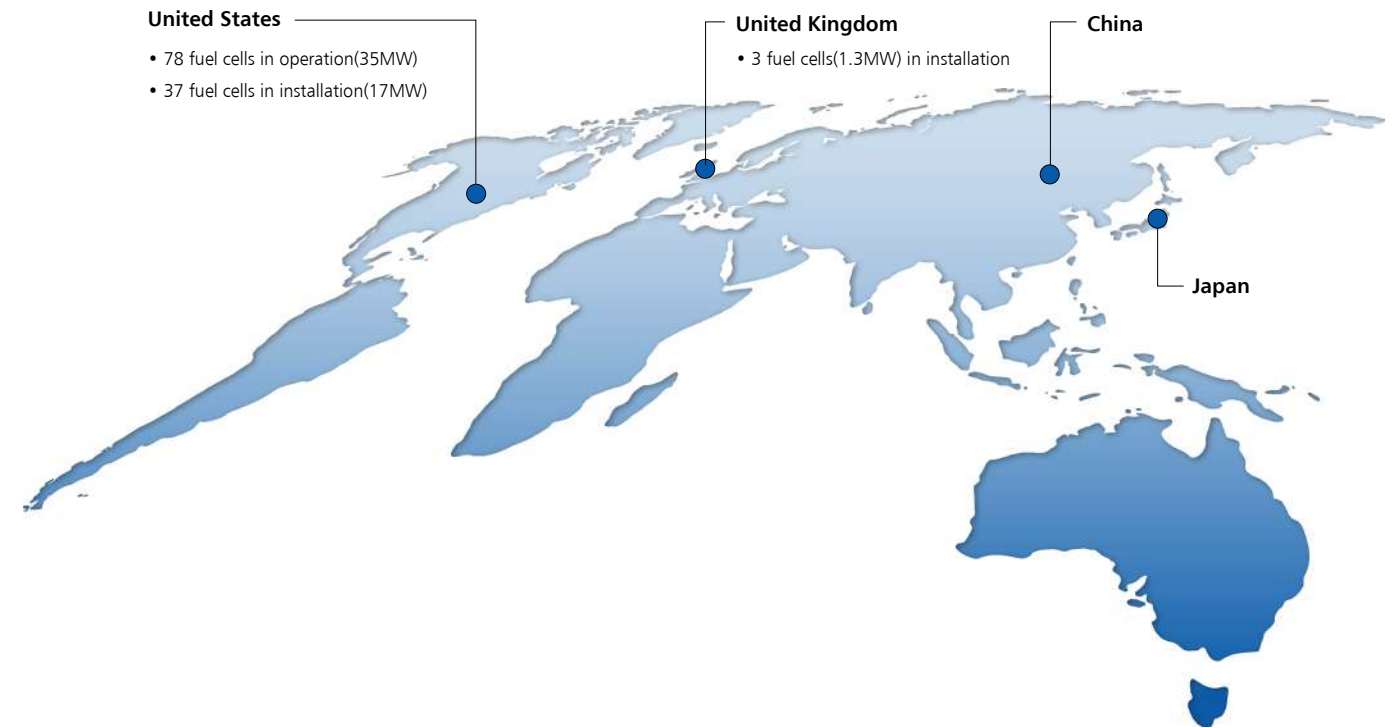
Status of Worksites in Korea

Doosan Fuel Cell carries out its fuel cell business through the head office in Iksan, Jeollabuk-do, which produces new fuel cell products, the office in Seoul, and the R&D Center in Gwanggyo, Suwon. A total of 992 fuel cells are currently in operation(436.5MW) at facilities nationwide, with a further 158 fuel cells being installed and operated(69.5MW).



Global Business

Doosan Fuel Cell operates 78 fuel cells of 35MW capacity each and 37 fuel cells of 17MW capacity each at commercial and industrial buildings in the United States, including data centers and universities. In the United Kingdom, 3 fuel cells of 1.3MW capacity each are installed and operated, mainly in commercial buildings. Doosan Fuel Cell accomplished sales of 1.5 million dollars in 2021 by selling products and supporting services in the emerging market of China. Recently, 4 hydrogen fuel cells(440kW) were installed as part of a distributed generation system in Nanhai of Foshan, China to supply electricity and cooling/heating power to apartment houses and buildings, and an additional 11 fuel cells are planned for installation. The supply volume for power hydrogen fuel cells in major counties is 601MW in Korea, 483MW in the United States, and 313MW in Japan. The scale of the global power fuel cell market is expected to increase up to 12.7GW~25.4GW by 2030.



ESG Evaluation Results by KCGS



History



Eco- Business










- 012 Business Introduction
- 016 Technology Introduction
- 018 Product Introduction

Business Introduction

Doosan Fuel Cell has been leading the fuel cell business for power generation and buildings in Korea since its foundation on October 1, 2019. As a company specializing in fuel cells, Doosan Fuel Cell possesses core technologies for the entire process, from the design and manufacturing of stacks and reformers to the production of the integrated system. In line with the government's 2050 Carbon Neutrality policy, Doosan Fuel Cell has been promoting the development and supply of highly efficient, eco-friendly hydrogen fuel cells and securing its capability as a total solution provider of fuel cells in response to the accelerated conversion to hydrogen energy for power/building fuel cells and mobility.

Green Energy Business

This significantly lowers gas emissions and noise compared to conventional power plants and allows pollution-free power generation using hydrogen fuel cells.

Categories	NO _x (kg/MWh)	CO ₂ (kg/MWh)	Noise@10m, dB	
 <p>Hydrogen model</p>	0.00	0.00	60	 <p>Residential & Commercial</p>
 <p>Natural gas model</p>	0.005	453	60	
 <p>Microturbine¹⁾</p>	0.18	676	70	 <p>Commercial</p>
 <p>Gas engine²⁾</p>	0.36	525	80	 <p>Industrial</p>

1) 333kW(Source: DOE)

2) 633kW(Source: DOE)

Safe Technology

Doosan Fuel Cell offers safe technology that does not require high pressure and combustion in the power generation process. This safety aspect has been proven since its first application in a project by NASA in the United States. Doosan Fuel Cell maintains a high-level of safety, suitable for a wide range of building types, by acquiring designs that meet international standards and inspections and safety certifications.

Non-combustible reaction

The non-combustible start-and-stop method, which produces electricity through the electrochemical reaction of hydrogen and oxygen, prevents the risk of fire.



Low pressure operation

Fuel is supplied and processed at atmospheric pressure in the entire process, and there is no risk of explosion because fuel is not stored.



Safety device

More than 70 double failure and triple failure safety measures against fuel leakage are installed to enhance the capacity to respond to unpredictable accidents.



International design standards

Designs that meet international standards are applied, and safety is verified through regular safety inspections and certifications.

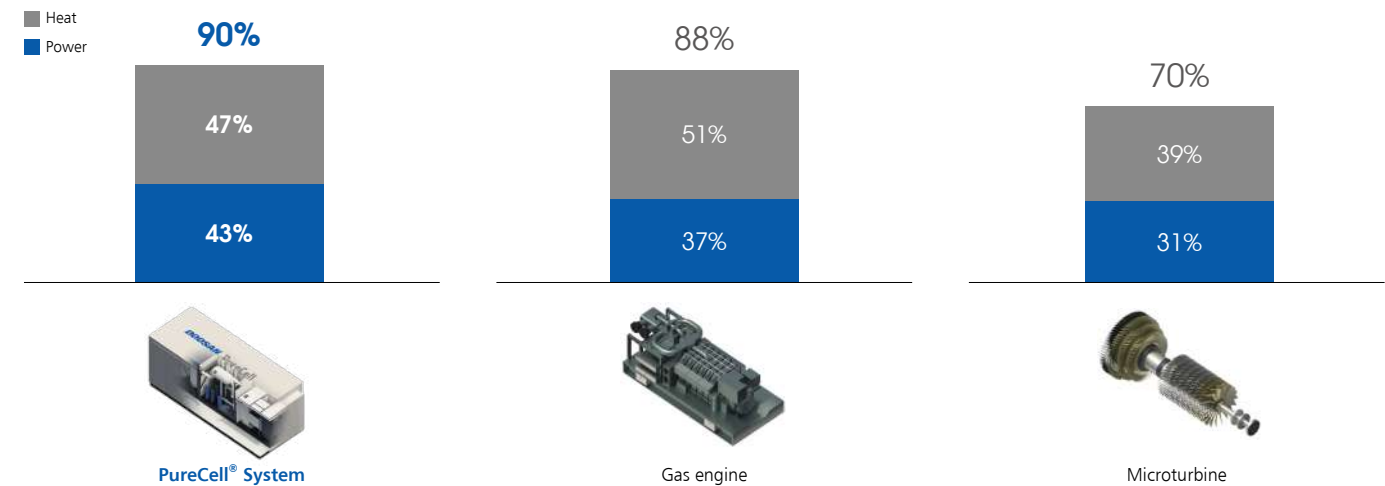


Highly Efficient Power Generation

Power and heat are delivered with low energy loss and high efficiency to maximize productivity. The initial investment costs can be minimized as the installation requires only a small space and supports flexible response to various installation conditions.

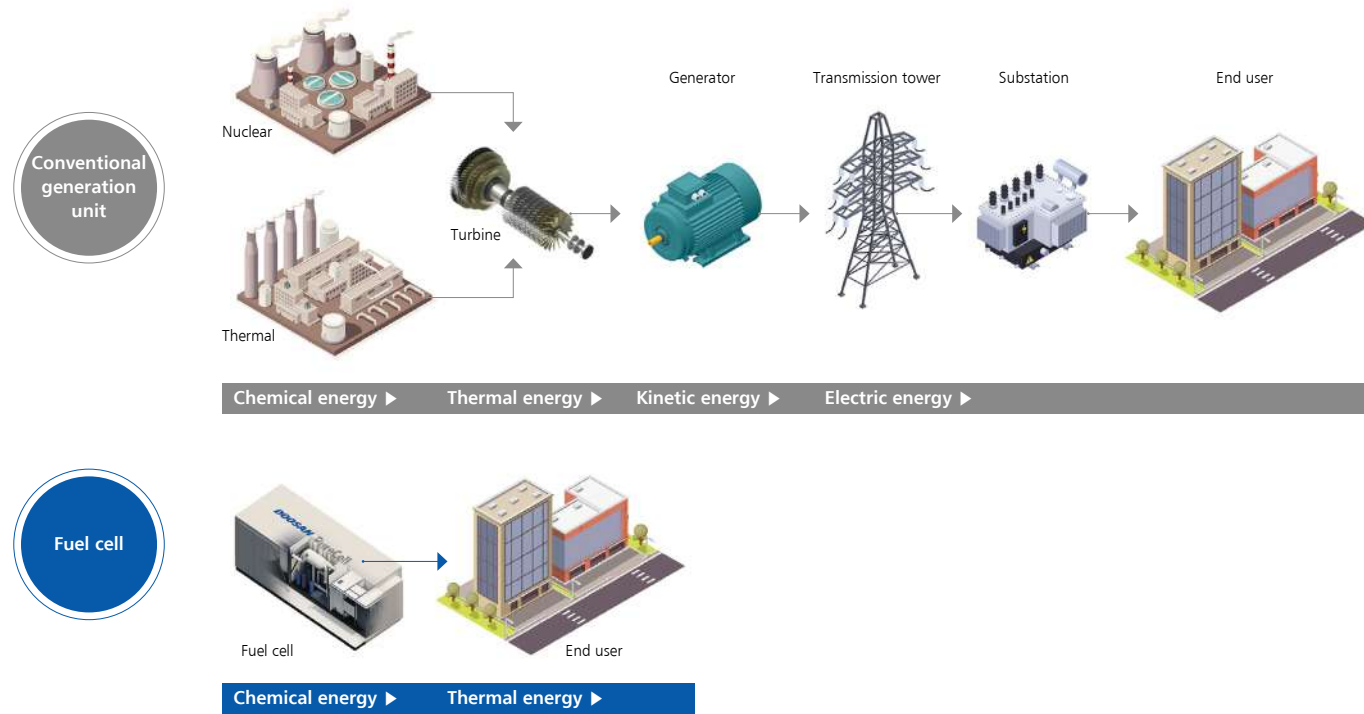
High energy efficiency

The technology is based on highly efficient cogeneration power unit that generates power and heat simultaneously.



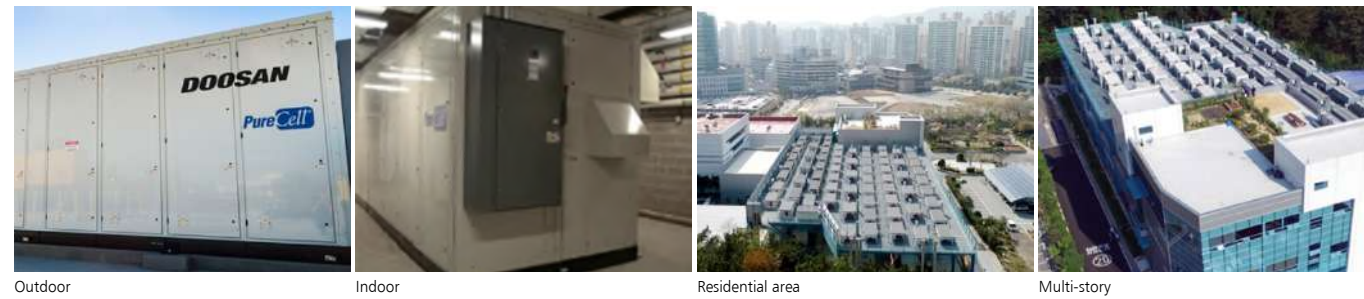
Low energy loss

Energy is supplied to end users with minimum energy loss.



Small space for installation

The compact-sized fuel cells do away with the need for large installation spaces and can be installed anywhere, such as outdoors, indoors, or in multi-story buildings.

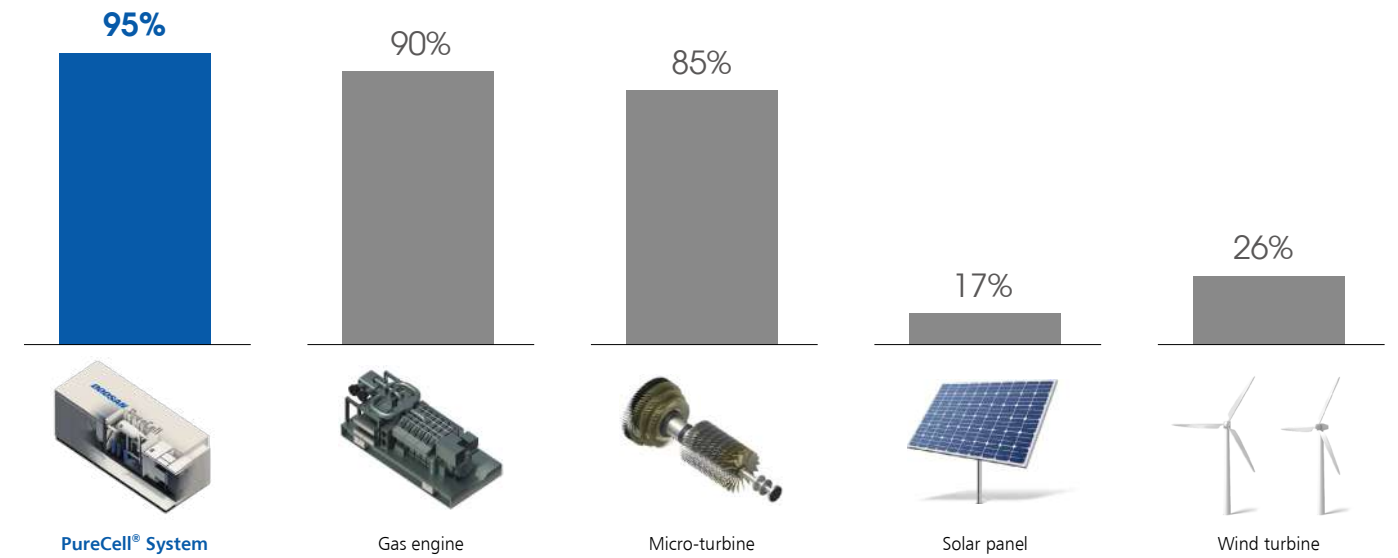


High Reliability

Equipped with an outstanding capacity factor and fast response, Doosan Fuel Cell offers reliable energy. We deliver trustworthy services backed by many years of commercialization experience and technical data.

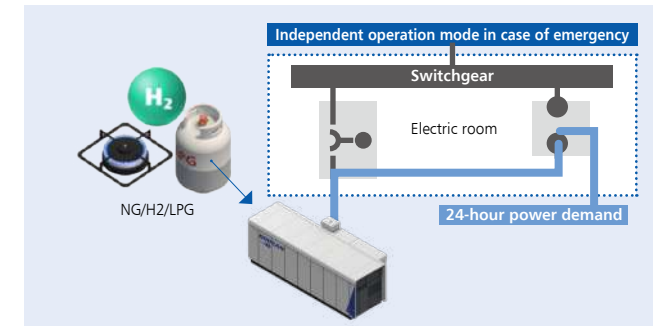
Outstanding capacity factor

Reliable power and heat supply based on high reliability



Independent operation mode

In the event of blackouts caused by natural disasters or power system failures, Doosan Fuel Cell's power plants switch over to grid-independent operation immediately for the reliable supply of power and heat.



Smart remote control

24/7 IoT-based remote monitoring system supports remote control and responds to issues in real time.



Doosan Fuel Cell Highlights

Ever since UTC supplied fuel cells for NASA's Apollo missions, Doosan Fuel Cell has been delivering 440kW stationary fuel cells at home and abroad.

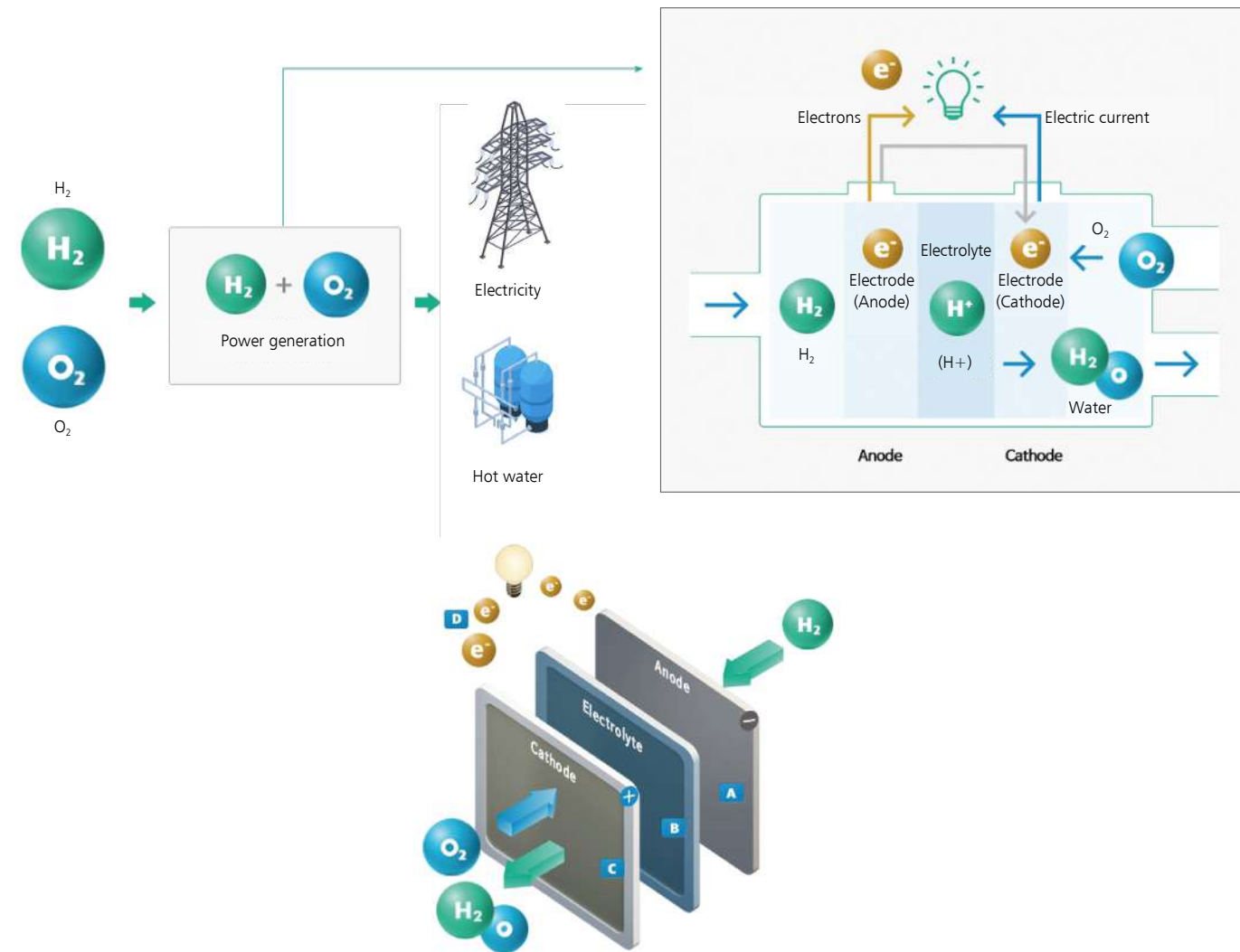
Domestic	United States	United Kingdom	China
<ul style="list-style-type: none"> In operation: Approx. 436.5MW (992 units) In installation: Approx. 69.5MW (158 units) 	<ul style="list-style-type: none"> In operation: 35MW(78 units) In installation: 17MW(37 units) Installed base within the US: 65MW(145 units) 	<ul style="list-style-type: none"> In operation: 1.3MW(3 units) 	<ul style="list-style-type: none"> In installation: Approx. 6.6MW (15 units)

Technology Introduction

Doosan Fuel Cell performs joint research related to solid electrolytes and cathodes, working with domestic and overseas universities to preemptively secure technologies required for fuel cells. Based on this, we designed a 2025 product development roadmap for solid electrolytes and high-output cathode composite technology.

The Principle behind Fuel Cell

A fuel cell is an efficient and green energy generation technology based on the electrochemical reaction between hydrogen and oxygen.



A_Anode

The hydrogen fuel is channeled to the anode and split into positive hydrogen ions (protons) and negatively charged electrons by a catalyst.

C_Cathode

At the cathode, the positively charged hydrogen ions that passed through the electrolyte and the oxygen from cathode are combined to form water.

B_Electrolyte

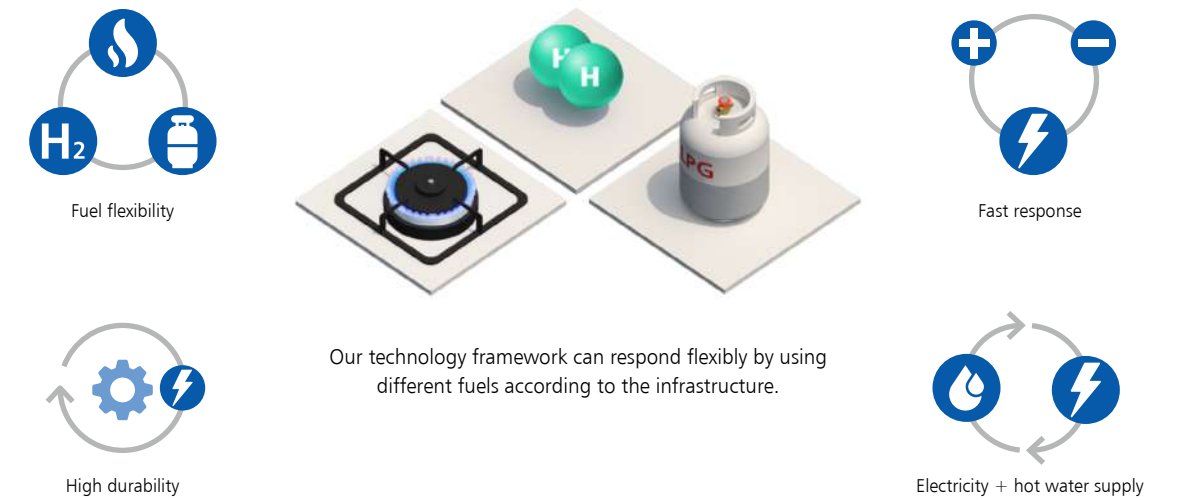
The electrolyte allows only the positively charged ions to pass through it to the cathode. The hydrogen ions go from the Anode through the electrolyte to the cathode.

D_Electrolyte

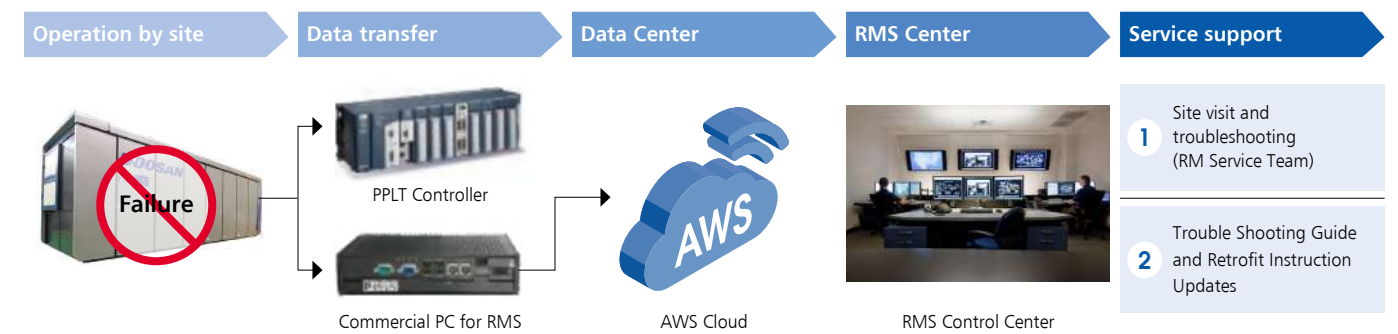
Electrons travel along an external circuit, creating an electrical current.

Fuel Cell Technology

Doosan Fuel Cell possesses PAFC(Phosphoric Acid Fuel Cell) technology that utilizes liquid phosphoric acid as an electrolyte. Our technology provides the benefits of durability, fuel flexibility and fast response to meet your energy needs in real time.



Fuel Cell System



Product Introduction

Doosan Fuel Cell leads the fuel cell industry by producing the current Purecell® M400 NG, H2, and LPG/NG Dual models and the new Tri-gen product.

Purecell® M400 NG

Purecell® M400 NG utilizes natural gas that is supplied through gas pipelines. Highly suitable for urban areas as electricity and heat are supplied using the current infrastructure.

- Fuel**
NG

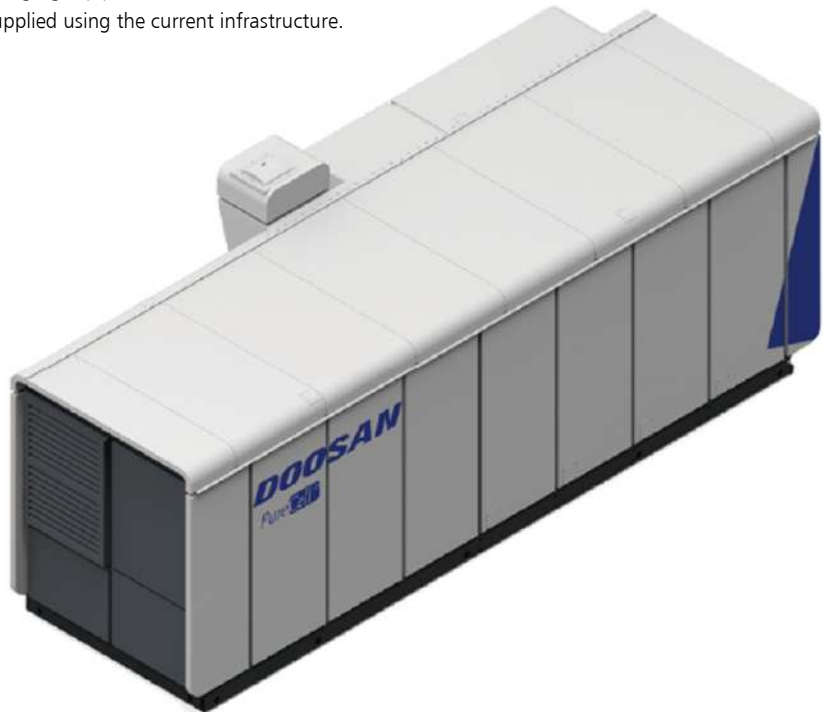
- Size**
8.3x2.5x3.0m

- Rated output**
440kW

- Heat supply**
HG(120℃)
LG(60℃)

- Efficiency**

Compiling	90%
Power	43%
Heat	47%



Purecell® H2

A highly efficient, eco-friendly hydrogen energy solution that can generate high power efficiency and clean water.

- Fuel**
H₂

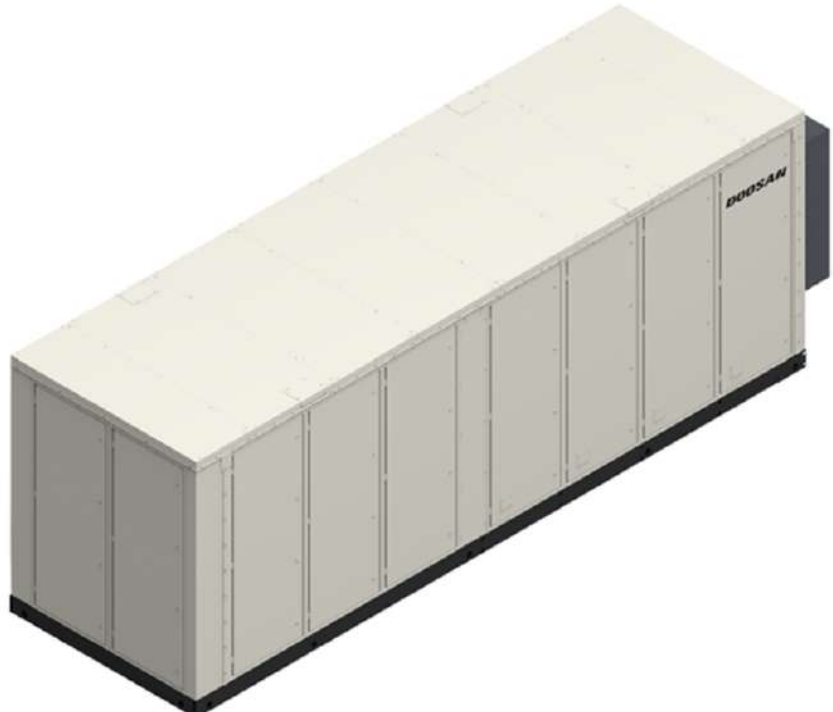
- Size**
8.3x2.5x3.0m

- Rated output**
440kW

- Heat supply**
HG(120℃)

- Efficiency**

Compiling	85%
Power	50%
Heat	35%



Purecell® LPG/NG Dual

A natural gas/LPG-based model designed to operate in dual mode in regions where there is insufficient access to energy. LPG can be used as a backup fuel to supply electricity and heat. This model is best suited for use as an emergency power supply.

- Fuel**
LPG/NG

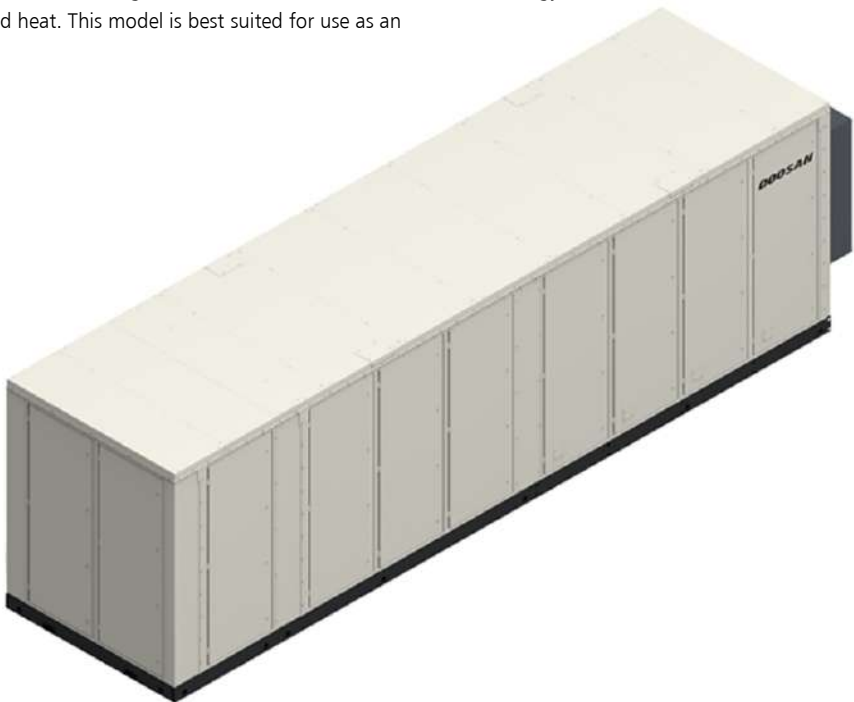
- Size**
9.8x2.5x3.0m

- Rated output**
440kW

- Heat supply**
HG(120℃)
LG(60℃)

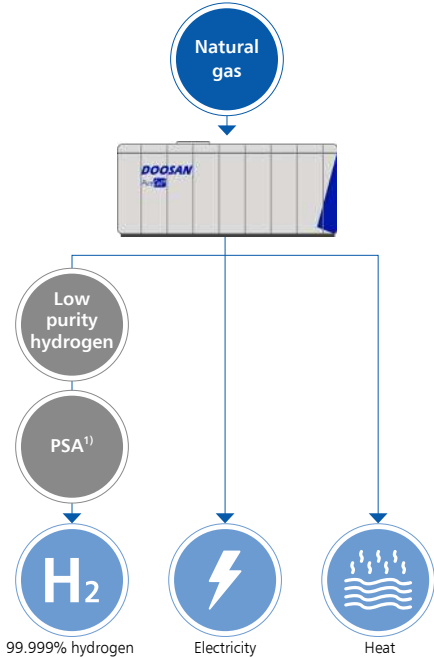
- Efficiency**

Compiling	90%
Power	41% 43%
Heat	49% 47%



New Tri-gen

A triple energy production model that generates hydrogen through a reformer inside a fuel cell, in addition to electricity and heat generated through the stack. It can be installed on-site and direct installation to a hydrogen station can reduce the cost of transporting high pressure hydrogen.



1)PSA: Pressure Swing Adsorption



* A concept image of charging a fully electric loader and hydrogen car through Tri-gen, which generates hydrogen, electricity, and heat

ESG First Step

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ESG Material Issues

Accepting Stakeholders' Opinions

Classification of Stakeholders

Doosan Fuel Cell classifies its stakeholders into shareholders, investors, customers, employees, subsidiaries, communities, and governments to reflect the opinions of the stakeholders that have a direct and indirect impact on business activities. We are carrying out a variety of activities to expand stakeholder communication based on this classification system.

Active Stakeholder Communication

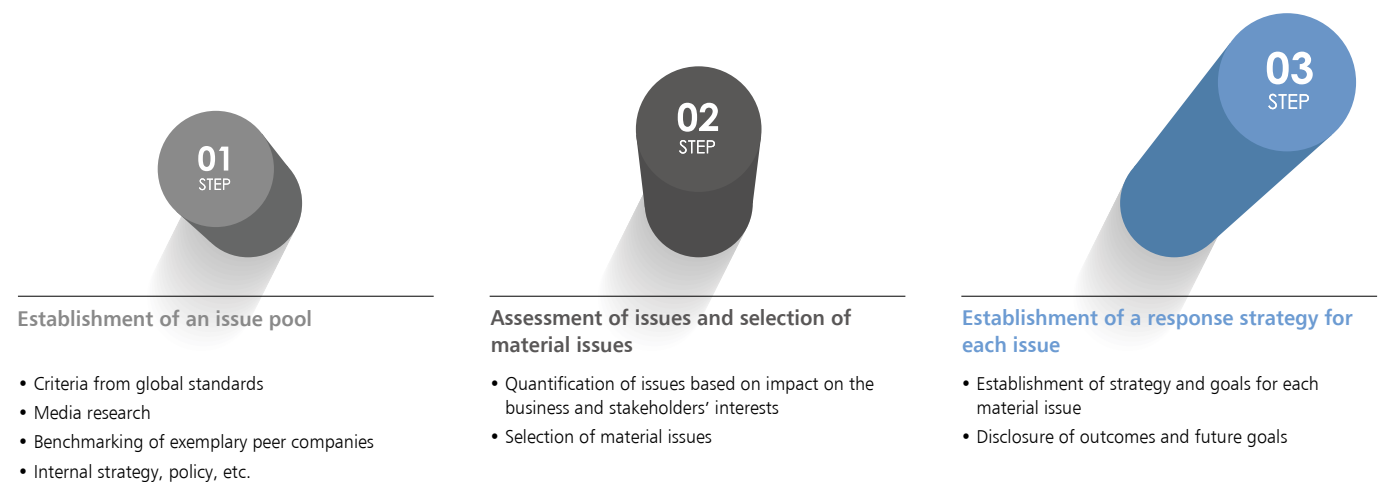
Doosan Fuel Cell diversifies communication channels to effectively apply stakeholders' needs to business activities. Starting from 2022, our key activities and business outcomes will be disclosed through our sustainability report. Furthermore, a materiality assessment is conducted every year to identify sustainable management issues that are of priority to the stakeholders of Doosan Fuel Cell.

Identification of stakeholders	Communities	Government	Suppliers	Customers	Shareholders and Investors	Employees
Material issues	<ul style="list-style-type: none"> Listening regularly to the opinions of the community Supporting the growth of communities in the vicinity of worksites 	<ul style="list-style-type: none"> Complying with laws and regulations Private-public partnerships 	<ul style="list-style-type: none"> Providing support to strengthen suppliers' competitiveness and competency Expanding information sharing 	<ul style="list-style-type: none"> Reinforcing the customer complaint handling and customer satisfaction processes Improving product quality and enhancing responsibility 	<ul style="list-style-type: none"> Participation in decision-making through the general meeting of shareholders Sound corporate governance 	<ul style="list-style-type: none"> Increasing work satisfaction and welfare Strengthening communication within the organization Establishing a cooperative labor-management relationship
Communication channels	<ul style="list-style-type: none"> CSR activities Community partnerships 	<ul style="list-style-type: none"> Participating in national projects Partnership with the government and public organizations 	<ul style="list-style-type: none"> Cooperative Committee Hotline Technical exchange meetings 	<ul style="list-style-type: none"> VOC Technical exchange meetings Customer satisfaction surveys 	<ul style="list-style-type: none"> General meeting of shareholders Investor Relations(IR) Public disclosure Website 	<ul style="list-style-type: none"> Employee surveys Company intranet Company newsletter Labor-Management Council

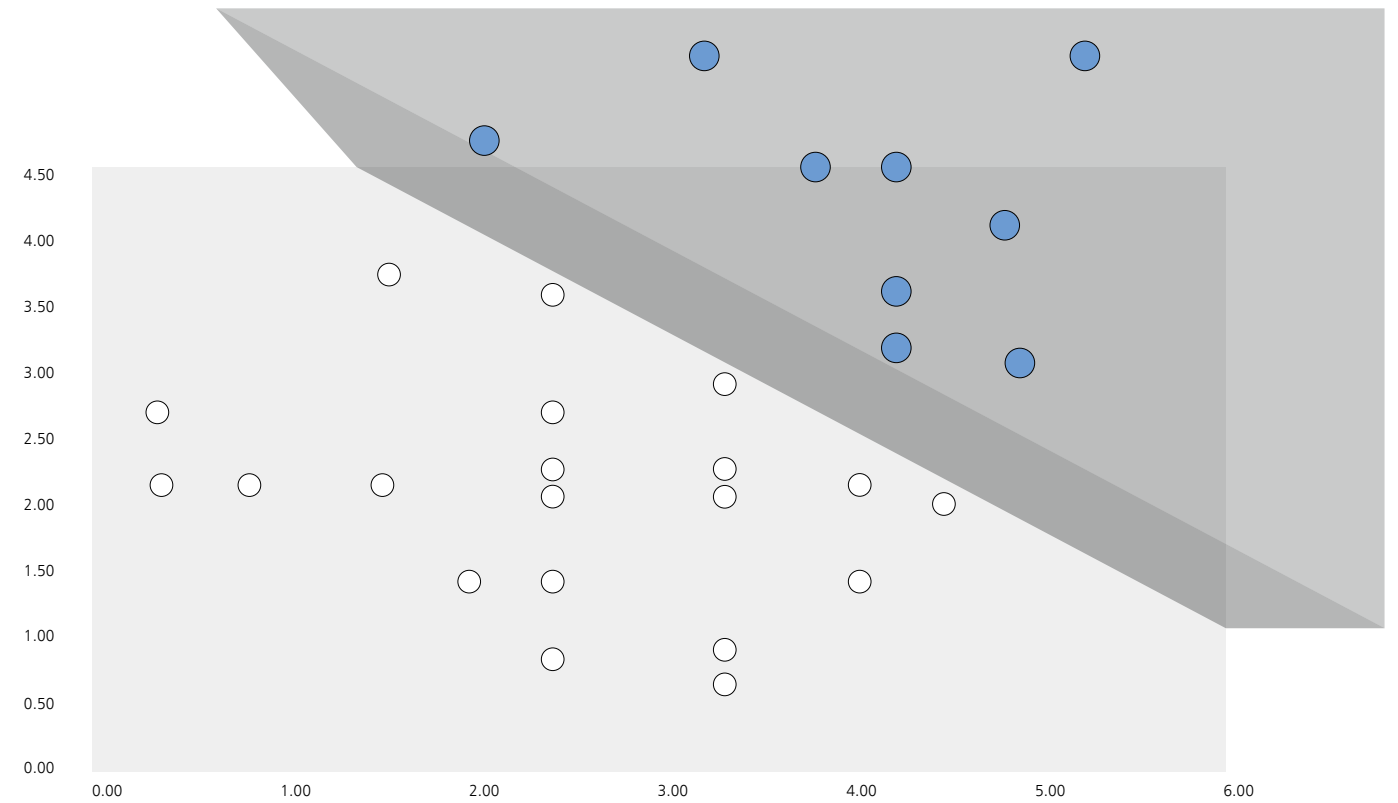
Materiality Assessment

Doosan Fuel Cell conducts a materiality assessment every year to identify the issues that shareholders consider important. In 2021, Doosan Fuel Cell created a pool of stakeholder issues based on the sustainability reporting standards specified by the Global Reporting Initiative(GRI), the social responsibility standards defined by ISO 26000, global standards such as the SDGs, and external stakeholders' requirements, including MSCI and DJSI assessment criteria. The materiality assessment was carried out over a period of about three weeks, from January 1 to January 21. Based on media research, peer company benchmarking, and an analysis of internal strategy and policy issues, we selected 10 material issues out of a pool of 47 issues. Doosan Fuel Cell wishes to transparently disclose its major activities and outcomes for 2021 through this report.

Assessment Process



Materiality Assessment



Category	Material Issue	ESG Framework	Page of Report
1	Response to climate change	E	31~34
2	Technology innovation and R&D investment	G	69~71
3	Workplace safety and health	S	40~41
4	GHG and energy reduction and enhancement of efficiency	E	31~32
5	Improvement of the labor culture and working conditions	S	50~51
6	Proactive responses to environmental regulations	E	28~30
7	Recruitment and work-life balance	S	46~50
8	Reinforcement of waste management	E	33
9	Reinforcement of anti-corruption measures and ethical management	G	65~67
10	Water management	E	33

Among the 10 key issues selected through the materiality assessment, response to climate change, technology innovation and R&D investment, and workplace safety and health are particularly important in terms of Doosan Fuel Cell's business.

Response to climate change

We plan to establish a Carbon Neutrality roadmap as a part of mid and long-term strategies to respond to climate change. We will compare and analyze various methods for reducing carbon emissions and select the most effective direction.

Technology innovation and investment in R&D

We will strengthen efforts to develop green products by designing products based on environmental efficiency in the product design and use stage. We have established internal standards related to the level and scope of innovative products and will continually manage the relevant data. In addition, information on innovative R&D investment is disclosed and data on the R&D investment status is collected. We also carry out open innovation activities such as projects in collaboration with external agencies, schools, and organizations.

Workplace safety and health

We are establishing a safety and health organizational system and policies such as system and strategic goals. We aim to acquire ISO 14001 certification by the end of November 2022 to enhance employees' health and safety.

ESG Mega Trend Response Strategy for the Energy Business



ESG Response Strategy for the Green Energy Business 1

Expanding our business areas by entering the land hydrogen mobility market

According to the government's roadmap released in 2019 for invigorating the hydrogen economy, the domestic hydrogen mobility market will be expanded by establishing 1,200 hydrogen refueling stations, 40,000 hydrogen buses, and 30,000 hydrogen trucks by 2040. In line with this roadmap, Doosan Fuel Cell declared a plan to expand its business areas by entering the 'land hydrogen mobility' field in addition to 'power hydrogen fuel cell' and 'marine hydrogen mobility.'

In April 2022, Doosan Fuel Cell signed an MOU, for the development of a hydrogen fuel cell system for the mobility and supply of hydrogen buses, with Ballard Power Systems(hereinafter referred to as Ballard) and HyAxiom at the headquarters of HyAxiom in Connecticut, United States.

Ballard is a Canadian company specializing in PEMFC(Polymer Electrolyte Membrane Fuel Cell) that has global competitiveness in the field of hydrogen mobility. HyAxiom is a Doosan subsidiary that has competitive power in the field of PAFC(Phosphoric Acid Fuel Cell).

Doosan Fuel Cell, Ballard, and HyAxiom formed an agreement to cooperate on the development and mass production of PEMFC systems for mobility, sales of hydrogen buses, and the supply of hydrogen and electricity charging stations.

A pilot project for hydrogen buses will be carried out domestically in 2023, launching buses equipped with a hydrogen fuel cell for mobility developed by HyAxiom. The three companies showed a strong will to cooperate and take on the global market with high growth potential.

This MOU is significant in that it is a 'strategic alliance' for advancing into the global market in addition to the Korean market. SOFC(Solid Oxide Fuel Cell) for marine mobility is in development and PEMFC for hydrogen mobility represents a new growth engine.

ESG Response Strategy for Green Energy Business 2

Efforts to convert to clean hydrogen fuel cells with CCU technology

Doosan Fuel Cell is working to secure a super technical gap to convert to clean hydrogen fuel cells. In early June 2022, Doosan Fuel Cell signed an MOU for the 'development and conversion of clean hydrogen fuel cells' with Korea Southern Power, Samsung C&T Corporation, and the Korea Institute of Energy Research(KIER) at Dongdaemun Doosan Tower. This MOU was prepared to meet the policies for invigorating the domestic hydrogen economy, such as the Clean Hydrogen Certification System and Clean Hydrogen Energy Portfolio Standards(CHPS). The main activities include the development of CCU* technology related to fuel cells; the conversion of conventional hydrogen fuel cells to blue and green hydrogen fuel cells; and collaboration for the commercialization of an ammonia fuel cell demonstration project.

* CCU(Carbon Capture, Utilization): A technology for collecting and using carbon dioxide`

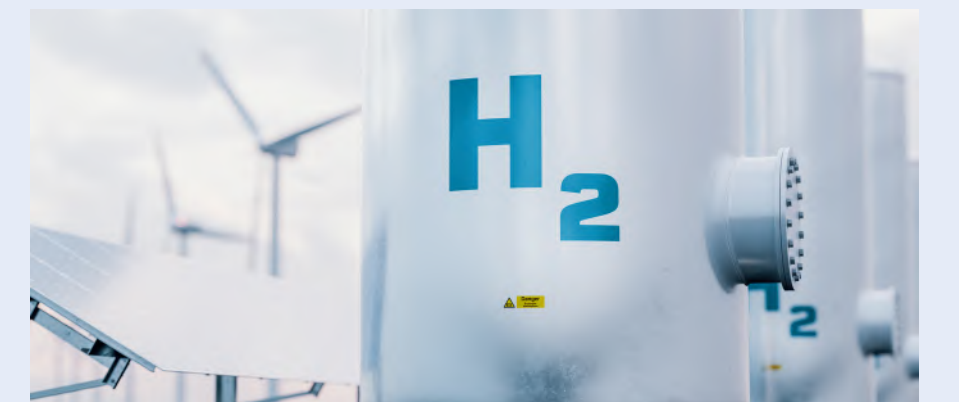
Hydrogen is largely classified into grey hydrogen, blue hydrogen, and green hydrogen according to the method of production. Grey hydrogen takes up about 96% of the hydrogen produced today and is derived from natural gas. Byproduct hydrogen produced from petrochemical companies is also classified as grey hydrogen. When the CCU technology is used on grey hydrogen, it is categorized as blue hydrogen. Since the cost of producing green hydrogen based on electrolysis with the power sourced from renewable energy such as solar power is rather high, blue hydrogen with almost no CO₂ emissions and reasonable production costs is taking the spotlight.

Doosan Fuel Cell jointly developed the fuel cell CCU technology with KIER and is conducting the demonstration of blue hydrogen fuel cells that apply this technology. After successful completion of the demonstration phase, the existing hydrogen fuel cells will be replaced with blue hydrogen fuel cells in collaboration with Korea South Power to lead the conversion to clean hydrogen.

Doosan Fuel Cell will also participate in the ammonia fuel cell demonstration project. Ammonia can be liquefied at -33°C and offers 1.5 times higher transportability compared to hydrogen because of the smaller volume. In addition, ammonia is considered to be highly efficient and economically feasible than liquid hydrogen(liquefaction temperature of -253°C) thanks to the high energy density.

As part of the demonstration project, Doosan Fuel Cell will develop ammonia fuel cells and Samsung C&T Corporation will supply ammonia from abroad. Korea South Power will provide the site for the ammonia fuel cell demonstration.

Through this MOU, Doosan Fuel Cell will accelerate the conversion to clean hydrogen fuel cells by responding actively to the government's clean hydrogen policies and ensure competitiveness for a super technical gap.



Environmental

Major Outcomes in 2021

GHG Emissions(Scope 1+2)

3,565 tCO₂eq

Green sales ratio

100%

Environmental
Management

Climate
Change

Eco-friendly
Business
Places

Green
Products

Environmental Management

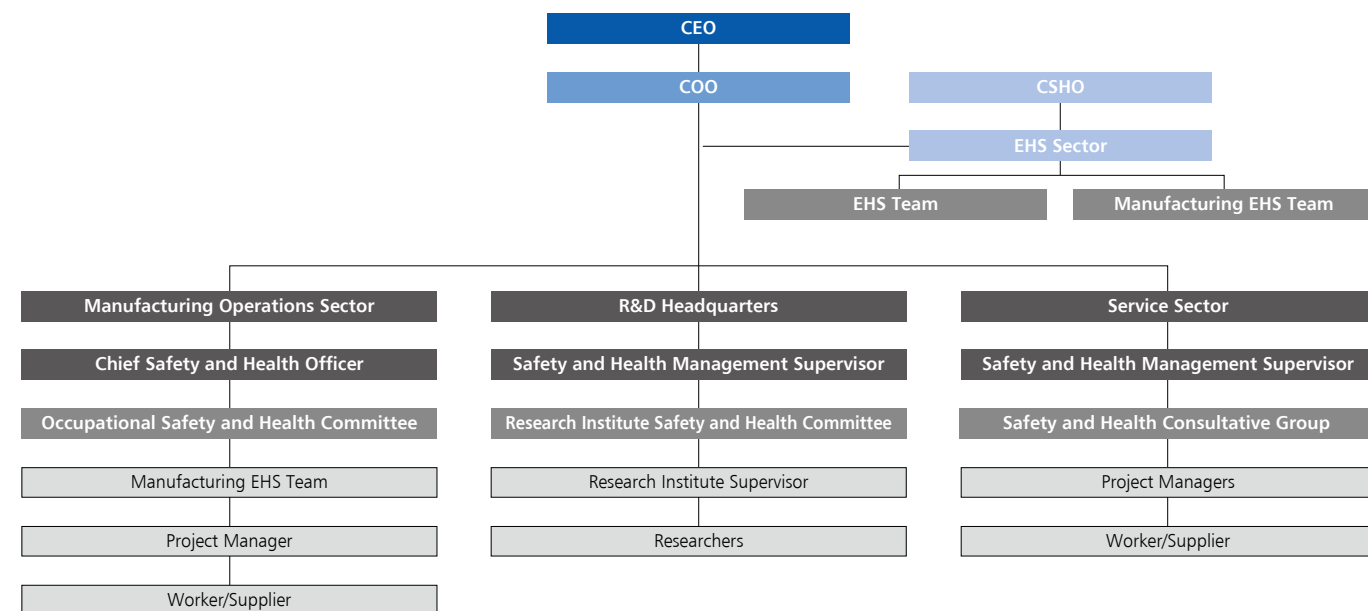


Environmental Management Organization

Doosan Fuel Cell appointed a CSHO(Chief Safety and Health Officer), who supervises work related to the environment, safety, and health, to achieve its mid and long-term and short-term EHS goals and create a pleasant and safe workplace. The EHS management organization operates under the CSHO's supervision to manage the manufacturing facilities, research institute, and service field effectively. We also appointed persons in charge of EHS(Environment, Health & Safety) at service fields distributed on a small scale to establish a field-driven EHS culture and operate an effective EHS management system. Doosan Fuel Cell operates various communication channels including the Occupational Safety and Health Committee, Research Institute EHS Management Committee, Supplier EHS Management Consultative Group, and the Service Safety and Health Consultative Group to quickly share information related to safety and health. In particular, we aim to solve field issues in a timely manner. The CEO of Doosan Fuel Cell manages and supervises environmental management issues through the ESG Committee, with consideration for both the financial impacts and business strategies. Climate-related financial impacts and management strategies are managed through response strategies by analyzing the potential financial impacts of the environmental risks and opportunity factors related to climate change, as well as Carbon Neutrality.

* Doosan Fuel Cell Environmental Report Coverage 100%; Environmental Management Policy Coverage 100%

Environmental Management Organization



Environmental Management Policy

According to the Doosan Credo, Doosan Fuel Cell recognizes a safe and clean environment as our responsibility and core value for our company, our family, and society. We are establishing the EHS (Environment, Health & Safety) management system and making every effort to follow the global standards. In addition, we include production activities/business facilities, products and services, distribution and logistics, waste management, suppliers, main business partners, due diligence, and acquisitions and mergers within the scope of our public environmental management policy. After the environmental performance assessment, we reward employees that demonstrate excellent performance to strengthen our environmental performance management.

Environmental Policy

- 1 Minimize and improve the EHS impacts on overall management activities by establishing the EHS management system and complying with laws.
- 2 Put the life and health of all workers as the top value of Doosan Fuel Cell and maintain the best working environment and facility operation capabilities.
- 3 Develop and provide safe and eco-friendly technologies and products to contribute to the improvement of customers' quality of life and the preservation of the global environment.
- 4 Participate and fulfill social responsibilities regarding the protection of the community environment and conduct open communication with stakeholders based on honesty and transparency.
- 5 Employees of Doosan Fuel Cell and suppliers understand and are committed to practicing these EHS policies.

Environmental Management Goals

- "ZERO" environmental accidents
- Reduction in the use of energy and resources
- Management of materials under environmental regulations
- Compliance with standards stipulated by environmental laws
- Prevention of/response to emergencies
- Establishment of an EHS management system(ISO 14001 certification)

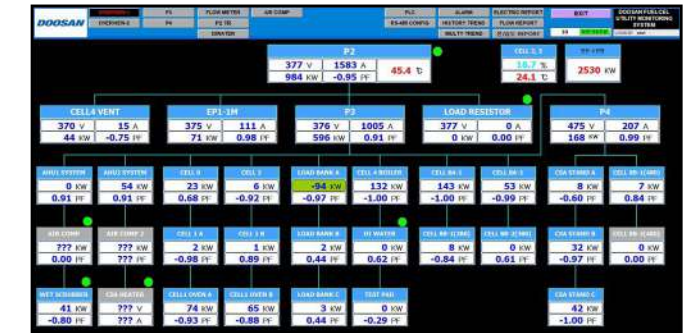
Environmental Management Strategy

- Proper monitoring(inspection, measurement) and maintenance of facilities discharging and preventing environmental pollutants
- Minimizing wastewater/waste through energy saving(electricity, gas, etc.) and the reduction of resources.
- Preparing internal standards to minimize the use of hazardous chemical substances and internationally regulated substances
- Conducting a regular evaluation of compliance with the law and monitoring of revised laws
- Performing environmental impact assessments and emergency drills to prevent and handle environmental accidents
- Establishing an environmental management system through the acquisition of international standard environmental management system certifications

Environmental Management Program

System upgrade for energy reduction

Doosan Fuel Cell upgraded the internal system for saving energy as a part of the environmental management program.



Minimizing the discharge of environmental pollutants

Doosan Fuel Cell has set self-regulatory standards for environmental pollutants generated from its workplaces to be less than 50% of the legal emission standards, and strives to minimize environmental impact beyond legal standards through regular inspections and measurements and prompt maintenance of facilities. Doosan Fuel Cell has established a plan for the purchase of non-polluting vehicles, and will start to replace existing vehicles with green vehicles(such as electric cars) from May 2022 to minimize the emission of air pollutants and GHG generated from the vehicles currently in operation.

Waste management system

Doosan Fuel Cell controls the waste generated by each process and separates recyclable waste to minimize the types of waste incinerated or reclaimed. In addition, we classify and store the generated waste by type to manage the amount of waste generated and handled in accordance with all related laws, and carry out activities to reduce and recycle the waste generated.

Preparation of a GHG management foundation

In line with the efforts of the government and the Doosan Group in responding to climate change, Doosan Fuel Cell calculates GHG emissions regularly based on the IPCC guidelines and country-specific management guidelines, and carries out activities to reduce worksite GHG emissions.

Response to and monitoring of environmental regulations

As environmental issues continue to attract greater public interest at home and abroad, environmental regulations are being reinforced and expanded, and environmental management is becoming more important for businesses. By establishing an environmental management system, Doosan Fuel Cell strives to minimize the various environmental impacts caused its business activities, and takes proactive response measures by monitoring environmental regulations.

Green Certification

Doosan Fuel Cell plans to acquire green certification through the Korea Institute for Advancement of Technology(KIAT) to establish a company-wide ESG response system. As a leading company in terms of green business, we will build a foundation to pursue our green growth goals and contribute to the creation of practical results for the green growth policy. We are internally selecting target patents for a license to register DFCC as a non-exclusive licensee with the Korean Intellectual Property Office.

Environmental Education

Doosan Fuel Cell establishes an annual plan for education and training and conducts quarterly programs to enhance employees' awareness on the environment and reinforce the environmental management capability. We will reinforce employees' ESH competency to achieve zero environmental accidents and the preservation of the community through various education programs in areas such as compulsory environmental education, understanding of environmental preventive facilities, waste management know-how, and environmental policies.



Violation of Environmental Laws

Doosan Fuel Cell did not violate any laws in 2021. We reviewed legal matters related to licensing and established measures to prevent recurrence of issues and to follow environmental laws, and we are striving to ensure compliance with laws through strict management of our performance.

Assessment of Environmental Impact

Doosan Fuel Cell establishes and operates a process for identifying, preventing, and assessing the risks related to environment impacts in advance.

Sample question 1

Is an environmental policy that reflects the CEO's opinions established and shared?



- 1 An environmental policy is established and disclosed to internal and external stakeholders through various methods.
- 2 An environmental policy is established but not sufficiently disclosed to internal and external stakeholders.
- 3 An environmental policy is not established.

Sample question 2

Is there a dedicated division in charge of the environment?



- 1 There is an environmental management division for each workplace.
- 2 There is no environmental management division for each workplace, but we have appointed a person in charge of environmental management.
- 3 There is no environmental management division or a person in charge of environmental management.

Climate Change Risk Management

Analyzing the financial risks associated with climate change

Analysis of climate change risks is performed in compliance with legal requirements. However, we are not exposed to climate change risks with the potential to cause an actual change to sales or expenditures of the business operation. -> We will be playing a pivotal role in the pursuit of Carbon Neutrality by reducing GHG through the development of hydrogen fuel cells as a company for manufacturing green energy facilities that use original fuel cell technology for buildings and power plants.

Analyzing the financial opportunities related to climate change

Because we are planning to develop Carbon Capture and Utilization(CCU) technology and highly efficient products to align our business goals with the Carbon Neutrality policies, the risks are in fact recognized as climate change opportunities in terms of business operation, sales, or expenditures.

Analyzing the impacts of climate change

- Cases of reducing unit costs to reduce GHG in 2021
 - 1) Reducing the power amount of Cell4 Seal Cure
 - 2) Reducing the power amount during the addition test according to the Cell4 S/W update
- Total annual CO₂ reduction expected: 256(metric tons CO₂e)
- Total annual costs reduction expected: KRW 5,315,421
- Responsible divisions undertake efforts such as the direct modification of programs, and therefore there are no annual investment costs to reduce unit costs in terms of CO₂ reduction.

Climate Change



GHG Emission Status

Doosan Fuel Cell manages GHG emissions according to country-specific management policies and discloses the relevant information transparently. The status of GHG emissions is verified and disclosed through the 2022 Sustainability Report.

Category		2020	2021
Scope 1(Direct emissions)	Emissions tCO ₂ -eq	788	948
Scope 2(Indirect emissions)	Emissions tCO ₂ -eq	2,626	2617
Total emissions of the reporting organization (Scope 1+2)	Emissions tCO ₂ -eq	3,414	3,565
Total emissions of the reporting organization (Scope 1+2)	Basic unit tCO ₂ -eq / KRW 100 million	22.609	28.294

Setting GHG Reduction Goals

Doosan Fuel Cell has been making efforts throughout the year to reduce GHG emissions. In 2021, we set the goals for scope 1 and scope 2 to 780 tCO₂e and 2,600 tCO₂e, respectively. As Doosan Fuel Cell is a new company that is less than 3 years old, it was difficult to achieve our scope 1 goal perfectly due to the expansion of plant facilities. However, we managed to achieve our scope 2 goal by almost 100%, recording a discharge volume of 2,617 tCO₂e in 2021.

Setting Energy Reduction Goals

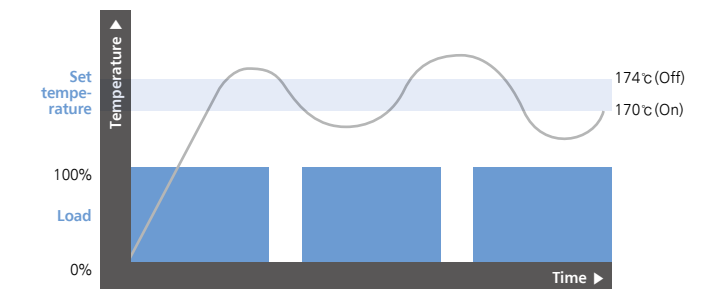
Doosan Fuel Cell has been making continuous efforts to reduce energy use. The goals for total use of non-renewable energy in 2021 was set to 12,000 MWh. As Doosan Fuel Cell is a new company less than 3 years old, generation in 2021 increased compared to 2020 due to an expansion of plant facilities. However, the total use in 2021 was 12,391 MWh, which is close to 100% of our goal. From a long-term perspective, we will focus on activities to expand use of renewable energy and reduce our use of non-renewable energy.

Energy Reduction Activities

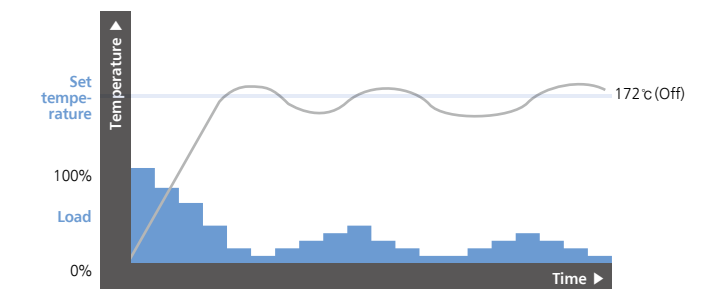
Reduction in utility power

We expect about 10% reduction effects by improving the controlling of test facilities and increasing power efficiency. Further, we plan to reduce power consumption by focusing on utility facilities that are always in use, regardless of production status.

Steam Boiler On/Off Control



Steam Boiler SCR* Control



* Improving power efficiency through PID control using SCR elements

Improvement of the SCADA system

Doosan Fuel cell will strengthen the stability of power usage by improving the SCADA program, and install additional automated electricity meters on individual facilities to analyze data in detail and identify the locations with potential for reduction.

Practicing Remote Office

Doosan Fuel Cell has been operating a pilot remote office system since November 2021 and recently expanded the system in line with the COVID-19 social distancing policy. The remote office system involves working from the closest working space instead of the main office and the purpose of this system is as follows.

Reducing stress and improving work satisfaction by reducing the energy consumption and burden associated with commuting

Improving the individual's level of focus at work and strengthening the ability to perform self-directed work

Providing flexible time and utilizing self-development by reducing the commuting time besides working hours

The remote office system is utilized at the team manager's discretion considering the work circumstances and characteristics of each division. We inform employees on how to use each remote office and encourage them to use it actively. As the system is in the initial phase, we will complement any areas in need of improvement and work hard to invigorate the new system and culture.

Remote Office Status and Method of Application

Category	Locations	How to apply for use
Doosan Tower, Dongdaemun	24F, 30F	System booking → Attendance → Request by e-mail
Doosan Tower, Bundang	South Building, 4F	System booking → Attendance
Doosan Leadership Institute	Annex Building, 3F, 5F	Request by e-mail → Attendance
All FastFive branches	G Valley Biz Plaza, 12F & others	Request by e-mail → Attendance → Issue Mobile Pass



Internal Carbon Prices

Application of internal carbon prices

Doosan Fuel Cell is not subject to the Target Management System for GHG and Emission Trading Scheme, but we encourage employees to perform energy-saving activities by setting the internal carbon prices and using it for economic evaluation and an internal reward system to check GHG emissions and promote energy-saving.

Comparison of economic feasibility by fuel type

Doosan Fuel Cell created its own GHG calculator and fuel comparison chart to predict the amount of reduction when establishing a GHG reduction plan and to compare the economic feasibility of each fuel in terms of GHG reductions when improving facilities and changing fuel.

Reflection of individual performance in the area of GHG reduction

We added evaluation of the GHG reduction performance to the cost reduction reward system to encourage employees to carry out active energy reduction activities.

Calculation of annual GHG reduction effects

We disclose the total reduction costs incurred as the result of the annual GHG reduction activities in terms of the internal carbon price to increase awareness and encourage participation in various energy-saving activities.

Eco-friendly Business Places



Water Management

Doosan Fuel Cell minimizes waste generation by managing the water supply used in each process, reducing the generation of wastewater, and reusing wastewater through the purification system. We are also developing detailed plans and establishing a water usage management system for additional reduction in water usage and wastewater generation and to facilitate an increase in the recycling ratio of wastewater generated from each process. The wastewater generated is treated through a subcontracted wastewater treatment company and a wastewater treatment plant. The wastewater treatment company is selected based on transparent and fair internal standards, and relevant criteria such as licenses and on-site treatment facilities are checked to see if the company can treat wastewater based on the standards stipulated by the law. As Doosan Fuel Cell is a new company that is less than 3 years old, wastewater generation in 2021 increased compared to 2020 due to the expansion of plant facilities. Total water use in 2021 was 30,062 tons, accounting for about 98% of the water use goal(30,000 tons) for 2021.

Waste Management

Doosan Fuel Cell controls the waste generated in each process and selects recyclable waste to minimize the type of waste incinerated or reclaimed. In addition, we classify and store the generated waste by type to manage and handle the waste according to the related laws, and carry out activities to reduce and recycle waste. A subcontracted waste treatment company is selected based on transparent and fair internal standards, and relevant matters such as licenses and on-site treatment facilities are checked to see if the company can treat waste in accordance with the standards stipulated by the law. The details of waste generation and treatment are precisely managed through the 'Allbaro System,' the government's waste management system. As Doosan Fuel Cell was established in October 2019, emissions in 2021 increased compared to 2020 due to an expansion of plant facilities. However, the total amount of waste emitted in 2021 was 236 tons, down 9% from our target of 260 tons. In terms of hazardous waste, 1.15 tons of hazardous waste were generated in total, exceeding our target of zero tons due to a change in our waste disposal method. Through waste reduction activities and changes in treatment methods, we will continue to strive to discharge no hazardous waste.

Waste

Total waste treated	Unit	2020	2021
Total waste recycled/reused	ton	204.64	105.79
Total waste disposed	ton	221.90	237
Waste reclaimed	ton	166.90	212.39
Waste incinerated with energy recovery	ton	0	0
Waste incinerated without energy recovery	ton	55	23.34
Stored on site	ton	0	0
Waste with no record of the disposal method	ton	0	0
Scope of data	%	100	100
Total waste generated in KWR unit	ton/facility	2.825	2.71

Hazardous Waste

Total waste treated	Unit	2020	2021
Total hazardous waste recycled/reused	ton	19.25	4.34
Total hazardous waste disposed	ton	0	1.15
Hazardous waste reclaimed	ton	0	0
Hazardous waste incinerated with energy recovery	ton	0	0
Hazardous waste incinerated without energy recovery	ton	0	0.3
Stored on site	ton	0	0.85
Hazardous waste with no record of disposal method	ton	0	0
Scope of data(%)	%	100	100

Management of Hazardous Substances Status

Doosan Fuel Cell ensures safe handling of chemical substances, regardless of the amount, through lawful and transparent processes from purchase to disposal to prevent health hazards to employees and environmental pollution accidents related to hazardous chemical substances. Before purchasing a new chemical substance, we review if the substance is subject to regulations in terms of EHS through the preliminary EHS impact assessment according to REACH and California Proposition 65. We also continuously study whether the substance can be eliminated or changed. If the use of a hazardous substance is unavoidable, we prepare to meet all legal requirements and invest in facilities(local ventilator, sealing, personal protective gear, etc.) to protect the workers' health.

Reinforcement of Response to Chemical Substance Regulations and Reduction Activities

Doosan Fuel Cell strives to minimize the negative impacts of chemical substances on our customers and employees' health. "DEACON", which is used as a sealant for the high-temperature pipe joints of fuel cells, uses "Aluminosilicate," a high-risk substance selected by REACH. Accordingly, we discontinued using the sealant(DEACON) inside the product and changed the welding type to connect the pipe joints with the hose after a design review and thereby eliminated high risk substances.

Information on Chemical Substances

Risk factor

- GHS classification: Carcinogenicity, 1A, Skin irritation 2, Eye irritation, 2B
- GHS label element:
- Signal word: Alert

Composition/composition information

Substance	CAS No.	Weight(%)
Aluminosilicate	142844-00-6	1-20
Crystalline Silica	None	<15
Modified Natural Resins	Proprietary	50-75
Non Hazardous Ingredients		20-50

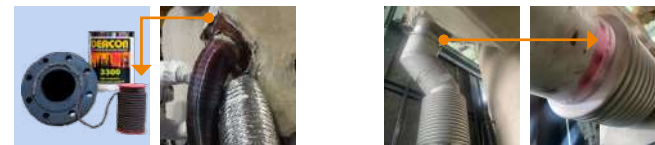
Carcinogenic substance

REACH Classification

- Candidate List of SVHC for authorization(A group of 44 substances)

Substance name	CAS No.	Reason for inclusion
Refractories, fibers, aluminosilicate	142844-00-6	Carcinogenic(Article 57a)

Before/after change



As-Is(Application of Deacon)

To-be(Welding)

Green Products

Development of Green Products

Green Energy business

PAFC fuel cells made by Doosan Fuel Cell have significantly lower gas emissions and noise compared to the conventional fuel cells, and enable non-polluting power generation when hydrogen is used.

CCS-linked PAFC system

Fuel Cell is an eco-friendly power generation technology for producing electricity through the chemical reaction between hydrogen and oxygen. It is possible to eliminate CO₂ emissions when hydrogen is used as fuel for PAFC but if hydrogen is used by modifying hydrocarbon fuels(natural gas, LPG, etc.), a small amount of CO₂ occurs during the combustion process to supply heat for the modification of hydrogen. For CO₂ capture technologies to reduce CO₂, we apply wet/dry/separator CO₂ capture technology at a 10MW level for coal thermal power generation and industrial processes. In Korea, there is no precedent for developing a technology that combines fuel cells with CCS. Doosan Fuel Cell is designing a CCS-linked PAFC system and developing optimal technology to capture CO₂ discharged through exhaust gas*. We are currently developing technologies to reduce PAFC CO₂ emissions by more than 70% through the configuration and control of the CO₂ concentration system, optimized design of exhaust gas heat recovery, and integrated management of multi PAFC system gas.

* Unnecessary gas discharged from the combustion engine, etc.(A large amount of vapor, combustion products, excess fuel, soot, dust, etc.)

Blower filter design

1MW of fuel cells requires a supply of air that can sustain about 10,000 adults. Our fuel cells are composed of multiple BOPs(Balance of Plant) that supply air. When designing a blower for dual air circulation, we apply a high-performance filter to filter out fine particles, ultrafine particles, and impurities to supply clean air into the cell. This can reduce the entry of fine particles as the fuel cell expands.

Product Design Standards

Doosan Fuel Cell considers green attributes throughout the process from the product design stage to change or improve design standards. For instance, Doosan Fuel Cell was using DEACON as a sealant(sealing paste) on the FPS pipe joint. Because this product contains a carcinogenic substance, Doosan Fuel Cell changed the design to M400+ for welding to prevent leaks and reduced the use of DEACON. As a result, Doosan Fuel Cell has been able to supply PAFC products with better green attributes than before.

Evaluation of the Whole Process

Doosan Fuel Cell performs activities to collect data and study the environmental impacts occurring in the whole process, from the production stage to the use and disposal stages. We analyze the environmental impacts for each process, aiming to remove hazardous chemical substances from all products manufactured by Doosan Fuel Cell in the product development process, reduce energy in the production process, and secure green attributes in the use stage. We are reviewing the list of hazardous chemical substances present in our products and establishing the GHG inventory.

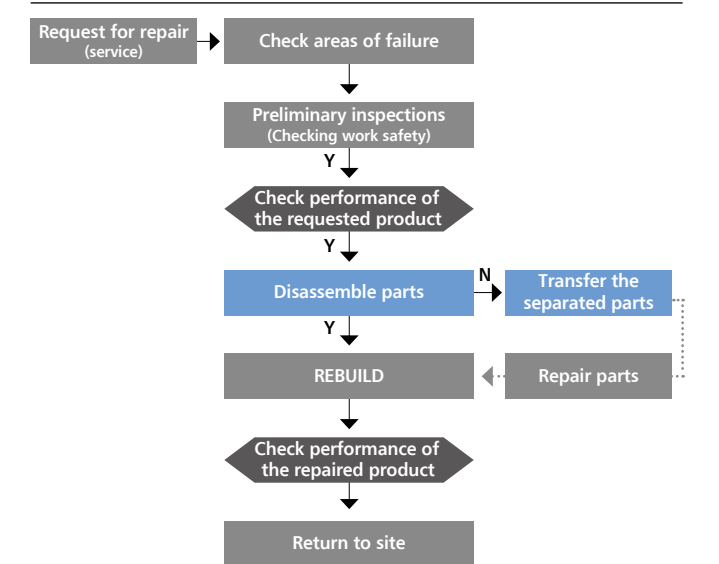
Responsibility for end-of-life products

Recycling after CSA repair

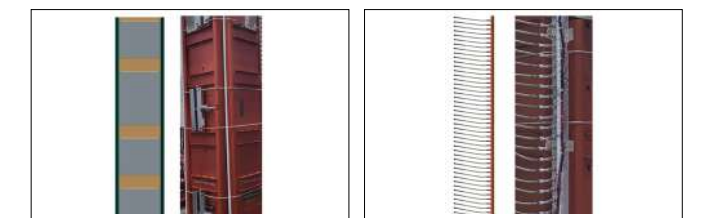
Doosan Fuel Cell conducted parts recycling in accordance with refurbished CSA manufacturing and repaired 69 CSAs in 2021. We plan to further identify parts that can be recycled and continue to make stronger efforts towards recycling.

CSA repair process

CSAs are returned to the site after repairs according to the following process. We try to recycle CSAs that cannot be used due to quality issues rather than discarding them.



When consumable parts such as RM(Reactant Manifolds) and CM (Coolant Manifolds) are damaged, they are replaced and reused.

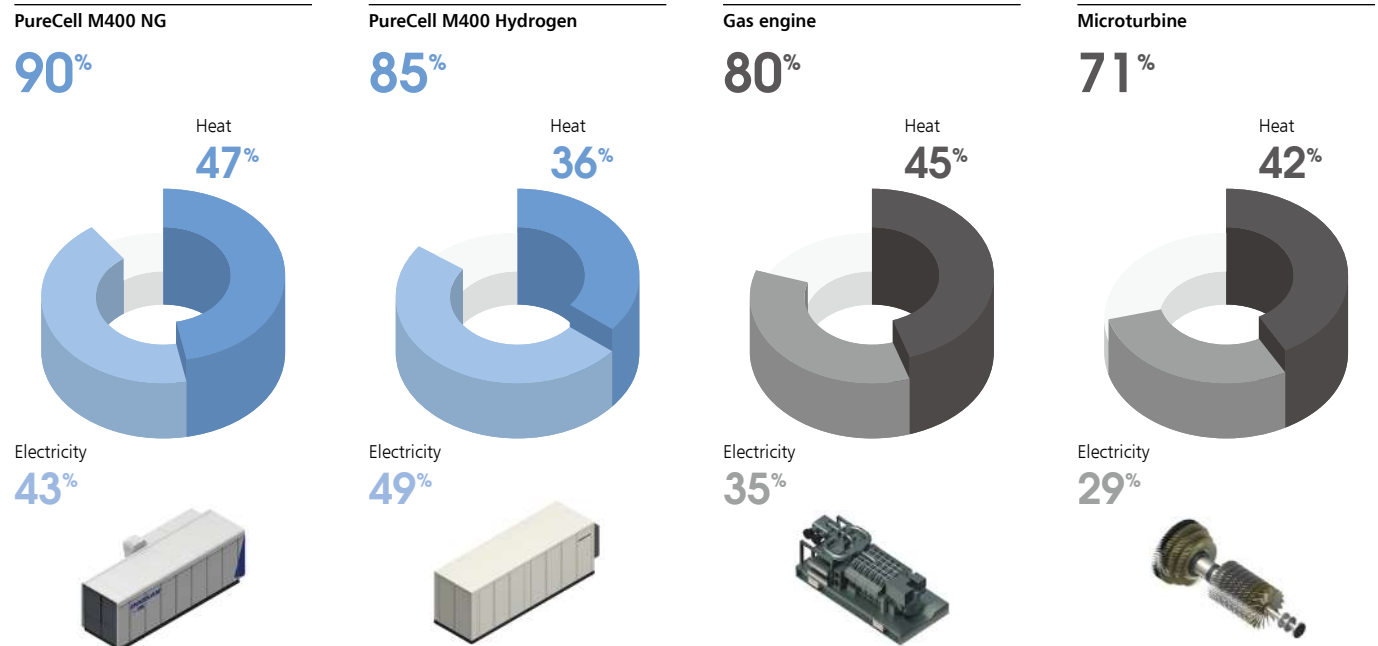
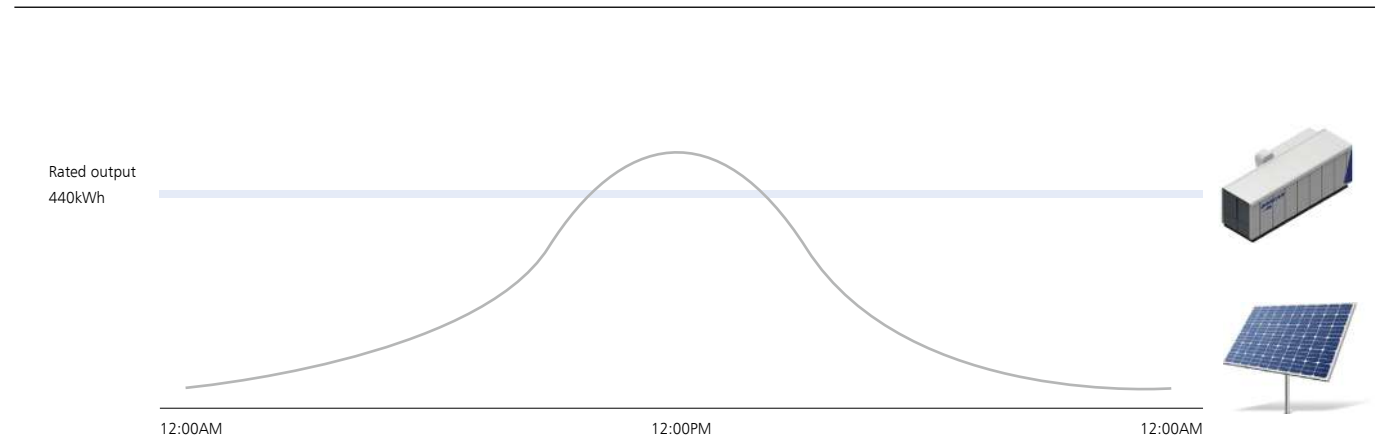


After replacing RM

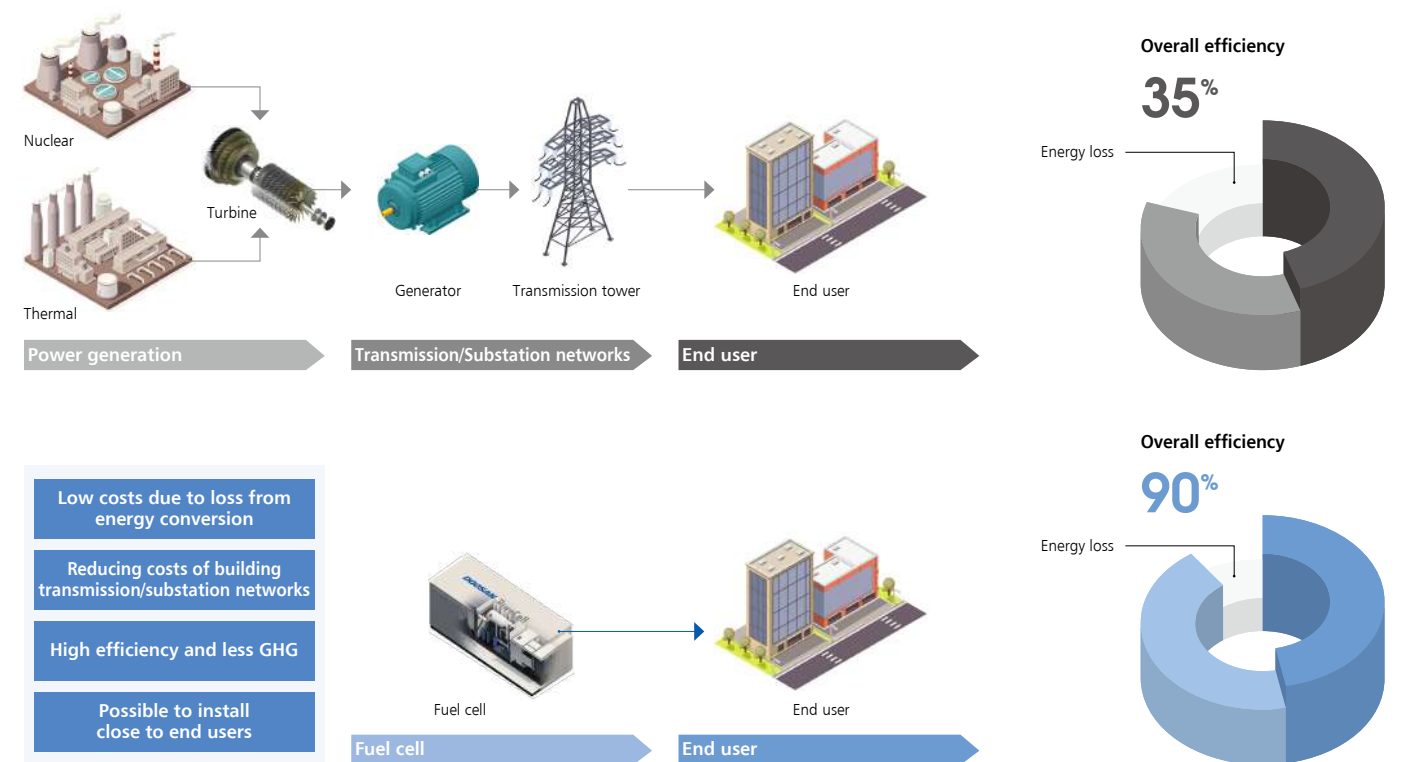
After replacing CM

Environmental Efficiency in the Use Stage

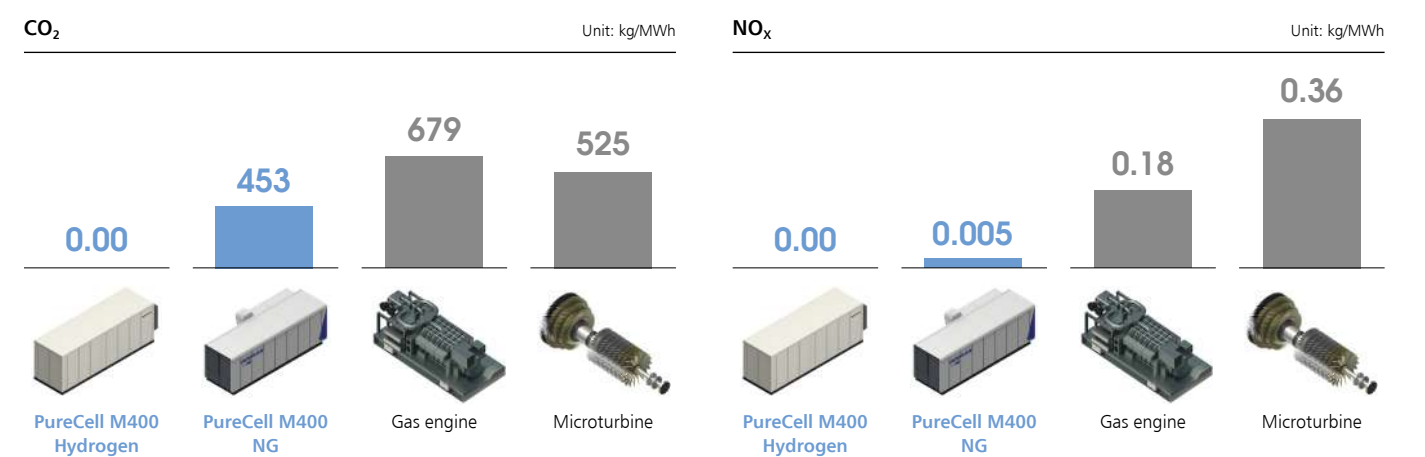
Doosan Fuel Cell performed an analysis of the changes and values that fuel cells can bring in the present and near future. We calculated the economic, social, and environmental value of fuel cells and we would like to share the results with our stakeholders. In terms of economy, fuel cells are power sources with high efficiency and high density. As fuel cells involve direct conversion of chemical energy into electricity, they can reduce power loss and achieve high efficiency compared to conventional power sources based on fossil fuels. In addition, they require a smaller area compared to other new renewable energy sources and can be operated stably without environmental restrictions.



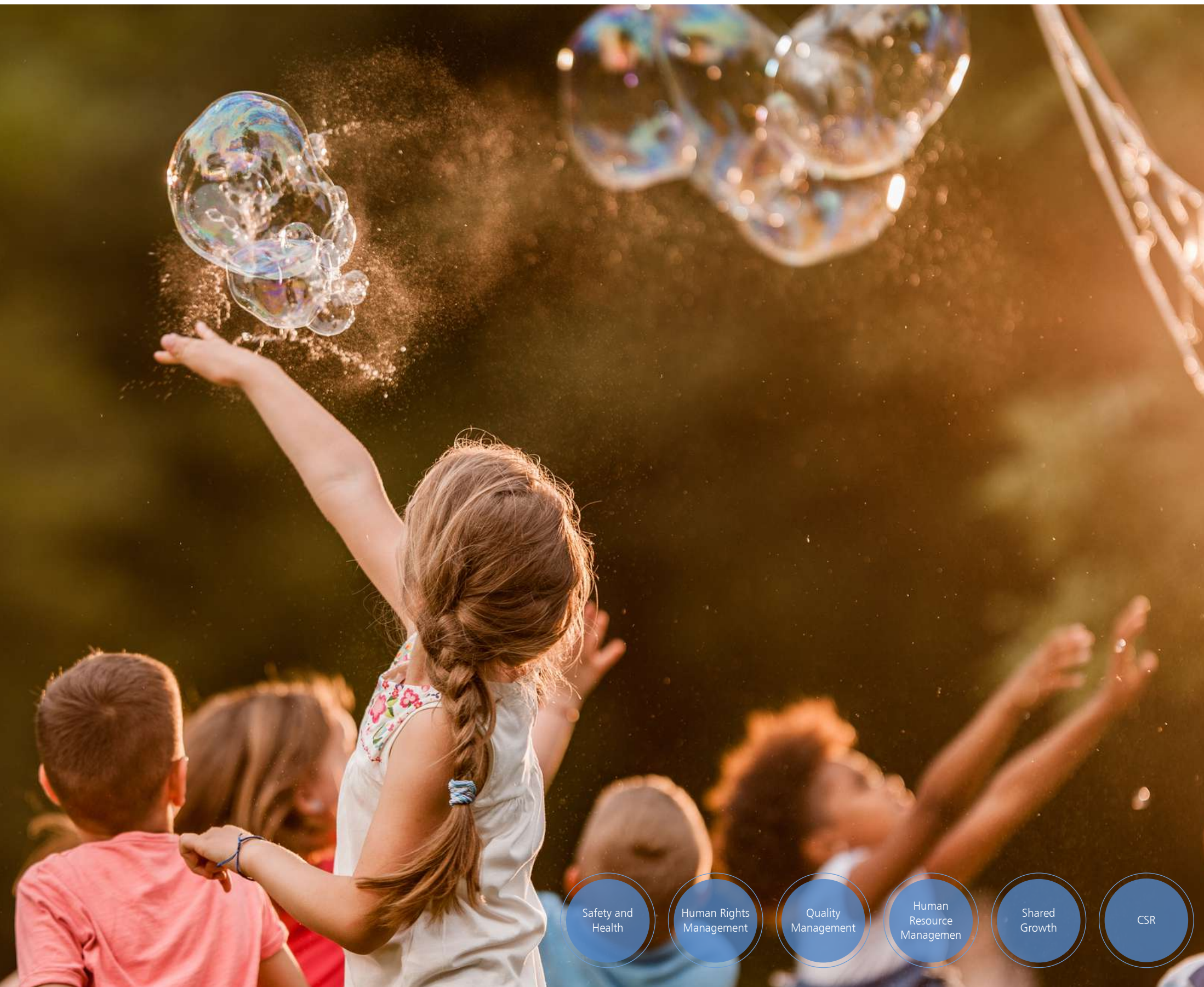
From a social perspective, fuel cells can facilitate the expansion of employment and investment in infrastructures in various industries across the value chain, such as production, storage, transportation, and use of hydrogen to promote the transition to a hydrogen economy. Furthermore, fuel cells are suitable for distributed power generation. Fuel cells are highly efficient, green energy sources that can be installed close to the end user to supply electricity and heat. They involve less power loss compared to the conventional energy sources in the power transmission and substation process. They can also contribute to the development of the community by reducing social costs from installing transmission and substation facilities.



In terms of economy, fuel cells contribute to environmental improvement as green energy sources with almost no emission of pollutants such as GHG, fine particulates, nitrogen oxides, and sulfur oxides. Fuel cells do not generate nitrogen oxides since they do not involve the combustion process, and sulfide compounds are eliminated inside the device. They can reduce CO₂ emissions based on high power generation efficiency and do not require separate kinetic energy, avoiding damage from noise and dust. We will develop technology combining CCS(Carbon Capture and Storage) with PAFC to lead the blue hydrogen market. When the production of green hydrogen is generalized in the future, hydrogen model fuel cells developed by Doosan Fuel Cell will be used as zero emission energy facilities that do not emit pollutants.



Social



Major Outcomes in 2021(Social report coverage:100%)

Size of shared growth fund

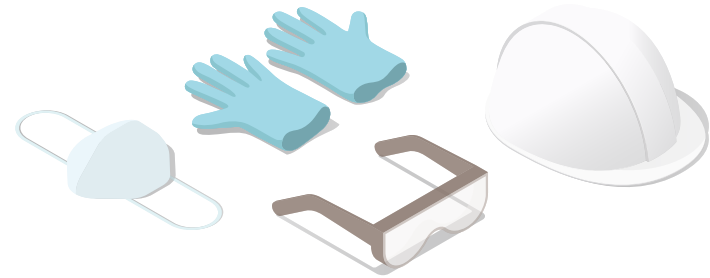
KRW **15.1** billion

Amount of CSR expenditure

KRW **1,076** million



Safety and Health



Health and Safety Management Goals



Safety and Health Management Strategy

- Establishing a safety and health management system based on measures such as the appointment of a CHSO and organization/restructuring of professional organizations
- Reinforcement of EHS leadership activities led by the management and the operation of communication channels related to field safety and health
- Enhancing employees' competencies and preparing detailed standards with the introduction of a PSM(Process Safety Management) system
- Continuously operating the risk evaluation systems(JSA, 4M, etc.) before starting work
- Operating a reward system(reward, MBO, etc.) to manage near-miss accidents and identify potential risks
- Establishing and advancing the safety and health management system through acquisition of certification based on international standards

Safety and Health Checklist

Sample question 1.

Is a safety and environmental policy that reflects the CEO's opinions established and shared?



- 1 A safety & environmental policy has been established and disclosed to internal and external stakeholder through various methods.
- 2 A safety & environmental policy has been established but not sufficiently disclosed to internal and external stakeholders.
- 3 A safety & environmental policy has not been established.

Sample question 2.

Is there a dedicated division in charge of safety and health?



- 1 We have established a dedicated safety and health management division for each workplace.
- 2 We do not have a dedicated safety and health management division for each workplace, but we have appointed a person in charge of environmental management.
- 3 We do not have a safety and health management division or a person in charge of safety and health management.

Safety and Health Management Activities

Doosan Fuel Cell puts the safety and health of employees as its top priority and conducts management activities based on respect for humanity. Since 2021, we have been conducting a safety and health risk evaluation and recording the results to the risk register. We promote activities to improve hazardous risk factors by performing deliberations, deciding, and carrying out discussions on hazardous risk factors through the consultative group for Doosan Fuel Cell's plants and contract business.

Safety and health leadership activities

Doosan Fuel Cell's management has demonstrated a strong will for safety and health and performs safety and health activities based on initiative and an exemplary attitude. We carry out various safety and health leadership activities such as safety and health inspections, meetings of the consultative group, and discussions. Based on these activities, we effectively enhance safety awareness among all employees and contribute to the prevention of safety accidents and the continuous growth of the workplace.



Establishment of a safety and health organization and goals

Doosan Fuel Cell sets and fulfills the safety and health goals of the company and workplaces based on its EHS policy. To prevent safety accidents and achieve the safety and health goals of the organization effectively, we have installed and continue to operate a safety and health division. We also appoint management supervisors and safety and health managers for each site for effective operations.



Observance of safety and health principles and guidelines for accident prevention

Doosan Fuel Cell has established and follows regulations related to safety, health, and the environment to prevent disasters and serious occupational accidents. We also identify and evaluate risk factors at workplaces through the risk evaluation activities to clarify risks and establish effective measures. Education and inspections are carried out to prevent accidents.



Management of potential safety and health risks

All employees of Doosan Fuel Cell actively strive to identify and improve potential EHS risk factors in the field, and a regular reward system is applied to increase engagement and implementation capabilities among employees. We have established a guideline to manage near-miss accident cases that do not cause human and material damage to ensure field safety.



Safety management of outsourced projects and establishment of cooperative relationships

Doosan Fuel Cell enacts management regulations to prevent accidents occurring at workplaces related to outsourced projects, and has established a systematic safety management process for internal construction and maintenance service sites to prevent safety-related accidents. In addition, we operate a consultative group with suppliers periodically to communicate and solve necessary issues.



Response to emergencies

Doosan Fuel Cell has prepared a quick response system against emergencies to protect the lives and assets of employees, suppliers, and residents of the neighborhood. To minimize damage from accidents that may occur from process errors or natural disasters, we establish response and evacuation procedures for training and maintain a close response relationship with our stakeholders.



Promotion of employee health

Doosan Fuel Cell carries out periodic and systemic medical checkups to promote employees' health and prevent occupational diseases. In particular, we provide continuous health counseling and follow-up management for employees with medical diagnoses. We make active efforts to ensure employees' health through various health improvement activities.



Human Rights Management

Human Rights Policy

Doosan Fuel Cell respects the human rights of all stakeholders with which it engages in business activities, and encourages third parties such as suppliers to maintain the same level of human rights management. Doosan Fuel Cell has established and implemented a human rights management system to prevent the violation of human rights that may occur in the business process as below. We follow regulations with the utmost effort in case of human rights violations and we promise to grow with society through continuous improvement activities. Since 2021, we have been performing activities to improve risk factors related to human rights, such as the expansion of human rights education, improvement of the grievance handling processes, and establishment of a risk mitigation plan. We disclose the company's human rights policies on our website.

Non-discrimination in employment and guarantee of the freedom of collective bargaining

We do not engage in unjust discrimination based on gender, religion, disability, age, social status, place of origin and so on in providing employment. We also guarantee equal wages for workers and the freedom of association and collective bargaining. We ensure that no employee suffers disadvantages on account of union activities.

Prohibition of forced labor and child labor

Doosan Fuel Cell disapproves any forced labor and human trafficking that may occur in business activities, and complies with the national minimum employment age. We follow the minimum employment age set by the laws of each country where we operate. If we find out that a minor is hired, we will take immediate relief measures and do our utmost to prevent wrongful labor practices.

Guarantee of occupational safety and responsible management of the supply network

We maintain the safety of the working environment and follow the laws and standards related to the environment, health, and safety applicable to workplaces. We implement separate safety and health measures for pregnant women, the disabled, and other vulnerable classes of workers. We will establish and continuously inspect policies and guidelines for managing CSR risks along the supply chain, and monitor the compliance status of all business partners. In addition, we will discontinue transactions with partners that fail to correct serious violations of human rights.

Protection of the human rights and environmental rights of local residents

We respect the right to life, freedom of residential mobility, personal safety rights, and property rights of the residents of countries in which we conduct business. In addition, we pursue a preventive approach to environmental issues and will establish and implement plans to prevent, mitigate, and control serious environmental damages and disasters.

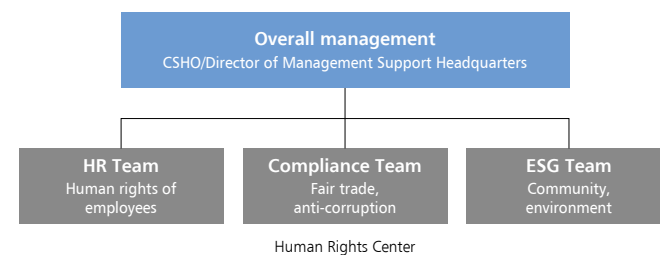
Protection of Customers' Human Rights

We pay close attention to the design, manufacturing, and labeling of products according to legal standards to prevent any damage to the life, health, and safety of customers due to defective products. In case of damage, we notify customers of the risk and execute prompt product recalls. In addition, we respect customers' privacy and take necessary measures to ensure the security of personal information collected by the company. Doosan Fuel Cell operates a Cyber Report Center on its website to prevent violations of human rights that may occur in the business process, and handles any case quickly and fairly by protecting the reporter's interests through maintaining confidentiality. We will take the lead in the support and observance of human rights principles to become a proud global Doosan.

Human Rights Management Organization

Doosan Fuel Cell operates the Human Rights Center to actively perform human rights management and reinforce the human rights risk management system. The Human Rights Center is an organization comprised of the CSHO/Director of Management Support Headquarters and the Internal Human Rights Management Division. The Center plans and operates human rights management activities at a company level and executes the human rights impact assessment process. In case of a human rights issue, the Human Rights Center takes quick action according to the internal grievance handling process and the principle of confidentiality and reporter protection.

Human Rights Management Organization



Human Rights Education

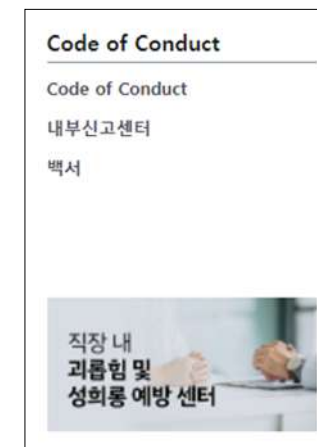
Doosan Fuel Cell conducts human rights education more than once a year for all employees to establish a culture of respect for the human rights of its members and increase awareness regarding human rights management. Human rights education includes modules related to the prevention of sexual harassment, workplace bullying, and education to improve disability awareness. We also plan to minimize the risk of human rights violations by conducting education on the roles and attitudes leaders must take on to spread the culture of respect for human rights. We will also use the education programs to illustrate specific cases that can be interpreted as a violation of human rights.

Human Rights Issue Reporting Channel

Doosan Fuel Cell operates the Cyber Report Center on its website for all stakeholders, including employees, to report any violation of human rights and other unethical actions. The reporting can be made in secret according to the principle of confidentiality and the details of the report are strictly protected and handled quickly and fairly according to internal procedures. In case of human rights issues involving employees, the victim or witness can report the matter through the Internal Report Center, Workplace Bullying and Sexual Harassment Prevention Center, or the Human Rights Center.

Employee Human Rights Issue Receipt Channel

- 1 Internal Report Center
- 2 Workplace Bullying and Sexual Harassment Prevention Center
- 3 Human Rights Center



Doosan portal for employees

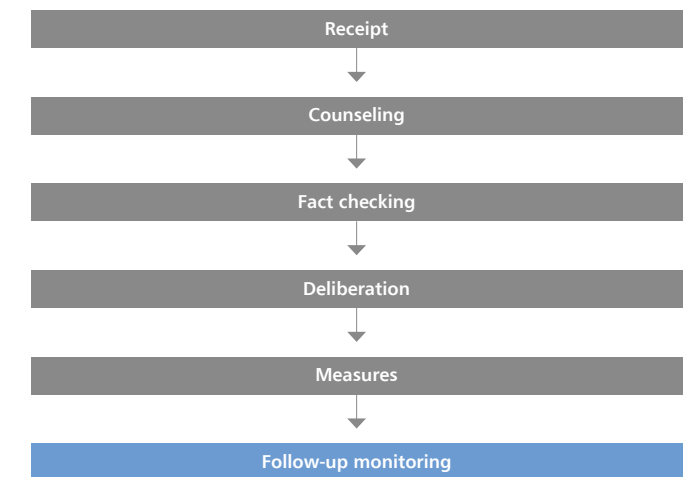


PR poster of the Workplace Bullying and Sexual Harassment Prevention Center

Process for Handling Human Rights Grievances

Doosan Fuel Cell operates a grievance handling system and relief system to help employees who have had a negative experience regarding human rights. All processes are handled according to the three principles of grievance handling, including the protection of anonymity, prevention of disadvantages, and feedback.

Handling Process



Grievances Related to Human Rights

Category	Unit	2019	2020	2021
Report of grievance handling	No. of cases	6	4	4
No. of cases handled	No. of cases	6	4	4
Handling rate	%	100	100	100

Assessment of Human Rights Impacts

Doosan Fuel Cell conducts human rights impact assessments and human rights inspections to investigate negative impacts and key vulnerable areas regarding human rights issues. A total 75% of employees participated in the human rights assessment conducted in early 2022, and no serious human rights issues were found in the assessment. However, we confirmed that the positive perception of members is relatively low regarding the establishment of the human rights management system, guarantee of environmental rights, and respect and communication, and we therefore selected these areas for improvement. We will check if there is a potential risk of human rights violations in the areas with low positive perception and prepare mid and long-term measures through cooperation between responsible divisions.

Human Rights Assessment Items

Assessment items were set by reflecting the human rights guideline of the National Human Rights Commission of Korea and the business characteristics of the company.

- New business relations in the value chain
- Establishment of a human rights management system
- Guarantee of freedom of association/collective bargaining
- Prohibition of child labor
- Responsible management of the supply chain
- Guarantee of environmental rights
- Non-discrimination in employment
- Prohibition of forced labor
- Guarantee of occupational safety
- Protection of customers' human rights
- Respect and communication

Plan for the Mitigation of Human Rights Risks

Respect for human rights

Doosan Fuel Cell respects the human rights of comprehensive stakeholders, including employees and suppliers, based on our human rights policy declared in 2021. We do not accept improper language or behavior, such as verbal abuse, violence, and sexual harassment, that violate the Inhwa philosophy internally or with suppliers. Any related issue can be reported through the Human Rights Center helpline or the Internal Report Center. When there is a case of human rights violation, we take prompt measures according to the handling process and manuals. We conduct continuous education to prevent recurrence and enhance human rights awareness among business owners, managers, and members.

Plan for the mitigation of human rights risks

Doosan Fuel Cell has established and continues to operate the Human Rights Center to enhance employees' awareness and respect for human rights. In September 2021, we developed the Human Rights Policy Declaration based on the government guidelines and declared it internally and externally through the labor and management agreement. In March 2022, we conducted a human rights assessment comprised of 25 questions in 10 areas based on the human rights management checklist of the National Human Rights Commission of Korea. We performed focus group interviews with employees as part of a human rights inspection to check major human rights risks identified through the results of the human rights evaluation and to establish a mitigation plan.

Based on the human rights assessment and inspection, we determined the level of awareness of members and identified potential risks prior to issue occurrence. We also established an action plan for preemptive prevention and a human rights risk mitigation plan for all workplaces. We will select the establishment and operation of a human rights risk management system as an 'ESG strategic task' and implement it at a company-wide level to fulfill responsibilities related to human rights and build a sound corporate culture. We established the mitigation plan and relief plan for the lower assessment category based on the human rights assessment. We will select and monitor the plans as a ESG strategic task at a company-wide level and identify additional items requiring management to strengthen our human rights management.

Establishment of the human rights management system and enhancement of stakeholder perception level

The company will make sure that internal and external stakeholders understand and check the company's direction of human rights management by communicating actively with employees and external shareholders about its plans and execution results to establish human rights policies and reinforce human rights management.

Promotion of respect and communication

Doosan Fuel Cell will plan and conduct regular/non-regular human rights education to enhance online education related to topics such as prevention of sexual harassment, improvement of disability awareness, and prevention of workplace bullying, and expand the engagement and understanding of employees. We will prepare and publish a manual containing the handling process and measures to enable employees seek quick and appropriate remedy according to the manual in case of human rights violations or grievances. We will also increase the accessibility of the Human rights Center and Internal Report Center to enable employees to use them securely, and reinforce communication channels for prevention.

Quality Management

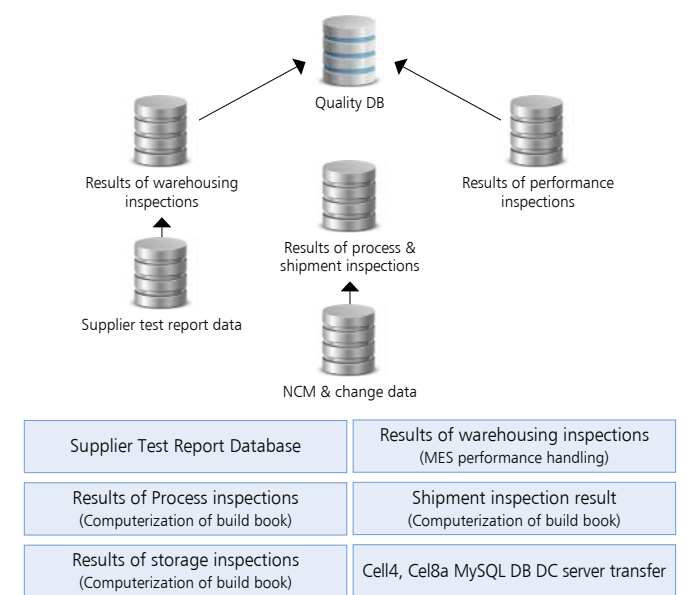
Quality Policy

All employees of Doosan Fuel Cell constantly work hard to provide a 'clean and stable optimized hydrogen energy solution' and achieve goals such as designs that meet international standards, acquisition of certifications in each field, passing periodic safety inspections, achieving highly efficient power generation, and manufacturing of products with high reliability. Fuel cells have the strictest quality standards in all industry sectors as they were first applied in aerospace engineering, and Doosan Fuel Cell has been leading the fuel cell market based on stability and quality for decades - beginning with UTC in the United States. In addition, we follow the quality process strictly, upholding the values of 'customer value creation,' 'high efficiency and low cost,' and 'promotion of sustainable growth.'

Quality Management Promotion System

We standardized all work and tasks based on the quality manual that reflects customer requests in product design, production, and service. We operate the Spec Center to browse and use the latest copy of the manuals. In addition, we established the manufacturing/operation system based on MES(Manufacturing Execution System) and built an integrated quality database based on real-time process management encompassing manufacturing and production result/defect checks, plant inventory checks, supplier test reports, and shipment inspections.

Establishment of an Integrated Quality DB

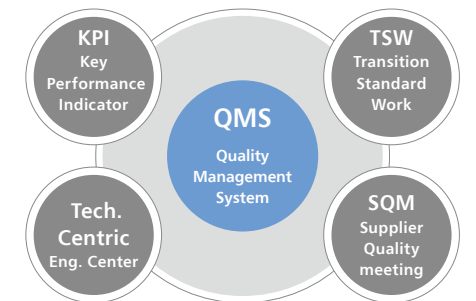


Quality Management System

Doosan Fuel Cell has established a quality management system based on international standards, such as ISO 9001 and FC-1 certifications. Main indicators are selected as KPIs (Key Performance Indicators) and monitored on a monthly basis to promote quality improvement. When there is a change in the main 5M+1E (Man, Machine, Material, Method, Measure, Environment), we ensure traceability by recording the quality verification and change application points of the change impact through a TSW (Transition Standard Work) meeting. We also operate a periodic quality consultative group with main suppliers to pursue quality competitiveness in cooperation.

Plan for Strengthening the Quality Management System

Doosan Fuel Cell launched the Engineering Center within the Operation Headquarters in 2021 and reorganized the roles of the Quality Team, Product Technology Team, and Process Technology Team. We newly established an organization that can manage the quality issues of the entire process, from suppliers to product shipment, in a professional and systematic manner. We are reinforcing the design change competencies of manufacturing engineers through R&D dispatch and we plan to secure a prompt quality system by reducing the lead time for design changes.



Expansion of the Quality Management System

Doosan Fuel Cell performs continuous quality management based on quality management system certifications such as ISO 9001, KGS design inspection, and KS. We applied for certification based on the early inspection of fuel cell generation facilities and registration of manufacturing facilities to establish a quality management system that conforms with the Electrical Safety Management Act enacted in 2021 and obtained related certification in a first for a domestic fuel cell company.



Human Resource Management

Recruitment

Doosan Fuel Cell hires human resources with knowledge and talent based on the Doosan 'Credo,' which stipulates the management philosophy and business methods of Doosan. We invest a lot of time and effort in developing a system for fair employment, and we use Doosan's unique interview tools to hire talents who are a good fit for Doosan.

New employees

We hire new employees through first half/second half recruitment and internship programs for employment. Further, we evaluate applicants' abilities and personalities fairly and objectively through aptitude tests, first stage interviews, and second stage interviews(interviews with senior management).

Experienced personnel

We hire experts based on the annual human resources plan and strive to maintain professionalism and perform fair evaluations by selecting interviewers through the interviewer verification system.

Internal job postings

We continuously provide opportunities for the self-driven career development of employees, and offer internal job postings with the aim of filling positions internally to respond to employment needs for outstanding human resources. Employees can apply for positions within the company and other affiliates of the group through this system, and the application process will be carried out fairly and transparently based on the principle of confidentiality.

Doosan People

Doosan Fuel Cell has hired 500 people since 2017, promoted a win-win relationship with 2,600 employees of 200 suppliers to create local jobs, and improved the domestic production of hydrogen fuel cells. We will contribute to the creation of high-quality local jobs by expanding PAFC plants and establishing Korean SOFC manufacturing facilities; increasing overseas experts; and performing various national projects for the localization of technologies. In particular, once the expansion of PAFC plants is completed, the production capacity is expected to increase from 90MW to 275MW and bring out direct/indirect employment for 340 people, production of about KRW 231 billion, and added values of about KR 72.6 billion. We contribute to the creation of jobs for the youth by means such as field training programs in association with universities, training of human resources within the community, and invigoration of academic and industrial cooperation.



Cultivate people with a genuine interest.



Practice "Inhwa".



Take Limitless aspiration.



Open communication from top to bottom.



Achieve anything with a smart backbone.



Focus on solving important things.

Human Resources Training

Doosan Fuel Cell's talent strategy is based on '2G(Growth of People, Growth of Business).' Here, 2G indicates Doosan Fuel Cell's firm belief that people's growth is a driving force behind the growth of the company and the growth of the business is a virtuous cycle for providing opportunities to individuals and leading their growth again. We conduct a human resources management and training program called 'People Program' every year to achieve the 2G strategy. The People Program is a human resources management tool designed to align the business strategies with the HR system. It includes activities such as the evaluation of employees' ability and performance, establishment of a training plan, selection of key posts to promote main business strategies, arrangement of human resources, and establishment and inspection of a succession plan for the executives and key posts. For effective operation of the People Program and analysis of human resources status, we manage and analyze data quantitatively through the HRIS(Human Resource Information System). We use the results of data analysis in the overall management of human resources associated with the business.

Selection of Human Resources

Doosan Fuel Cell operates fair and transparent employment procedures to hire human resources based on the philosophy of Doosan People and characteristics of the business. We verify attributes and capabilities that meet our core values and evaluate expertise related to work through various screening methods such as surveys, aptitude tests, structured interviews, and expertise PTs.

Strategic Human Resources Analysis

Doosan Fuel Cell has been conducting research on the change in human resources and productivity per person over the past 3 years. Since 2019, the scale of human resources has increased with the growth of sales and the hydrogen industry. The productivity per person decreased slightly with the increasing number of field workers due to new fuel cell sites and the higher number of R&D workers related to the development of new businesses. Accordingly, we established the company's human resources operation plan to maintain the moderate level of sales and profits per person after 2022. We are enhancing business competitiveness by continuously securing human resources for new businesses. We aim to establish a strategic human resources plan by calculating the operating scale of company human resources in connection with the management goals and business strategies of the company and each sector. For this, we will perform an analysis of human resources. Doosan Fuel Cell plans to identify and review the status of company human resources through 'recruitment and employment process,' 'measurement of job change and resignation rate,' and 'identification of employees with a high likelihood of job change.' Based on this data, we will operate human resources effectively by controlling recruitment for the vacancies arising from new businesses.

We will continue to address insufficient competencies for creating new business performance through 'measurement of employee performance,' a 'strategic human resources plan,' 'identification of the competency gap of the current human resources,' and 'competition information.' We are establishing a plan to hire key human resources for growth areas including SOFC fuel cells, mobility, and vessels. The company management plan of Doosan Fuel Cell is to achieve 84% of the sales compared to 2021 in 2022. In this regard, we are establishing a plan for strategic human resources analysis and operation related to the business. We attempted to secure key human resources and expand order of PAFC fuel cells, which is the main business area, but the growth of sales and operating profit was slow compared to the previous year(2020) due to non-business political impacts, such as the revision of the Hydrogen Act.

Ability and Performance Diagnosis

Doosan Fuel Cell diagnoses the performance and ability of office employees every year based on detailed facts and results, and uses the resulting data to improve individual performance and ability.

Analysis of Ability and Performance

We evaluate individual performance and ability across 5 stages and arrange the evaluation results as a matrix to comprehensively analyze ability-performance levels. Once the evaluation is completed, the evaluator and subject of evaluation have a 1:1 feedback meeting to discuss long-term evaluation results and implications, in addition to the detailed methods and direction to improve the level of performance achievement. The results of individual evaluations are used for determining promotions, salary increases, and incentives.

Analysis of Job Capabilities

We identified and developed a set of job-related capabilities, including knowledge and skills required for each, job to secure competitiveness through training of experts. Further, we evaluate individuals' job expertise across 5 stages through the job capability analysis. The evaluation results are provided to individuals as feedback to reflect on individual training plans.

Leadership analysis

To train proactive and systematic leaders, we diagnose the leadership level required for senior roles objectively and scientifically using the External Assessment Center for Executives and Team Managers. Leadership diagnosis is designed to check senior managers' level of leadership performance through verified methods that are widely used by major global and Korean companies. It verifies the leader's capability, attributes, leadership potential, etc. through diagnostic tools such as simulation, interview, tendency test, and multiphasic diagnosis. The results of leadership diagnosis are used for selecting leaders and candidates from the People Session and providing systematic training.

Work Engagement of Employees

Doosan Fuel Cell listens to employees' opinions through various channels such as meetings, surveys, CA(Change Agent), and interviews with retired employees to create a better working environment. In 2021, we conducted an open communication survey and gathered employees' views about the overall operation of the company to solve problems related to accomplishment of the company's vision and addressing business challenges. Based on this, we established and implemented an organizational improvement plan by executives. In early 2022, we measured employees' engagement based on factors that are highly correlated to organizational commitment. We evaluated the perception level of employees under 4 categories of personal emotion, team effectiveness, organizational effectiveness, and organizational engagement. The evaluation result for each factor was converted and analyzed based on a perfect score of 100 points. Doosan Fuel Cell will continue to periodically conduct an employee engagement survey to support employees and increase their motivation and engagement.

Category	Company	By organization			Gender	By position	
No. of participants	332	290	42	292	40	149	183
Team effectiveness	72	73	71	73	68	71	73
Organization effectiveness	63	63	60	64	54	62	63
Organization immersion	71	72	70	73	63	71	71

Employee Development Program

Service Field Training Course

Doosan Fuel Cell newly launched the "Service Field Training Course" in 2021 to systematically manage work performance abilities and improve the maintenance abilities of workers in the service field. The course is comprised of core theories and work procedures by stage and level of difficulty, and is organized according to the position and experience. It aims to systematically train field experts with professional work capabilities. We held the basic course two times in 2021 and 24 people completed the course. In 2022, we will upgrade the contents and expand the course to an intermediate level.



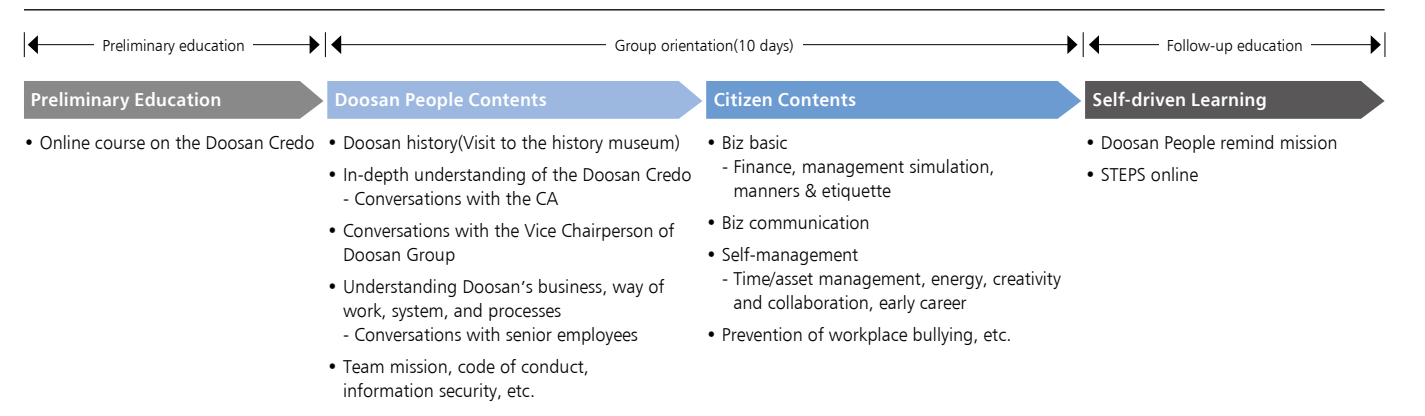
Job Academy

Employees of Doosan Fuel Cell participate in Job Academy Courses to train experts for each value chain. The Job Academy Courses are categorized into job types, including quality, EHS, HR, and digital. They include lectures provided by external instructors and internal experts with rich knowledge and experience. Participants can acquire the knowledge required for hands-on work and strengthen their field implementation capabilities through activities such as market analysis, corporate case studies, the establishment of response strategies by issue, and enhancement of leadership skills.

Category	Course Title	Target	Description
Orientation	Doosan Orientation	Newly hired employees	Introduction to the company, Introduction to the HR system, basic communication skills, etc.
	New Employee Introduction Course	New employees	Same as above
	Course for New Assistant Managers	New assistant managers	Understanding roles as a new assistant manager and obtaining effective communication skills
Business Fundamentals	Junior MBA	Employees with 3 years of experience~assistant managers	Strategy, accounting, finance, marketing, HR, DT, management simulation
	Finance/Strategy Course	Deputy managers~Department managers	Understanding of strategy, finance/management and accounting, innovative cases of price reduction, analysis of present and future opportunities and risk factors
Quality Academy	Quality Academy Basic Course	Quality managers	Understanding quality standard processes and problem-solving processes
	Quality Academy Advanced Course	Quality managers	SPEED FMEA, function modeling, Root Cause Analysis, etc.
Purchase Academy	Purchase Academy Advanced Course	Purchase managers	Case practice based on hands-on training in purchasing and on-site cases for purchase managers
Production Academy	Production Academy Basic Course	Production managers	Understanding of manufacturing, field improvement, productivity improvement, digital transformation, etc.

Introductory education and mentoring program for new employees

We offer an introductory course on a frequent basis to help interns, as well as new/experienced employees who join our company, to understand the organization and develop basic competencies. We also have various programs to help employees understand the company and products, field safety, business etiquette, and the company system. In addition, we operate the Mentoring Program that matches a senior employee with experience and work know-how with a new employee to provide support and to promote the onboarding of new employees. The company actively supports mentors and mentees to carry out activities for 3 months according to a pre-established plan, which helps new employees to adapt to the company stably.



Junior MBA

Employees, assistant managers, and managers who are set to grow as the next leaders participate in "Doosan Junior MBA" to acquire basic knowledge, develop business insights, and improve people leadership and mindset. Employees can acquire knowledge on strategic management, digital transformation, accounting/finance, marketing, human resources organization, management simulation, and so on from many distinguished professors, and experience strategic analysis and overall decision-making processes required for running a business by completing tasks related to the company's business strategies. Four employees in 2020 and five employees in 2021 completed the program with outstanding results, and we will continue to offer the program in 2022.

Preliminary Online Learning	Course Title
<ul style="list-style-type: none"> Strategic Management(8 hours) Finance and Accounting(8 hours) 	<ul style="list-style-type: none"> Strategic Management(24 hours): Strategic management, new growth engines of the Doosan Group Accounting and Finance(20 hours): Management accounting, cost accounting, finance accounting DT(4 hours): DT Mindset Workshop HR organization(8 hours): Human resources management, workshop on building understanding between generations Marketing(11 hours): Understanding of marketing, digital marketing Management simulation(16 hours): 1~8 rounds

Expanding association with professional human resources training institutions

The company is reinforcing the connection with external institutions to train energy experts by signing an MOU with H2KOREA and a consortium agreement with the Korea Plant Industries Association. Doosan people can participate in the advanced energy industry talent training program to attend lectures by outside experts and find joint research opportunities with universities. We are expanding activities to enhance employees' work competitiveness by jointly developing and operating education and training courses.

Reinforcing remote education

With the prolonged COVID-19 pandemic, remote education is emerging as a new method of education – beyond a temporary measure. In view of such a trend, we redesigned our leadership and job education to align with real-time remote education using online tools. In addition, we offer phone language courses and mobile learning to support the learning and self-driven growth of employees. We will add more diverse remote education courses to provide quality content more effectively.



Balancing work and life

Doosan Fuel Cell strives to create a flexible working environment to enable employees to maintain balance between their work and family life. We introduced 'MyTime(attendance management program)' to help employees manage commuting time and attendance. In order to prevent overtime work, we are operating the PC shut down system that blocks access to the work PCs after 6 pm, which is the end of our business hours. To support childcare and work at the same time, we also operate a flex-time system for employees with young children to take children to daycare centers or elementary schools. We run a 'half-day leave system' that allows 2-hour leave to visit public offices or banks. Further, we offer five days of paid leave, in addition to statutory annual leave, through the summer holiday system. When combined with personal annual leave, employees can recharge their mind and body through a 2-week refresher leave.

Employee Support Programs

Flexible work system
Work from home system
Childcare facilities/contributions
Nursing/additional facilities
Paid maternity leave(Over 30 weeks)
Paid family care leave

2021 Award for Job Creation(December 7, 2021)

Doosan Fuel Cell has hired 500 people since 2017 and promoted a win-win relationship with 2,600 employees of 200 suppliers to create local jobs and improve the domestic production of hydrogen fuel cells. We will contribute to the creation of high-quality local jobs by expanding PAFC plants and establishing Korean SOFC manufacturing facilities; increasing overseas exports; and implementing various national projects for the localization of technologies. In particular, once the expansion of PAFC plants is completed, it is expected to increase the production capacity from 90MW to 275MW and bring out direct/indirect employment for 340 people, production of about KRW 231 billion, and added values of about KR 72.6 billion. We contribute to the creation of jobs for the youth by means such as field training programs in association with universities, training of human resources of the community, and invigoration of academic and industrial cooperation.



An event hosted by the Presidential Committee on Jobs to reward individuals and groups that contributed to job creation since 2018

Establishment of a sound labor-management culture

Doosan Fuel Cell's labor and management are communicating continuously through various channels and pursuing a rational labor-management culture based on mutual trust through communication. Doosan Fuel Cell hosts regular labor-management meetings and ensures collective bargaining rights guaranteed by labor laws, such as the Trade Union and Labor Relations Adjustment Act and the Act on the Promotion of Employees' Participation and Cooperation, to provide an opportunity to reflect employees' opinions on company management. We are actively building a horizontal organizational culture by responding to human rights issues through grievance handling activities and the technical position CA system. Based on the culture of trust, Doosan Fuel Cell's labor and management have settled collective bargaining matters without dispute for three consecutive years since the establishment of the labor union in 2019. Doosan Fuel Cell's labor union decided the delegation of negotiation with the company management in 2022, continuing the win-win labor-management relationship.



Prohibition of Discrimination and Harassment

Doosan Fuel Cell does not allow any form of sexual harassment, bullying, and discrimination, and is enacting various guidelines to prevent sexual harassment, bullying, and discrimination in the workplace. Doosan Fuel Cell specifies the procedures and measures for handling such acts through these guidelines. We will work hard to implement proper handling measures and protect victims. Doosan Fuel Cell identified two cases of discrimination and bullying in 2021 and took necessary measures to prevent recurrence.

Prohibition of workplace sexual harassment, bullying, and discrimination

Prohibition of sexual harassment in the workplace | Business owners, managers, or members shall not subject other members to sexual harassment by taking advantage of their positions or in the process of performing their jobs. In addition, no unfair action in labor conditions and employment shall be taken as a result of a person not complying with prohibited sexual behavior or other related requests.

Prohibition of workplace bullying | Doosan Fuel Cell prohibits all acts causing physical and mental distress to other members, or acts that aggravate the working environment, using position or relational superiority beyond the allowable scope of work. Acts of workplace bullying include physical bullying, positional bullying, work-related bullying, verbal bullying, and personal bullying, as well as aggravation of the working environment.

Prohibition of discrimination | No discriminative treatment shall be given on account of gender, race, ethnicity, nationality, county, religion, age, political stance, or country of origin.

Measures for handling

Receipt of report(Doosan Fuel Cell Human Rights Center and Internal and External Report Centers of the Doosan Group) | In the event of experiencing or witnessing instances of sexual harassment, bullying, or discrimination at the workplace, anyone can report such actions. Once the report is received, we take proper measures, such as initiating an investigation. Investigation and deliberation of factual grounds(Investigation division) | We investigate acts of sexual harassment, bullying, or discrimination to find factual grounds while maintaining the confidentiality of the investigator. At this point, we listen to the victim's opinions about the handling method and take proper measures, such as a change of workplace and offering leave if requested by the victim.

Measures(Human Resources Committee Division) | If the facts of damage caused by such acts are confirmed, we take disciplinary action or equivalent measures. The employee who reported the act of workplace sexual harassment, bullying or discrimination, or the employee who claims damage, is protected.

Monitoring(Human Rights Center, HR) | We monitor if proper measures have been taken and if there are instances of additional harassment. We strive to prevent any disadvantageous treatment of the victim.

Confidentiality

Employees who participated in the investigative process regarding sexual harassment, bullying, or discrimination at the workplace shall not disclose any secrets discovered during the investigation.

Measures to prevent recurrence

The company may ask the offender to take counseling or education to prevent the recurrence of workplace sexual harassment, bullying, or discrimination actions.

Prevention education

The company conducts education to prevent workplace sexual harassment, bullying, and discrimination more than once a year. In addition, we take preventive measures by conducting additional education for prevention or publishing and distributing relevant materials.

Roles and responsibilities

Business owners | Business owners shall strive to eradicate workplace sexual harassment, bullying, and discrimination by taking necessary measures to prevent such acts, protect the victim, and handle the case.

Managers | The manager shall not handle the case in an arbitrary manner when he or she receives a report about the occurrence of workplace sexual harassment, bullying, or discrimination. The manager shall not take arbitrary measures against the victim's will, expose the victim to secondary damage, or blame the victim. The manager shall respect the victim's intention to take measures for handling the case. The manager shall cooperate with the handling process and measures taken by the responsible division and work hard to protect the victim and prevent any recurrence.

Members | Anyone who discovers an act of workplace sexual harassment and bullying shall advise the victim to report the matter. The reporter, offender, and other members shall not force measures for handling the case against the victim's will, disclose the identity of the persons involved in the case or related facts, or spread false information. The member shall cooperate with the handling of the case and avoid blaming the victim.

Division in charge

Management Support Headquarters HR Team

Education for prevention of discrimination and sexual harassment/bullying

Doosan Fuel Cell offers education to prevent workplace sexual harassment and bullying, as well as education to improve disability awareness for all employees more than once a year according to the legal requirements. We work hard to prevent sexual harassment and bullying and strive to correct prejudices against the disabled.



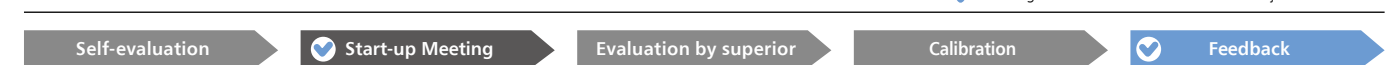
Example of sexual harassment prevention education content

Example of workplace bullying prevention education content

Fair Performance Evaluation and Rewards

Doosan Fuel Cell operates a capability and performance evaluation system to improve employees' performance and capabilities. Capability evaluations are classified into leadership capability evaluations for training global leaders, based on the philosophy of Doosan People, and job capability evaluations for training job experts. We use the evaluations to assess and cultivate employees' level of capabilities. When evaluating the personal performance of employees, we assess achievement levels against goals based on the MBO(Management By Objective) method, and share and receive feedback on the progress between the evaluator and the subject of evaluation. For effective exchange of opinions between the evaluator and the subject of evaluation in the evaluation process, we operate start-up meetings and feedback meetings and reinforce the fairness of evaluation through discussions between the primary evaluator and secondary evaluator. We encourage employees to improve performance and capabilities by deciding on promotion, job appointment, salary raise, incentives, etc. based on the results of evaluation. The long-term incentives provided to employees of positions lower than senior management are paid to the executive officers(1.7% of the total employees) as cash incentives over an average period of 3 years. Incentives can be given within 20~40% of the annual salary according to the regulations, and they are paid based on the results of evaluating metric indexes(MBO), including financial performance tasks, and non-metric indexes(qualitative evaluation), including growth, market situation, portfolio improvement, and appropriateness of the design level over the 3-year performance measurement period after 3 years from the given time.

Evaluation Process



Meeting between the evaluator and the subject of evaluation

Shared Growth



Shared Growth Promotion System

Doosan Fuel Cell pursues joint growth with its suppliers through various shared growth support programs such as support for inventory handling, support with welding technology for new manufacturers, improvement activities for the manufacturing and inspection processes, support with set-up for SM manufacturing inspection processes, improvement of inspection processes through HMI, and improvement of seal tempering defects with improved RMS roughness.

Shared Growth Support System

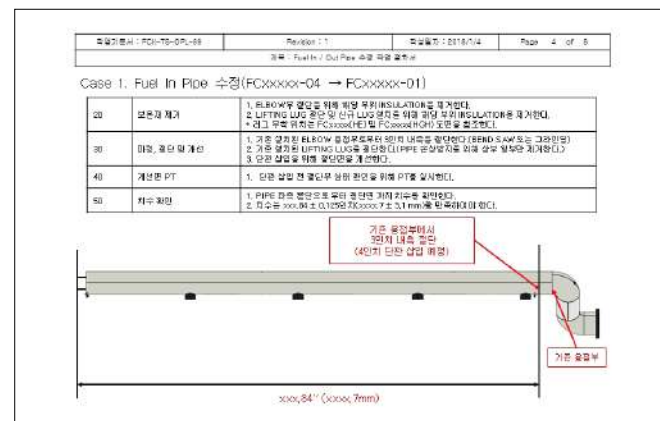
Major suppliers' meetings and support for win-win cooperation

Doosan Fuel Cell has been hosting meetings with the management of major suppliers to listen to their difficulties and discuss directions for improvement since 2020. In July 2022, we launched a consultative group of Doosan Fuel Cell suppliers. As the product output of Doosan Fuel Cell increased in 2021, we changed the conditions for facilities investment, plant expansion, and staff addition, and expanded the supply contract payment term of supporting 20% of the advance fee as a means of win-win cooperation. Shared growth funds worth KRW 15.1 billion were provided to suppliers.

Inventory handling support activities

Doosan Fuel Cell offers support for handling inventories by explaining the work to modify and reuse the fuel in/out pipes for high-efficiency PPLT(FC78923-0009), which is the exclusive material for high-grade heat PPLT(FC78923-0011).

Example of support activities for handling inventory



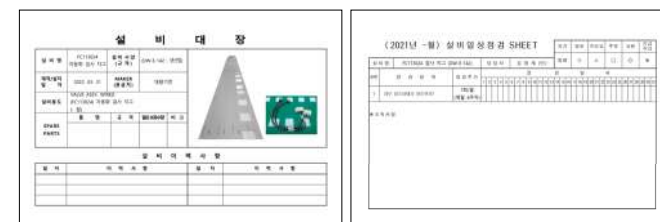
Welding technology support activities for new manufacturers

Doosan Fuel Cell offers support activities to provide training in welding technology to new manufacturers among suppliers.

Activities to improve manufacturing and inspection processes

Since 2021, Doosan Fuel Cell has been offering support activities to help suppliers improve the manufacturing and inspection processes.

Example of activities to improve the manufacturing and inspection process of Daewon Mechatronics



Activities to support setting up SM(Super Module) manufacturing and inspection process

Doosan Fuel Cell offers support activities to help suppliers prepare processes for manufacturing and inspecting super modules.

Example of support activities for the SM manufacturing and inspection process set-up of Youngkwang

- A frame is a base for manufacturing/assembly of the super module and it is important to prevent incorrect manufacturing and level measurements. A jig is required to minimize the deformation of welding and prevent wrong manufacturing



- The ESM area of the frame is an important interface and it is difficult to measure it using a ruler.
- The ESM area template of the frame is developed for manufacturing and inspection

Inspection process improvement activities with HMI

Doosan Fuel Cell supports activities to enable suppliers increase the detection of defects by adopting the HMI software. We carry out improvement activities by identifying the defect types, number of occurrences and the cause of occurrence, and preparing improvement measures.

Example of activities to improve the inspection process using ESM HMI

- 480V operation test procedures

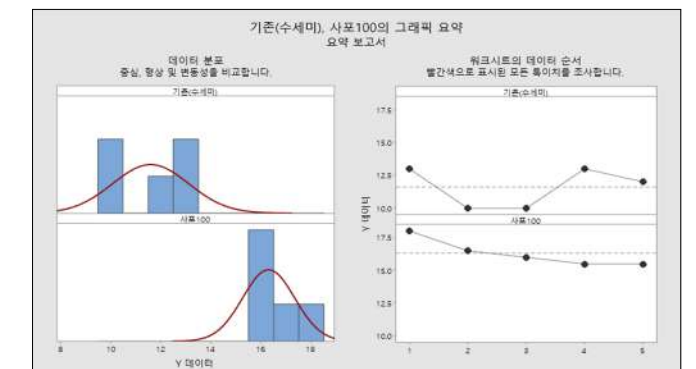


Activities to improve seal tempering defects with improved RMs roughness

Doosan Fuel Cell assists suppliers to improve seal tempering defects through improved RMs roughness.

Example of seal tempering test review

- TEC test review on the change of roughness applied by Jinsung



Safety and Health Consultative Group and Labor-Management Joint Inspection

Doosan Fuel Cell operates a safety and health consultative group with internal and external suppliers. Based on this communication channel, we minimize the occurrence of issues by communicating actively and finding solutions to safety and health issues. We will continue to support suppliers in their efforts to improve safety and health response capability by complementing any safety and health inadequacies through periodic operation of the group.



Safety Education for Employees of Suppliers

Doosan Fuel Cell periodically conducts education for suppliers' employees related to safety and health laws, standards, and accident cases. We contribute to the prevention of workplace safety accidents by enhancing safety awareness among employees of Doosan Fuel Cell and suppliers. In view of the enhanced laws related to safety, such as the Serious Accidents Punishment Act, we are continuously enhancing the safety mindset of suppliers' employees by strengthening supplier education, inspections, and support systems since 2021.



Supporting Supplier Risk Assessment

Doosan Fuel Cell provides technical guidance on risk assessment for suppliers and reviews the field risks to minimize safety accidents. As a result of the risk assessment activities, there were no safety accidents related to external suppliers in 2021.



Supplier Safety and Health Reward System

Doosan Fuel Cell actively encourages suppliers to participate in field risk improvement activities by expanding the scope of the "Safety and Health Improvement" and "Near-miss Accident Discovery" reward systems used at Doosan Fuel Cell to include suppliers. (2021 Supplier Safety and Health Rewards)



CSR

Doosan Fuel Cell carries out CSR activities to achieve Doosan's vision of 'Leading global CSR.'

CSR System and Direction

Aspiration	Proud Global Doosan		
Vision	A global company leading CSR: Becoming a part of the World's Most Admired Companies, a prestigious list compiled by Fortune magazine		
Mission	Enhancing future competitiveness and corporate values through strategic CSR activities		
Key strategies	Growth of people	Contribution to the community	Use of capabilities in the company's possession
Direction	Supporting talent training and the creation of jobs <ol style="list-style-type: none"> 1. Train hydrogen energy human resources 2. Develop education and provide opportunities for participation 3. Facilitate the disabled to strengthen self-reliance and pursue growth 	Supporting underprivileged classes and contributing to the community <ol style="list-style-type: none"> 1. Find solutions to social issues by supporting underprivileged groups 2. Participate in and contribute to the community 	Leveraging technologies and capabilities in the company's possession <ol style="list-style-type: none"> 1. Understand the hydrogen energy industry and products, provide training in engineering technologies 2. Use employees' talents
SDGs			
Enabler	CSR promotion system and employee commitment		
Business KPIs	Contribute to cultivating human resources of future generations by providing training and education on hydrogen energy, targeting students of middle and high schools	Support underprivileged groups and reinforce communication with the community through activities associated with the green business	Enhance the company's image and expertise by contributing to the establishment of an industry-academy-institute cooperation system for cultivating and supporting the hydrogen industry
Social KPI	Contribute to the creation of jobs for the vulnerable groups by forming sports teams comprised of people with disabilities	Conduct activities to recover the ecosystem, working with the communities surrounding the main customers	Transfer knowhow on hydrogen fuel cell principles and technology by utilizing capabilities

Doosan Fuel Cell will enhance the CSR promotion system by establishing a plan to carry out CSR activities and reinforcing capabilities from a long-term perspective.

Mid and Long-term CSR Promotion Plan

	Phase1 2022~2023	Phase2 2024~2025	Phase3 2026~2027
	Establish a CSR promotion system	Reinforce CSR promotion capabilities	Enhance the CSR promotion system
Key strategies	Create various conditions for CSR activities	Reinforce implementation and operational capabilities for CSR activities	Establish a strategic CSR system and create positive outcomes
Main strategic tasks	Developing strategic CSR programs <ul style="list-style-type: none"> • Developing and implementing new programs Increasing employee engagement <ul style="list-style-type: none"> • Developing engagement policies and invigorating campaigns • Providing motivation to increase engagement Establishing a CSR operation system <ul style="list-style-type: none"> • Suggesting the direction of CSR strategies and activities • Selecting specialized organizations/persons and establishing roles • Establishing the system and operation processes 	Invigorating strategic CSR programs <ul style="list-style-type: none"> • Stabilizing the representative programs • Developing and producing internal PR content Supporting communications and cooperation with stakeholders <ul style="list-style-type: none"> • Forming a consultative group and using it as a platform to engage with the community • Finding methods to communicate and cooperate with suppliers • Supporting academic and industrial cooperation between the government and universities Expanding the CSR operational system <ul style="list-style-type: none"> • Developing and operating a performance measurement model • Reinforcing the operational system through core capabilities 	Expanding strategic CSR programs <ul style="list-style-type: none"> • Developing new programs and upgrading existing programs(linking to the SDGs, reflecting trends) • Finding ways to solve social issues Internalizing CSR activities <ul style="list-style-type: none"> • Establishing a platform for the voluntary participation of employees • Establishing infrastructures to stimulate engagement of the community and suppliers Establishing a CSR operation system <ul style="list-style-type: none"> • Measuring, analyzing, and disclosing data on the programs' performance • Establishing a program monitoring system • Associating creation and expansion of social values

CSR Activities

Love sharing donation

Doosan Fuel Cell delivered the donations gathered by the voluntary participation of employees to the Korea Council of Group Home for Children & Youth for Energy Efficiency Improvement through a project titled Fruit of Love. This project aims to replace deteriorated boilers, gas stoves, etc. at social welfare organizations with safe, eco-friendly products for the improvement of the atmosphere, reduction of GHGs, prevention of safety accidents, and enhancement of the living environment. (Delivered KRW 30 million on January 4, 2022)



OA donations

We donated 91 laptops, 6 monitors, and 6 desktops, which are disused OA assets, as part of the Love PC Sharing Project run by the Korean Information Office for the Disabled. Furthermore, 11 recyclable devices from the donated QA assets were repaired and provided for children and youth with disability. Unusable QA assets were disposed of and used for the business of the Korea Association for Child Welfare and expenses for child support. We identify disused QA assets every year and carry out donation events periodically.



Chung-Ang University donation

The Doosan Group has been donating funds for the development of Chung-Ang University since 2008. The donated funds are used to cover educational and facility expenses incurred by Chung-Ang University and as a financial source to foster talented human resources demanded by society. We donated KRW 1 billion and KRW 1.5 billion in 2021 and 2022, respectively.

Didim Seed

We sponsor the Didim Seed Bankbook and mentorship provided by employees as a CSR project to help young adults who leave foster care facilities after turning 18 years old to build their assets. In 2018, Doosan formed a partnership with 15 foster care facilities around the country in the vicinity of Doosan's worksites and has been assisting 350 children through the Didim Seed Bankbook project. Our employees participate in the donation activity every year. (23/483 persons, as of the end of 2021)



Contribution to the community

Helping socially neglected neighbors

We delivered donations to the Community Chest of Korea to help out socially neglected neighbors at the end of the year, as part of efforts to practice sustainability by sharing social values through CSR. We selected 12 local welfare facilities and received project requests from each facility. The donations are used to provide daily necessities to the socially neglected.

Walk and Share campaign

The Walk & Share campaign replaces the volunteer activities that were discontinued on account of COVID-19 with a contact-free volunteer activity to raise employees' interest and participation in CSR activities. A walking app (WalkON) is used to convert the number of steps walked by employees into money. The money is then donated to facilities or organizations for the vulnerable. The company's matching grand was used as the financial source for donation, and 95 employees, corresponding to 25% of the workforce, participated in the event for three weeks, from the end of October to November 2020.

Utilization of Capabilities

Participation of employees in funding

Employees of Doosan Fuel Cell voluntarily participate in monthly donations. The company matches the amount donated by employees to raise a fund to conduct CSR activities. Thanks to the enthusiastic participation of employees, we have accomplished a 42% participation rate. Annual donations are spent on projects to improve energy efficiencies and help socially neglected neighbors.

Campaign to reduce disposables

As part of an environment protection campaign, all employees are obliged to use a personal tumbler or mug. We encourage employees to stop using plastic bottles and paper cups, as well as other disposables, in the office. If disposables must be used, such as for visitors and job interviews, biodegradable paper cups are used to reduce the cost incurred due to the use of mineral water and paper cups (KRW 1 million per year). In the future, we will continue to engage in activities to protect the environment.

Agreement and Regulation of the Social Contribution Committee

Article 1 Purpose

The purpose of this regulation is to define the composition, operation, procedure, and standards of an organization that ensures the transparent and appropriate contribution and execution of donations made by [company name] ("company").

Article 2 Definitions

Definitions of the terms used in this regulation are as follows. "Donation" refers to money provided by the company to an individual, organization, or institution without seeking a benefit in return, whether it is called a sponsorship, donation, or otherwise. "Regular donation" refers to the sum or collection of all donations that are expected to occur during a business year, including donations made to regular recipients of donations made every year. "Non-regular donation" refers to a donation that is contributed upon receiving an individual request other than the regular donations. "Social Contribution Committee" ("Committee") refers to a non-permanent meeting group composed of employees of the company and its affiliates, formed to decide donation-related policies, select recipient entities for each affiliate, and discuss the distribution of donation amount according to separate agreements or stipulations.

Article 3 Installation, Composition, and Targets of the Social Contribution Committee

The company installed the Social Contribution Committee ("Committee") as a body to review and decide donation-related matters, such as the status of donation, places of donation, and donation amount. The Committee comprises the chairperson of the CSR Committee, CFO, and employees in charge of legal affairs. The chairperson of the CSR Committee shall be the chairperson of the Committee. Targets to be reviewed by the Committee include donations of KRW 10 million or more made to a single place of donation. The company shall appoint a secretary to assist the Committee with its duties and implement the decisions. The secretary shall be appointed among employees of a department deemed appropriate based on the division of duties.

Article 4 Method of Arriving at Committee Resolutions

The Committee shall form a resolution of its decisions if voted for by the majority of participating members, with the majority of members present. The Committee may conduct its meetings in a way by which all members participate using a communication means that can send and receive voices at the same time, even if all members are not physically present at the meeting. In this case, the corresponding members are deemed to have participated in the meeting. If a member has difficulty attending the Committee for an inevitable reason, the member may designate an employee to attend on their behalf and exercise voting rights.

Article 5 Procedure for Handling Regular Donations

The Committee shall compile a budget for regular donations based on the amount of donations determined for each place of donation selected by the company to contribute during the corresponding business year, according to the results of the annual Committee meeting. When compiling the budget under Paragraph 1, the Committee may separately review and set aside a reserve fund with an appropriate limit to cover non-regular donations.

If there are cases that exceed an amount of KRW 500 million contributed by the company among the donations included in the budget under Paragraph 1, the Committee shall submit all such cases to the Board of Directors for approval. If the total amount of donation contributed jointly with affiliates exceeds KRW 500 million but the amount contributed by the company is less than KRW 500 million, the case may be submitted to the Board of Directors if approval is deemed necessary considering the purpose of donation and relevance to the business.

Article 6 Procedure for Handling Non-regular Donations

If the company receives a separate request to make a donation not included in the regular donation budget, the Committee shall review and decide whether to approve the donation and the amount if approved, considering the circumstances, such as the purpose or details of businesses operated by the requesting body, uses of the donation, relevance to the company's businesses, public interest, and financial conditions of the company. If the case falls under any of the following subparagraphs, the Committee may call a Council meeting to deliberate on approving the donation, amount, and share of each affiliate. If the amount requested exceeds KRW 100 million and it is deemed that affiliates need to share the amount jointly or the Committee needs to discuss the matter in view of the accompanying circumstances such as the purpose and details of businesses operated by the requesting body, uses of the donation, business relevance, and financial conditions of the company, the Committee shall review and decide the contribution or share of the company by referring to the balance of the reserve fund. If the amount of donations to be contributed by the company according to Paragraphs 1 to 3 exceeds KRW 500 million, the cases shall be submitted to the Board of Directors for approval. If the total amount of donation contributed jointly with affiliates exceeds KRW 500 million but the amount contributed by the company is less than KRW 500 million, the case may be submitted to the Board of Directors if approval is deemed necessary considering the purpose of donation and relevance to the business. Notwithstanding Paragraph 4, if there is an urgent circumstance where it is difficult to carry out the processes of calling and resolution of the Board of Directors in order to accomplish the purpose of the donation, the donation may be contributed by the discretion of the Committee without calling the Board of Directors for resolution. In this case, the purpose of the donation, place of donation, amount, and uses shall be reported at the first Board of Directors meeting called after the contribution.

Article 7 Minutes

Minutes shall be prepared to record the proceedings of the Committee. Minutes shall include the agendas, proceedings, and outcomes and be sealed or signed by the participating members.

Article 8 Relation to Other Regulations

If this regulation does not accord with other in-house regulations, this regulation shall take precedence.

Supplementary Provisions

1. This regulation shall come into effect on []. []. 2020.

Governance

Major Outcomes in 2021

Fair trade violations

0 cases

Anti-corruption violations

0 cases



Governance

Operation of the Board of Directors

The Board of Directors(BOD) deliberates on and resolves important management matters concerning the company, and decides on matters defined by the laws or articles of association, matters delegated by the general meeting of shareholders, and important matters related to the basic principles of company management and business execution. As of the end of June 2022, the BOD of Doosan Fuel Cell is comprised of two internal directors and three outside directors. Hooseok Che is the chairperson of the BOD and convening authority. He was appointed as the chairperson of the BOD considering his expertise in terms of job execution and efficiency in BOD operations. The Audit Committee, the Outside Director Candidate Recommendation Committee, and the Internal Transaction Committee, comprised entirely of outside directors, have been established and operate within the BOD. The term of a director is about three years until the end of the general meeting of shareholders for the final account settlement period within three years from the date of appointment. The average tenure of a BOD member is 23 months.

We decide on main agenda through the BOD and reflect shareholders' opinions in the decision-making process. Participation using a communication device that concurrently sends and receives the voices of all directors is approved by law and considered direct attendance at the BOD. The BOD is classified into regular board meetings held every March, from the starting date of the business year, and temporary board meetings. Temporary board meetings can be hosted frequently, as needed. Approvals and deliberations of the BOD are settled through the attendance of a majority of members and an agreement of the majority of the attending directors. The BOD convened eight times in 2021 and the average attendance rate of the directors was 96%.

The ratio of outside directors was 60% in 2019 and 2020, and increased to 67% in 2021. No female director has been appointed and all members of the BOD are over 50 years old. It is stipulated in the articles of association to notify the convening of the BOD at least one day before. There is no outside director with a low attendance rate(less than 75%) and the ratio of outside directors with experience in the same industry was 33% in 2019 and 2022, which decreased to 25% in 2021. There was no case of objection or modification of opinions raised by outside directors. The ownership percentage of registered members, excluding the largest shareholder and affiliated parties, is 0%, and the ownership percentage of the affiliates was 16.78% in 2019 and 30.33% in both 2020 and 2021. The total investment amount of affiliates against equity and credit offering of affiliates against equity capital are 0, respectively. The amount of business transactions with affiliates and transactions that support the largest shareholder and affiliated parties* was 65,541

/ 410,971 / 302,580 in 2019, 2020, and 2021, respectively. The number of voluntary disclosures was 0, 7, and 1 in 2019, 2020, and 2021, respectively. The number of outside directors with expertise in risk management was 1 in 2019, and 2020, which increased to 2 in 2021. Risk management of the company is performed on-site and reported to the Board of Directors and the Audit Committee. There are no particulars related to the establishment and operation of additional committees.

* Excluding the amount of transactions with Daesan Green Energy other than Doosan affiliates from the total amount of transactions with affiliated parties under the Financial Statement Annex

2021 Status of Doosan Fuel Cell Shares

Total percentage of shares owned by government institutions(National Pension Service)	7.04%
Percentage of shares owned by the owner family and foundation	7.33%
Number of shares without voting rights	5,432
Number of shares with one voting right per share	81,838,794

Assessments and Rewards

Remuneration for directors is paid according to the company regulations for executives within the remuneration limit for directors set at the general meeting of shareholders. Remuneration for internal directors is classified into base salary and incentives reflecting management performance according to the 'Executive Officer HR Management Regulations,' and only base salary is paid to outside directors. We pay the directors' remuneration fairly and transparently and disclose relevant information according to the related laws. The CEO does not hold shares against base salary and the ratio of shares against base salary was 0% in 2019, 32.7% in 2020, and 29.4% in 2021. Remuneration for the management is paid according to the results of performance evaluation on metric indexes(MBO), including financial performance tasks and strategic performance tasks, and non-metric indexes(qualitative evaluation), including growth, market situation, portfolio improvement, and design level.

The long-term performance evaluation indexes are applied to the remuneration for the CEO. Incentives can be given within 20~40% of the annual salary according to the regulations, and they are paid based on the evaluation results of metric indexes(MBO), which encompass financial performance tasks, and non-metric indexes(qualitative evaluation) including growth, market situation, portfolio improvement, and appropriateness of the design level over the 3-year performance measurement period after 3 years from the given time. A variable performance-linked remuneration system and variable time of the CEO's remuneration can be operated within 20~40% of the annual salary according to the regulations, and they are paid based on the evaluation results of metric indexes(MBO), which encompass the financial performance tasks, and non-metric indexes(qualitative evaluation) including growth, market situation, portfolio improvement, and appropriateness of the design level over the 3-year performance measurement period after 3 years from the given time.

Independence of the BOD

Doosan Fuel Cell ensures the independence of the BOD by setting a goal to have outside directors constitute the majority of the total number of directors and by appointing more than three outside directors. We conduct periodic reviews and take appropriate measures to facilitate the supervisory role of the BOD while allowing balanced and objective decision-making. The voting right of directors affiliated with particular entities is restricted according to the applicable law. The BOD operates three committees including the Audit Committee, and each committee is comprised of outside directors to secure the independence and transparency of decision-making.

Procedure and Criteria for Appointing Outside Directors

Doosan Fuel Cell appoints outside directors according to the strict requirements set by the related laws and company regulations in order to enable the BOD to fulfil its role of supervision and balancing. Outside directors are appointed by selecting candidates based on their qualifications and job expertise, which is carried out by the Outside Director Candidate Recommendation Committee that is comprised entirely of outside directors, and by obtaining the approval of the BOD and the general meeting of shareholders.

Major Resolutions of the BOD

The BOD decides important matters of company management, such as the disposal and transfer of important assets and the borrowing of large properties, in accordance with the relevant laws and internal regulations. A total of eight BOD meetings were convened in 2021 and 19 reports and agenda, such as the approval of the 2nd term financial statement and sales report, were proposed and resolved.

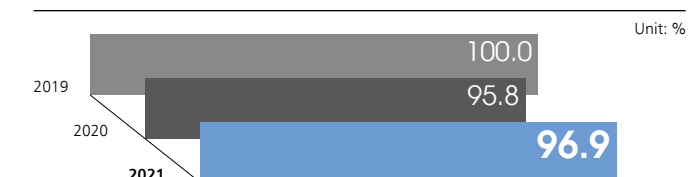
Diversity of Outside Directors

Doosan Fuel Cell does not engage in discrimination based on religion, gender, race, age, disability, political stance, region, and country when appointing directors. We consider diversity when composing the BOD.

Board of Directors Meetings Convened



Participation of Outside Directors



Board of Directors Status

Category	Name	Career	Position	Date of Appointment	Tenure
Internal Directors	Hyungrak Chung	CEO of Doosan Fuel Cell	CEO	2022	3 months
	Hooseok Che	CEO, COO of Doosan Fuel Cell	CEO, Chairperson of BOD	2019	33 months
Outside Directors	Changhyeon Ko	Lawyer at Kim & Chang Director of Korean Securities Law Association	Member of Audit Committee Member of Internal Trade Committee Member of Outside Director Candidate Recommendation Committee	2019	33 months
	Dongsu Kim	Chair Professor at Korea University Chairperson of Fair Trade Commission (Former) President of Export-Import Bank of Korea (Former)	Chairperson of Audit Committee Member of Internal Trade Committee Member of Outside Director Candidate Recommendation Committee	2021	15 months
	Kwanyoung Lee	Professor at the Department of Chemical and Biological Engineering at Korea University Executive Vice President for Research at Korea University	Member of Audit Committee Member of Internal Trade Committee Chairperson of Outside Director Candidate Recommendation Committee	2019	33 months

* As of the end of June 2022

Committees under the Board of Directors

Category	Audit Committee	Internal Trade Committee	Outside Director Candidate Recommendation Committee
Composition	Changhyeon Ko, Dongsu Kim, Kwanyoung Lee	Changhyeon Ko, Dongsu Kim, Kwanyoung Lee	Changhyeon Ko, Dongsu Kim, Kwanyoung Lee
Role	Auditing the accounting and business of the company	Screening and approval of internal trades according to the Fair Trade Act	Recommending candidates for the position of outside directors
Activity	Selecting outside auditors, reporting the accounting audit results, etc.	Approval of affiliate trades, etc.	Recommending candidates for the position of outside directors

Stakeholder Communication

The BOD communicates internally and externally with stakeholders through various communication channels, including disclosure and IR activity. In addition, the BOD immediately discloses decisions made at the general meetings of shareholders and matters pertaining to key managerial decisions to provide management information to shareholders and stakeholders. The general meeting of shareholders was announced 14 days before the meeting date from 2019 to 2021.

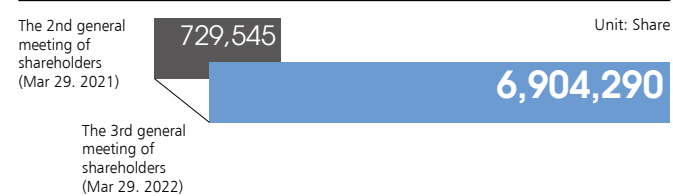
Electronic Voting and Paper Voting

Doosan Fuel Cell operates a paper voting system, according to Article 35 of the Articles of Association, to safeguard the voting rights of minority shareholders. In addition, we introduced an electronic voting system for general meetings of shareholders in 2021, according to Article 368-4 of the Commercial Act, to increase convenience for our shareholders. Shareholders can exercise their voting rights electronically without attending the meeting.

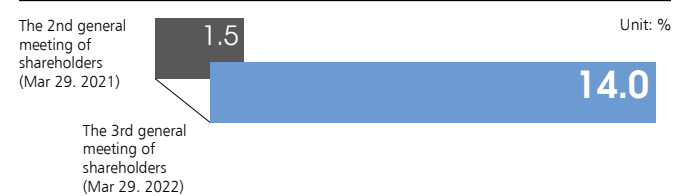
2021 Risk Management Governance

Category	Name and Position of Chief Officer	Reporting Line
Chief officers in charge of risk management in the operation stage	<ul style="list-style-type: none"> Financial risks: Jooeon Park, Director of Business Management Headquarters Business risks: Hooseok Che, COO Sustainability risks: Joonyoung Park, CSHO/Director of Management Support Headquarters 	<ul style="list-style-type: none"> Officer in charge of each area → Report to CEO
Chief officers in charge of monitoring and auditing of risk management performances in the operation stage	<ul style="list-style-type: none"> Joonyoung Park, CSHO/Director of Management Support Headquarters 	<ul style="list-style-type: none"> CSHO/Director of Management Support Headquarters → Report to CEO
Outside directors with expertise in risk management of the company	<ul style="list-style-type: none"> Two outside directors are experts in accounting and finance with experiences related to finance and government institutes according to Article 542-11 of the Commercial Act. 	
Periodic risk management education for outside directors	<ul style="list-style-type: none"> Inviting outside experts such as accountants and conduct education for the Audit Committee on current issues and accounting supervision trends more than once a year Education related to Key Audit Matters(KAM) and the operation of the internal accounting management system were carried out in 2020 and 2021 	
Sensitivity analysis and stress test	<ul style="list-style-type: none"> Analyzing financial risks in areas including sales, capital, credit interest, liquidity, exchange rate, and investment and business aspects including strategy, customers, competitors, investors, and technology changes. Defining macroscopic market environment/legal regulation risks, to respond preemptively to the mid and long-term risks of the company. 	

Shares that Participated via Electronic Voting



Percentage of Electronic Voting against Total Shares



Supply Chain Management

Guidelines for Sustainable Supply Chains(GSSC)

We set guidelines to enable suppliers of Doosan Fuel Cell to pursue their sustainability goals. The guidelines regulate the basic matters to be followed by suppliers and contractors(hereinafter referred to as 'suppliers') that provide products and services. These guidelines also stipulate basic matters related to labor and human rights, safety and health, environment, ethics and fair trade, and general management. All suppliers doing business with Doosan Fuel Cell must comply with the following guidelines.

1. Labor & Human Rights	
1.1 Prohibition of Discrimination	Suppliers of Doosan Fuel Cell shall make efforts to create a workplace free of illegal discrimination or harassment on the basis of race, skin color, age, gender, sexual orientation, ethnicity, disability, health issues, pregnancy, religion, political orientation, trade union membership, nationality, marital status or other factors in carrying out employment practices including recruitment, promotions, bonuses, and the provision of education and training opportunities.
1.2 Prohibition of Ill Treatment of Employees	Suppliers of Doosan Fuel Cell shall treat all employees with respect, and employees shall not be subjected to nor be threatened with cruel or inhumane treatment or acts such as sexual harassment, sexual abuse, corporal punishment, physical or mental cruelty, verbal abuse or irrational proposals.
1.3 Prohibition of Child Labor Abuse	Suppliers of Doosan Fuel Cell shall comply with the minimum working age convention adopted by the International Labor Organization(ILO) and shall not hire employees under the minimum age for employment set forth by the local law.
1.4 Protection of Basic Conditions of Employment	Suppliers of Doosan Fuel Cell shall not force employees to work past the maximum number of working days and working hours as defined by local law, and shall fully comply with all the provisions of the Labor Standards Act related to wages and benefits to protect the basic conditions for employment.
2. Safety & Health	
2.1 Management of Occupational Safety	Suppliers of Doosan Fuel Cell shall eliminate workplace hazards in advance and take preventive measures via appropriate design, engineering and administrative control, and preventive maintenance and safety procedures. Suppliers shall ensure that employees are not exposed to potential safety hazards(e.g., hazards associated with electricity and other power sources, fires, vehicles and falls). In case such hazards cannot be reduced sufficiently by the aforementioned means, suppliers shall provide workers with proper personnel protective equipment.
2.2 Industrial Hygiene Management	Suppliers of Doosan Fuel Cell shall keep the workplace safe and healthy, and comply with relevant laws, regulations, and directions. To this end, Suppliers shall provide the basic hygienic facilities that are accessible to all employees, and establish a pleasant workplace with adequate lighting and ventilation.
2.3 Emergency Response Plan	In case of an emergency, Suppliers of Doosan Fuel Cell shall go through the process of identifying and assessing emergency situations to minimize the damage, and establish basic safety procedures such as fire and accident response systems.
2.4 Accident and Disease Management	Suppliers of Doosan Fuel Cell shall establish a procedure and system to prevent, manage, monitor, and report industrial accidents and occupational diseases. Suppliers should be able to utilize the system to identify workers' injuries and diseases, provide the needed treatment and take corrective measures to prevent recurrences.
3. Environment	
3.1 Environmental Permits and Reports	Suppliers of Doosan Fuel Cell shall obtain and maintain environmental permits required to operate and manage the business site, and ensure compliance based on the latest updates at all times. Suppliers shall also comply with the requirements for operations and reporting that are needed in the process of obtaining the permits.
3.2 Management of Hazardous Materials	Suppliers of Doosan Fuel Cell shall identify hazardous materials used in the workplace, and keep records and history of safe handling and transport, preservation, usage and disposal of hazardous materials. Hazardous materials herein are defined as chemical and other substances that pose a threat to the safety of workers when discharged or exposed to humans.
3.3 Management of Pollutant Emissions and Discharge	Suppliers of Doosan Fuel Cell shall establish a system to monitor the emission and discharges of pollutants from facilities, work processes and sanitary facilities at the business site; and comply with the control and treatment methods and discharge limits set forth by local laws. Pollutant emission and discharges include waste water, waste materials(general/specific), air pollutants and ozone-depleting substances.
3.4 Eco-Efficiency	Suppliers of Doosan Fuel Cell shall utilize the resources at the business site efficiently through improvement activities such as the enhancement of process efficiency, conversion to alternative fuels, and recycling and re-use of resources. Resources include raw and subsidiary materials, energy, water and other materials employed in production activities.
3.5 Response to Product Environmental Regulations	Suppliers of Doosan Fuel Cell are responsible for compliance with local laws, regulations, and customer requirements, including but not limited to, recycling and treatment labeling for products, and the prohibition, approval and registration of specific materials as set forth by local laws.
4. Ethics & Fair Trade	
4.1 Business Ethics and Compliance	Suppliers of Doosan Fuel Cell are required to practice the highest ethical standards in all business relationships. Unethical behaviors, including corruption, extortion, and offer or receipt of bribes and favorable treatments are strictly prohibited. Suppliers are responsible to ensure compliance with the ethical codes by conducting inspections of and crackdowns on unethical behavior.
4.2 Fair Trade Compliance	Suppliers of Doosan Fuel Cell are prohibited from proposing or accepting offers to gain economic benefits based on unfair or unjust business transactions. Suppliers shall adhere to laws and regulations related to fair trade, and shall not be involved in unfair trading that would disrupt the orderly performance of business practices.
4.3 Transparency and Disclosure	Suppliers of Doosan Fuel Cell shall disclose information on business activities, financial positions, business results and other factors in a transparent manner in accordance with relevant laws and regulations.
4.4 Protection of Intellectual Property Rights	Suppliers of Doosan Fuel Cell shall not violate or illegally use intellectual property rights, including patents, software, design, and trademarks. Suppliers shall respect the intellectual property of others, and any transfer of skills and know-how shall be conducted in a manner that protects intellectual property rights of the rightful owner.
4.5 Information Security	Suppliers of Doosan Fuel Cell shall do their utmost to protect technology data, information and intellectual property obtained in the process of doing business with Doosan Fuel Cell. Suppliers shall also arrange and follow a procedure to ensure that employees' personal information is not distributed or disclosed to third parties.
5. General Management	
5.1 Regulatory Compliance and Continuous Improvement	Suppliers of Doosan Fuel Cell shall make efforts to comply with laws, regulations, and customer requirements relevant to doing business, and continue to make improvements by conducting compliance self-assessments.
6. Guidelines Accessibility and Compliance Efforts	
6.1 Accessibility to the Guidelines and Training Program	Suppliers of Doosan Fuel Cell shall understand and adhere to these guidelines. To this end, these guidelines shall be easily accessible to employees, and a compliance training program shall be offered to employees to help them follow the guidelines effectively.
6.2 Feedback and Reporting	Suppliers shall take feedback from employees regarding the standards and conditions applicable to these guidelines, and follow procedures to make improvements based on feedback. Contact us at Doosan Fuel Cell's Cyber Reporting Center at(02-3398-0922 / http://www.doosan.com/kr/csr/code/cyberreport.do).

Definition of Key Suppliers and Evaluation of Sustainability Risks

Only suppliers from which large purchases are made are selected as key suppliers. Doosan Fuel Cell currently has 13 suppliers with over 1% of the share for PPLT material costs. We conduct a sustainability risk assessment on key suppliers, accounting for 20% of Doosan Fuel Cell suppliers, and provide training for suppliers to educate them on the importance of ESG risk management.

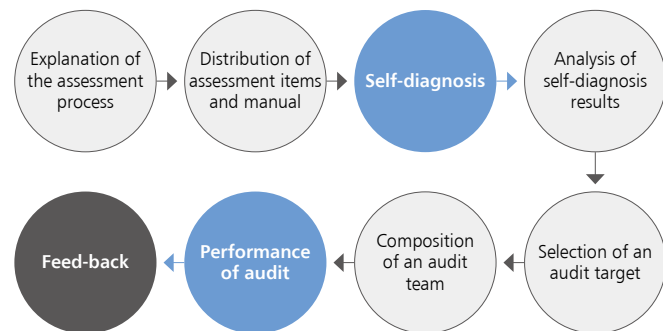
Education on Identifying Supply Chain Risks

- We have introduced a sustainability assessment for suppliers through education related to the supplier sustainability assessment and risk management system.
- Details of education related to the supplier risk management system: Definition of ESG, introduction to the background, trends, status of ESG in Korea, ESG status of Doosan Fuel Cell, Doosan Fuel Cell ESG Guidelines, and introduction to the sustainability assessment for suppliers

Sustainability Evaluation of the Supply Chain DCSSAP, Doosan Corporation Supplier Sustainability Assessment Program

- If the sustainability assessment score is below 80, the supplier is categorized as a high-risk supplier.
- As the result of the supplier sustainability assessment in 2022, one supplier was classified as a high-risk supplier with high sustainability risks, accounting for 7.69% of all key suppliers that received the sustainability assessment.
- We will carry out an audit and corrective measures and send feedback to the high-risk supplier.

Supplier Sustainability Assessment Process



Supplier Sustainability Assessment Criteria

Category	Number of Criteria	Details
Anti-corruption(7)	• 4 main criteria • 3 sub-criteria	Enactment of a code of conduct / Prohibition of corruption and bribery among employees / Criteria for gift or amount / Composition of the management organization / Related education / Internal reporting or whistleblowing
Human rights/Labor(7)	• 5 main criteria • 2 sub-criteria	Related company policies / Periodic investigations in related areas / Request to suppliers / Violation of related laws / Provision of training and education programs / Proper process related to sexual harassment / Adherence to legal working hours
Healthy/Safety(13)	• 11 main criteria • 2 sub-criteria	Related company policies / health and safety education / evaluation of risk factors for the improvement of safety / existence of related management divisions / satisfaction of international standards / inspection of special equipment / handling emergencies / handling process in case of fire / violation of laws related to health and safety, etc.
Environment(13)	• 9 main criteria • 4 sub-criteria	Related division / performance of environment education / evaluation of risk factors / satisfaction of international standards / violation of related laws / procedures related to storage, use, and disposal of hazardous chemical substances / system or management framework equivalent to REACH / annual qualitative goals related to reduction, etc.

Risk Management for the Supply Chain

Doosan Fuel Cell currently monitors the financial status of suppliers through the external company information platform, but we plan to manage the sustainability of suppliers through periodic evaluation and monitoring from 2022. As a result of evaluating the ESG activities carried out by suppliers in 2021, 12 out of 13 key suppliers passed the criteria for selecting high-risk suppliers(80 points).

Supply Chain Strategy and ESG Integration (Linking Purchase Strategy and ESG)

Doosan Fuel Cell has established and continues to operate goals for supply chain strategies considering the link with ESG. The main goals are as follows.

ESG goal 1: Cultivating supply chain management capability

We added ESG evaluation criteria to the supplier evaluation index to assess the management capability and strengthen the supply chain network. We evaluate the ESG evaluation scores in the areas of human rights, health, and environment based on the management capabilities of the supplier and determine factors that may have an impact on work continuity and stability due to withdrawal or accidents occurring to employees based on these indices.

ESG goal 2: Complying with laws/guidelines related to the management of hazardous substances and the environment

We comply with HSF(Hazardous Substances Free), which is the product hazardous substance standard, and XRF(X-ray Fluorescence), which is the hazardous substance inspection management guideline. Doosan Fuel Cell understands its responsibility to strictly follow and manage laws and guidelines related to hazardous materials and environmental management as it runs a fuel cell business classified as green energy.

The minimum criteria for ESG evaluation are applied to new suppliers. The percentage of new suppliers of mass-produced materials that apply ESG factors for evaluation was 11.5% in 2021.

Conflict Minerals Policy

Doosan Fuel Cell does not purchase or procure conflict minerals, as the four minerals classified as conflict minerals(tin, tungsten, tantalum, gold) are not used in any products developed by Doosan Fuel Cell.

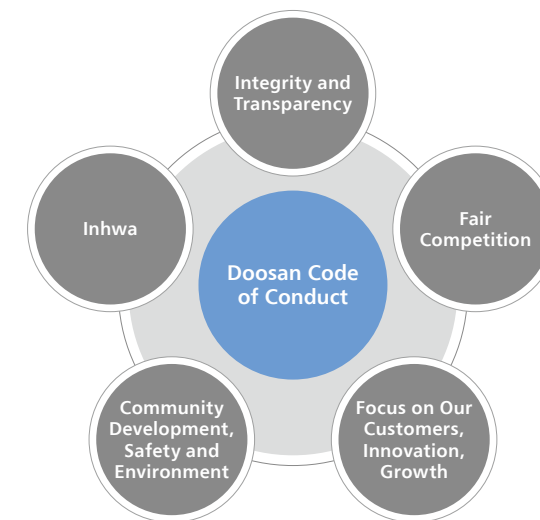
Ethical Management



Code of Conduct

Doosan Fuel Cell is committed to improving competitiveness and fulfilling its corporate social responsibility through Inhwa, the Doosan Group's customer-focused business philosophy, transparent business operations and innovation, to foster Doosan's continuous growth. To this end, we have adopted and implemented the Code of Conduct as our guiding principles. This Code of Conduct(the "Code") applies to all employees("Doosan people") of Doosan Fuel Cell, and third parties working with Doosan Fuel Cell are also encouraged to comply with the Code.

Doosan people are responsible for understanding and complying with internal regulations, including the Code and related laws. Matters not covered by the Code or parts that require detailed explanation are set forth in supplementary policies, which can be found on the Company's intranet or obtained from the Legal Team. To the extent any provision of this Code comes into conflict with applicable laws, the latter shall take precedence. If you believe that such violations have occurred, you are requested to report the matter in accordance with the procedure established by each company. The identity and other information of the reporter shall remain anonymous and any form of retaliation against Doosan people for their reporting in good faith of such violations is strictly prohibited.



Inhwa | Respect, Teamwork, and Openness

Our people are at the heart of our growth and success. We recognize individual differences and treat each other with respect. We define "Inhwa" as teamwork in the truest sense based on the spirit of fairness, openness, and camaraderie.

- We are unreservedly committed to the principle of non-discrimination with respect to race, color, gender, age, disability, religion, ideology, political opinion, nationality, ethnicity, health, physical appearance, sexual orientation, education and social, family, or marital status.
- Words and conduct detrimental to Inhwa, including offensive remarks, verbal and physical abuse, and sexual harassment, have no place at our workplace.
- The fairness, transparent criteria and sound principles guide how we hire, evaluate, develop, and promote our people.
- We will create and foster an environment of open communication where everyone is encouraged to share reasoned ideas and good-faith opinions.
- We do not treat each other unfairly based on regionalism, school relations, and personal intimacy. We pursue solid teamwork based on fairness and warmth. We treat one another in accordance with fair and equitable standards and principles.

Integrity and Transparency

Integrity and transparency must be applied to every aspect of Doosan's organization and business.

- We must not, directly or indirectly, offer, give, promise to give, receive, agree to receive, or request improper financial or other advantages (including gifts, meals, and entertainment) in our dealings with public officials or individuals in the private sector.
- We must ensure the integrity and accuracy of our business and financial records, consistent with applicable laws, accounting principles and our supplementary policies.
- We must provide material information to our investors in a truthful, reliable, and timely manner consistent with applicable laws.
- We must not engage in any activities, including activities outside of our employment, which may undermine Doosan's interests and reputation.
- We must not use internal information for the trading of marketable securities such as stocks and personal interests or provide such information to third parties.
- We must safeguard Doosan's assets from loss, damage, theft, misuse, and abuse.
- We must comply with laws related to anti-corruption and anti-bribery and meet international standards in this regard.
- Doosan's assets must be used only for proper business purposes and for the benefit of the Company. They shall not be used for political purposes or the interests of individuals or third parties.
- We must protect Doosan's confidential or proprietary information and must not share such information with any third party without the Company's permission.
- We must safeguard the security and confidentiality of personal information in Doosan's possession in accordance with applicable laws.

Fair competition

Doosan engages in fair competition. Doosan is committed to complying with relevant antitrust and competition laws and regulations where it conducts business.

- We value our suppliers, contractors, and distributors as our business partners, and strive to build relationships of trust with them for mutual growth.
- Doosan is committed to conducting business in ways that do not restrict fair and free competition. We will not unfairly restrict competition by agreeing with, or exchanging information or opinions with, our competitors regarding prices, types and standards of the products and services, supply levels, markets and territories, customers, suppliers, distributors, terms and conditions of transactions, and bidding conditions and methods.
- We will not use Doosan's dominant market position to exert undue influence on those who deal with us.

Innovation & Growth

We pursue sustainable growth through continuous innovation.

- We are committed to improving our technologies, products, services, processes, and systems continuously.
- To this end, we will actively pursue new and diverse technologies, knowledge, ideas, and information.
- We will constantly set new and challenging goals, thereby improving our individual capabilities, and sustaining Doosan's growth.

Focus on Our Customers, Innovation, Growth

Our customers are the reason we exist. Our business decisions and activities are thoroughly customer-focused.

- We are driven to offer the best value to our customers by understanding and satisfying their needs. We will listen to our customers and treat them fairly and respectfully.
- We will provide our customers with truthful information about our products and services.

Community Development, Safety and Environment

We are committed to building Doosan as a trusted company that grows with our community. As responsible members of our communities, it is our solemn duty to safeguard the life and safety of everyone in our communities and protect the environment.

- Doosan takes corporate social responsibility seriously. We will contribute to the development of our community by carrying out corporate activities and actively fulfilling our corporate social responsibilities.
- Doosan is dedicated to maintaining a safe working environment and complying with all applicable environmental, health, and safety standards and regulations.
- We are committed to safeguarding the health and safety of our people, our customers, and the members of our communities in all aspects of our business, including product development, manufacturing, and sales activities.
- We are committed to achieving environmentally-friendly growth by actively improving our technology and pursuing innovation.

Help Desk Operation

We have opened a Help Desk on our website to provide counseling and guidelines for inquiries or questions related to ethical management policies, details of the Code of Conduct, or other reports. We have been able to successfully enhance the understanding of employees and outside stakeholders of Doosan Fuel Cell regarding the principles of ethics management and work policies.

Contact the person in charge(phone, email, fax, post, etc.) if you have any inquiries or need help regarding a violation of the Code of Conduct and ethics.

Mailing address

Doosan Fuel Cell, 17F, Doosan Tower, 275 Jangchungdan-ro, Jung-gu, Seoul, Republic of Korea

Email

sangjun@doosan.com

Managing Division

Doosan Fuel Cell Compliance

Operation of the Internal Reporting System

Doosan Fuel Cell operates an internal reporting system to establish a transparent and fair ethics management system. Complete anonymity is maintained to avoid any disadvantages to the person making the report. The main issues investigated are reported to the CEO and Audit Committee. Doosan Fuel Cell also operates the Cyber Report Center on the website where anyone can submit a report under his or her name or anonymously.

Violation of Ethics Management and Measures

One case was reported in 2021 but disciplinary action was not taken because no violation of the Code of Conduct was involved. In the case that a violation of the Code of Conduct is verified, we prevent recurrences of similar cases through sharing of information about the unethical act among employees, excluding personal information, through white papers, ethics education case studies, ethics management letters, etc., according to the 'Personal Information Protection Guide' of the Ministry of Employment and Labor. We decide on rewards and disciplinary actions according to the employee evaluation by linking compliance and employee reward based on the reward and punishment regulations.

Operation Policy of the Cyber Report Center

Operation Policy

- 1 The Cyber Report Center of Doosan Fuel Cell is open to employees and outsiders. Violations of internal regulations such as Doosan Fuel Cell Credo and the Code of Conduct and other unfair acts are the subject of reporting.
- 2 Reports can be made anonymously or under one's name. However, the company may not investigate anonymous reports that fail to present concrete evidence.
- 3 The company guarantees the confidentiality of the reporter's identity and details of the report. We prohibit causing any disadvantages to a person who submits a report in good faith.
- 4 The operating regulations of the internal reporting system are applicable to reports made by employees, and these regulations can be checked through DoDream or the responsible division.
- 5 The company receives reports through various routes including post, phone, fax, email, and visit to the division in addition to the Cyber Report Center.

Education on Anti-corruption and Code of Conduct

Doosan Fuel Cell is expanding employees' awareness on ethics management through Code of Ethics education every year. All employees must sign a pledge of compliance with the Code of Ethics and a statement of interest. We conducted remote online education for new employees, online education for office positions, and off-job training for technical workers in 2021.



Anti-corruption Survey of Suppliers and Employees

Doosan Fuel Cell conducts surveys on employees and suppliers to investigate Doosan Fuel Cell's standard of ethics management. A total of 340 employees and 67 suppliers participated in the surveys conducted in 2021 and we used the survey results to identify the current status of ethics management, establish plans to prevent corruption, and complement insufficiencies.

Major Activities of Fair Trade

Distribution of fair trade guidelines

Doosan Fuel Cell distributed the Guidelines to Prevent Violation of Prohibition against Unfair Special Agreements of the Subcontracting Act. The guidelines include Guidelines for Prevention of Unfair Support and Related-Party Transactions, Technical Data Provision Consent, and Guidelines for Preparation and Issuance of Confidentiality Agreement when requesting data from subcontractors to help employees to understand the changing regulatory environment and prevent unintended violation of related laws.

Operation of fair trade education

Doosan Fuel Cell conducted online education on the Subcontracting Act and an online presentation about the job manual for preventing unfair support and related-party transactions to enable employees apply the laws and guidelines related to fair trade in actual work. We raised the level of education and presentation from simple delivery of knowledge through the Q&A sessions, and minimized the occurrence of trials and errors by sharing actual cases.

Reinforcement of monitoring on internal fair trade

To ensure compliance with the Fair Trade Act, Doosan Fuel Cell included the legal manager in the approval line for internal transactions of affiliates to review any unjust support in advance and prevent violations of laws. To comply with the Subcontracting Act, we reinforced internal monitoring by checking the compliance status through the issuance of data provision consent when investigating any report on unjust contract and requesting data from subcontractors.

Settlement of subcontract disputes

Doosan Fuel Cell settled a dispute amicably regarding a subcontract dispute settlement case(1) handled at the Fair Trade Support Center in Gyeonggi-do. There is no additional case of dispute.

Future plans

Doosan Fuel Cell is planning to operate various fair trade compliance programs according to the main policy direction of the Fair Trade Commission for 2022. We are currently planning a fair trade compliance manual and declaration of the CEO's commitment, and are preparing to appoint a compliance manager. We will make sure employees are fully aware of the related laws and follow them thoroughly through guidebooks customized for particular divisions that are directly affected by fair trade laws and education.

Protection of Customer Information

Reinforcement of personal information protection

Doosan Fuel Cell continuously monitors the enactment and revision of laws to protect personal information safely and ensure compliance with domestic and overseas laws related to personal information protection, as well as to disseminate and apply best practices to internal management plans and personal information protection regulations. In addition, we conduct inspection on implementation status, consignor/consignee education, and internal auditing of the main areas every year for the personal information handlers and personal information handling system, and improve and manage vulnerabilities discovered.

Internalization of the personal information protection culture

Doosan Fuel Cell conducts annual education programs for personal information protection managers and handlers who are the subjects of compulsory education on personal information protection. In addition, we are carrying out various activities and releasing material protection such as posters, newsletters, and PC screen savers to strengthen the culture of personal information protection.



Innovative Management



R&D Investment

Technology competitiveness

Doosan Fuel Cell is working on the development of innovative technologies and making continuous investment in technologies to secure future markets through improved product competitiveness and the development of new power fuel cell products. We make an effort to develop technologies that can lead the market toward the hydrogen economy.

Fuel Cell Technology of Doosan Fuel Cell

Safe Technology

Doosan Fuel Cell's technology is safe in that it does not require high pressure and combustion in the power generation process. It has been proven safe ever since its first application in a project by NASA in the United States. Doosan Fuel Cell maintains high-level safety that can be used for a wide range of building types by developing designs that meet international standards and implementing inspections and safety certifications.

Fuel Flexibility

We can address customers' demands and field conditions flexibly because natural gas and LPG can be used as fuel, in addition to hydrogen.

High Durability

The system lifespan can be maintained for longer based on the operating temperature of less than 200°C and stable stack technology.

Fast Response and High Capacity Ratio

We offer a flexible power system that responds to load changes in real-time through the output adjustment at the speed of 10kW/sec for ramp up and 20kW/sec for ramp down of 440kW rated output. This guarantees energy production under any circumstances with durability that allows an average capacity ratio of over 95% rated output for 365 days a year. Furthermore, it supports excellent system restoration in emergencies such as outside blackouts.

Green Energy

There is no emission of hazardous substances compared to the conventional combustion generation method, and it can be operated in residential areas with less than 60dB of noise.

Easy Installation

Thanks to its container size (dimension: 8.3m x 2.5m x 3.0m), Doosan Fuel Cell's PAFC fuel cell is easy to transfer and enables excellent space utilization. It has no locational restrictions according to the environment and climate conditions. Thus, it is possible to minimize installation area and initial investment costs compared to renewable energy technologies of the same capacity.

Electricity + Hot Water Supply

It is a highly efficient energy conversion technology that supplies electricity and heat for heating and cooling requirements for industrial facilities with up to 90% efficiency.

Development of green products

Green model

Fuel cells of Doosan Fuel Cell do not generate nitrogen oxides as they do not involve a combustion process and sulfide compounds are eliminated inside the device. They can reduce CO₂ emissions based on high power generation efficiency, and do not require separate kinetic energy, thereby avoiding damage from noise and dust. A hydrogen model fuel cell using hydrogen fuels is an eco-friendly product that does not generate CO₂ emissions. It is a 100% green energy source that can use byproduct hydrogen generated from petrochemical and steel processes. Thanks to their higher power efficiency (49%) compared to the conventional natural gas model, fuel cells will be used as energy facilities that do not discharge pollutants when the production of green hydrogen becomes generalized with the development of hydrogen technologies.

Response to global environmental regulations

Doosan Fuel Cell actively responds to GHG reduction policies that are becoming more stringent globally. We are developing a PAFC system technology linked with CCUS (Carbon Capture, Utilization, and Storage) to convert the gray hydrogen economy, which is extracted from hydrocarbon fuels (natural gas, LPG, etc.), to a blue hydrogen system through CO₂ capture. The CO₂ capture technology is being demonstrated in thermoelectric power plants and cement/steel industries with wet, dry, and separator technology for combustion gas, but there is no case of applying and running this technology in the long-term within the fuel cell industry. Doosan Fuel Cell is expecting a substantial reduction of up to 70% of CO₂ emissions compared to conventional PAFC through the development and demonstration of a CCS-linked process for fuel cell plants in operation.

Development of high efficiency products

High efficiency model

Doosan Fuel Cell is securing SOFC (Solid Oxide Fuel Cell) technology, in addition to the conventional PAFC (Phosphoric Acid Fuel Cell) technology, to reinforce its market dominance through a diversified portfolio of technologies. The SOFC system for power generation has good power efficiency but a short lifetime because it is operated at a high temperature of over 800°C. Doosan Fuel Cell aims to secure market competitiveness by developing a low-temperature SOFC system that can complement these drawbacks. We are currently developing a mid-temperature SOFC system for power generation as the national project, and are also working on the mass-production of a core component, Celstec, in cooperation with Ceres Power, a fuel cell technical company in the United Kingdom. KRW 72.4 billion will be invested in production facilities until 2023 for the scale of 50MW, and mass production will begin in 2024.

Development of technologies to reduce power generation costs

With the increasing supply of renewable energy, there is increasing demand for the reduction of power generation costs associated with PAFC products. Doosan Fuel Cell now aims to achieve LCOE reduction through continuous development of cost reduction technologies.

Domestic production of parts

As of 2019, we achieved 97% of domestic production working with 280 suppliers in Korea. We perform manufacturing, test, maintenance, and performance improvements of all key parts, including cell and stack, domestically.

Metal separator

The cost ratio of a separator in a stack, the core part of phosphoric fuel cells, is about 30%, which is a key factor in determining the total cost. For this reason, the separator is very important in terms of performance. Doosan Fuel Cell is developing a cost-effective, long-life separator that can apply low-cost materials and processes by replacing expensive graphite with metal.

Next-generation catalysts

Platinum catalyst, which is a commercialized precious metal, is used in phosphoric fuel cells. Since platinum catalysts come with a high cost ratio and their availability is highly dependent on imports, Doosan Fuel Cell is developing a next-generation catalyst with high performance and durability that can be produced domestically in cooperation with domestic suppliers and institutions.

Open Innovation

Doosan Fuel Cell aims to secure technological competitiveness and establish a hydrogen economy by collaborating with external cooperative organizations, specialized institutions, and central administrative organizations

Type of open innovation	Benefits from a human resource/technology perspective
Agreements with external partners	<ul style="list-style-type: none"> Securing technological competitiveness to build a hydrogen economy in cooperation with external partners, specialized agencies and central administrative agencies Securing technological competitiveness in the early stage by identifying core technologies from the short-term and long-term perspectives, cooperating with external agencies for commercialization, and pursuing joint growth
Joint development agreement with Ceres Power on SOFC for buildings	<ul style="list-style-type: none"> Introducing the Solid Oxide Fuel Cell(SOFC) stack manufacturing technologies of Ceres Power Limited to secure competitiveness in SOFC technology, which is the core of the E-only market Concluding a license agreement to invest in mass production facilities in South Korea and sell mass produced products
Agreement with Yonsei University	<ul style="list-style-type: none"> Developing and operating master's, doctorate, and integrated degree courses based on cooperative research with Yonsei University to train R&D workers, with one researcher participating as of 2022

Product Innovation

We improve and develop existing PAFC NG models to accelerate growth and secure the future market, promoting the development of new products like LPG fuel models and tri-gen models. LPG fuel models enable efficient power generation depending on the fuel prices and fuel use characteristics in the installed region by using NG and LPG together. We have completed the development, demonstration, and commercialization of these models. Tri-gen models can produce electricity, heat, and hydrogen. They are under development through a national task and will be commercialized after a pilot project. Tri-gen models can be used in infrastructures to implement the hydrogen economy in the future as they can function as HV/EV charging stations in cities while supplying electricity and heat as distributed power. In addition, our company is developing SOFC technologies, besides the existing Phosphoric Acid Fuel Cell(PAFC) technologies, to ensure competitiveness in the power generation market. The SOFC system for power generation shows high power efficiency at high temperatures above 800°C, but has the disadvantage of a short life expectancy. Our company is developing a medium- and low-temperature SOFC system to make up for this shortcoming. To do so, we are developing the mass-production technology for cell stacks, which are the core parts of fuel cells, in cooperation with Ceres Power, an English company specializing in fuel cell technologies. By investing KRW 72.4 billion until 2023, we will install production facilities on a scale of 50 MW. The mass production will begin in 2024. Doosan Fuel Cell defines innovative products as products that undergo significant improvements with regard to major parts and modules that account for over 10% of the material cost and changes in the fuels or fuel compositions used(mixed use of two or more fuel types), apart from producing new product models. Innovative products accounted for sales that occurred for five years, including the year in which improvements were made. The ratio was 99% of total sales in 2019, 90% in 2020, and 100% in 2021.

Product development for new markets

We plan to expand to various businesses by developing SOFC, PEMFC, and PEMEC technologies based on the PAFC technology.

Fuel cell for vessels(SOFC)

As the fuel cell market for vessels operates under IMO(International Maritime Organization) regulations to achieve the 2050 GHG reduction goals, we are developing fuel cells for vessels based on power generation SOFC. We will sign a consortium LOI with Shell and Korea Shipbuilding & Offshore Engineering for auxiliary propulsion and complete commercialization to preoccupy the market.

Commercial vehicle mobility power pack(PEMFC)

Considering the enhanced regulations on combustion engine emissions and policies restricting sale in each country, we plan to develop and commercialize a power pack for large commercial vehicles to ensure competitiveness compared to battery-run electric cars with limited energy density in the electric car market.

Tri-gen

Tri-gen models can produce electricity, heat, and hydrogen. They are under development through a national task and will be commercialized from 2022 after a pilot project. Tri-gen models can be used in infrastructures to implement the hydrogen economy in the future since they can function as HV charging stations in cities while supplying electricity and heat as distributed power.

Process Innovation

Doosan Fuel Cell improved business efficiency and secured visibility by switching fuel cell manufacturing sites and service sites operating products installed at customers' sites into digital-based operations. In addition, we linked the systems to ensure that data can organically flow into a single information channel without discontinuation. Manufacturing sites introduced the Manufacturing Execution System(MES) to standardize and carry out duties based on the system, from process operation to manufacturing. When materials are warehoused, the information about warehousing and the quality of semi-finished products and products is stored in a single database, allowing us to track quality information of finished products and raw materials. Production, quality, and equipment information is saved in the database, and we have built an environment to identify and operate the current status by providing visibility using a visualization tool. Service sites switched from the existing CRM system(ServiceMax) to a new system(Salesforce Service Cloud) to reduce the operating expense by 51%. In terms of operating efficiency, we enhanced the work efficiency by changing manual maintenance works performed during product operations at customer's sites into a system-based work environment and eliminating unnecessary tasks.

Major tasks for process innovation

Major Tasks	Effects
1. Reinforcing maintenance and analysis of reference service information	Preparation of the basis for data analysis through the system
2. Embodying BOM by PPLT number	Improved level of handling shutdowns
3. Improving management of retrofit targets and progress	
4. Creating S/D cases in real-time and tracking status of S/D PPLT	Strengthened communication with customers
5. Providing S/D reports and detailed analytical data to customers	
6. Supporting replacement of parts(search, release, replacement) based on system	Increased efficiency of internal communication through single view
7. Normalizing case-WO types and diversifying WO generation methods	
8. Embodying features to manage performance and the installation status of major parts	Reinforced management of the major parts system
9. Creating preventive maintenance cases and massive WO	Securement of time to execute duties by enhancing work convenience

1 Reference Information

By standardizing the service reference information(products, accounts, location, contact, contracts) managed by each manager and integrating systems, we enabled the provision of analytical information with increased diversity and accuracy.

2 BOM of Each Product Installed

We have prepared a system to provide separate Bill of Material(BOM) for each product installed at customer companies to manage the information on shipped parts and replaced parts. By doing so, we have been able to enhance our service level for customers by easily identifying and managing products subject to replacement in Korea and overseas when retrofits occur in specific parts.

3 Automation of the Maintenance Order

When abnormal operating information is detected by the Remote Monitoring System(RMS) that monitors products installed at customers' sites, a signal is sent to the CRM system. The CRM system issues a work order for service technicians to perform maintenance, thereby shortening the processing time.

4 Request for Release of Parts

In the past, replacement parts had to be requested via phone or email for the person in charge at the head office to handle the matter. We prevented manual errors and increased the work efficiency by utilizing the CRM system to share parts release requests from service sites with the person in charge at the head office and the logistics manager, automatically releasing service parts to the sites.

5 Management of Conditions of Core Parts

By providing real-time performance and replacement history of major parts installed on each product, we can easily check the conditions without having to visit the actual site.

6 Automatic Preventive Maintenance Order

We issued adequate preventive maintenance orders based on the operating time of products so that our service technicians at each site were able to operate the products stably without omissions.

Digitalization of Operation

Doosan Fuel Cell preemptively built the MES as a standard system for mass-produced fuel cells, thereby building a digitized production system that plans, controls, and embodies the entire manufacturing process. We linked data collected from all sectors of the expanded value chain to the MES by connecting suppliers(SRM), Doosan Fuel Cell(MES/ERP), and customers(CRM). All data are visualized using Qlik and the Dashboard, ranging from reports submitted by suppliers, data entered during operations and processes, and defect information at customers' sites. The system allows us to examine the progress of processes at a glance.

Securing standard MES for fuel cells	Connection and monitoring of parts, processes, and customer quality	Building a system that supports expandability
<ul style="list-style-type: none"> Production order and execution based on system Real-time control of production information and securement of visibility Agreement between actual inventory and computer inventory 	<ul style="list-style-type: none"> Securement and analysis of real-time data Formation of an integrated quality DB and tracking environment Supplier – Operation – Customer linkage analysis 	<ul style="list-style-type: none"> Design and construction of system while considering the U.S. corporation Flexible response to changes in the manufacturing environment by standardizing the MES function modules

Information Security



Information Security Operating System

Doosan Fuel Cell promotes company-wide security management systems through the security department that is managed under the Chief Information Security Officer(CISO) and the Chief Privacy Officer(CPO). We protect the company's assets against internal and external security threats. As an affiliate of the Doosan Group, we acquired the ISMS, an information security certification, from Doosan. Doosan Fuel Cell strives to strengthen its information security by participating in simulated hacker training programs hosted by Doosan.

Information Security Policy



Security management system

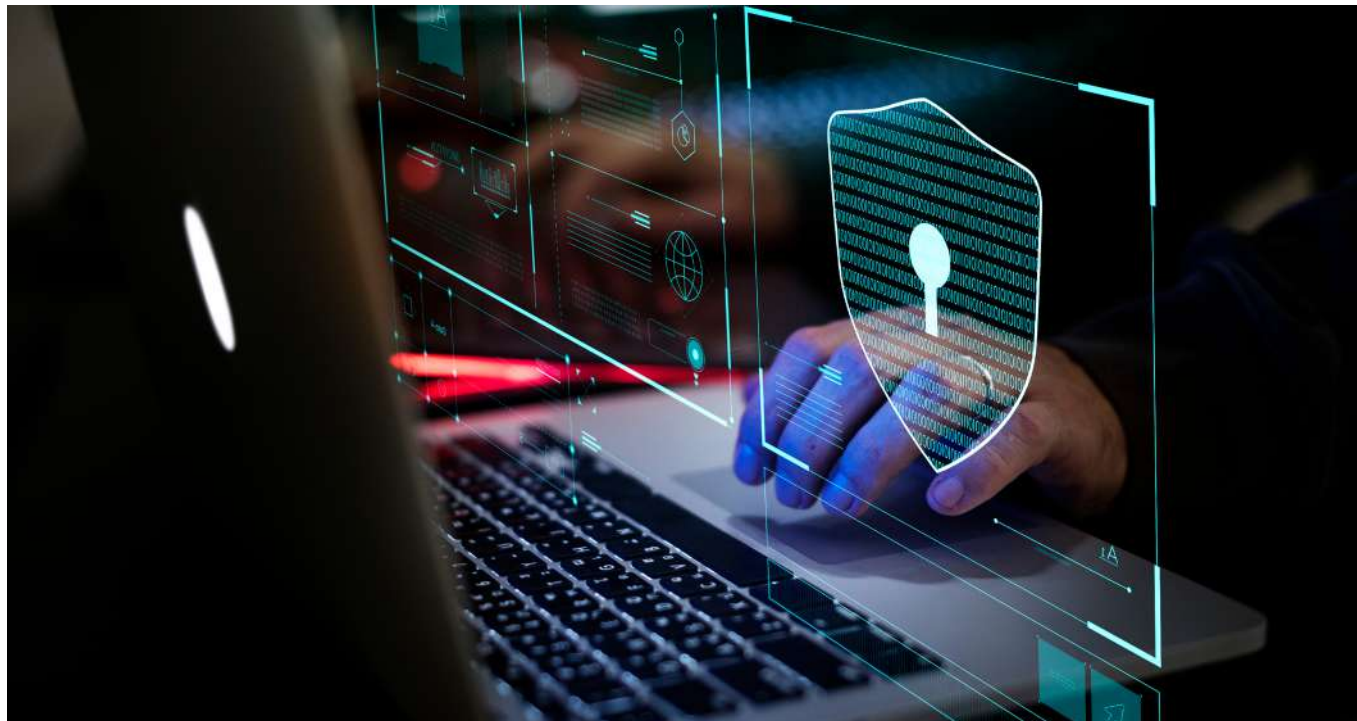
- We established security regulations(HR and suppliers, IT systems, security audits, security management, responses to security accidents, facility security, protection of business secrets, information assets, information devices, cloud security policy) in 2020 and review them every year to introduce necessary revisions. We share our security policies with employees by posting them on the in-house portal.
- The security system of Doosan Fuel Cell and Doosan Group responds proactively to security threats by detecting and analyzing invasion attempts. Our 24/7 monitoring solutions safely protect internal information assets.
- Multi Factor Authentication(MFA) was applied to the in-house system access solutions, VPN¹⁾ and VDI²⁾, to use One Time Passwords(OTP) when accessing internal systems from the outside. Using these methods, we prevent outsiders from accessing our internal systems by stealing accounts.

1) Virtual Private Network(VPN): A solution that allows users to use a public network, such as the Internet, in the same manner as an intranet
 2) Virtual Desktop Infrastructure(VDI): A solution that provides a virtual desktop and data storage to each user by utilizing resources of a server operated by virtualization technology



Protection of corporate information

- We make a list of business secrets and update it every year to legally protect and manage the security of important business secrets. A policy to detect leakage history and block leakages has been applied to minimize the risk of business secrets reaching unscrupulous entities. We have introduced measures to raise the security awareness of departments. We appointed the security officer and manager for each department to collaborate with the security department when a security accident or sign occurs.
- When an employee retires, we check the history of emails sent out by the retiree in the last six months to check for the leakage of business secrets.



Information Security Education

All employees must annually receive online security education on the prevention of information leakage, protection of business secrets, management of information devices, and protection of personal information. In 2021, we conducted a simulated hacking email training to prevent damage from ransomware, remittance fraud, and information leakage using phishing emails that are intended to steal accounts. By following up with a campaign, we improved the response capability of employees by educating them on how to identify and report hacking emails. We regularly designate a Security Diagnosis Day to deliver security-related news and announcements. Employees are provided with a checklist and guidelines to self-check their security status.

Security Diagnosis Day		
Security inspections and measures	PC, VDI, everyday security	Individuals
	Information system	Departments
	Business secrets and documents	
	Facilities, areas, access	
Raising awareness	Focused security management	Persons in charge of security
	Security newsletter	



Internal information security reporting process



Initial response

- 1) Employees shall refrain from responding discretionally, immediately report any risks/incidents to the security department, and follow the instructions of the security department. If there is a concern of any damage spreading through the company's network via ransomware, the affected computer equipment shall be removed from wired and wireless corporate networks and immediately reported to the security department.
- 2) The security department shall provide information on the security accident or risk to the information system managing department in each area, operating department, and related departments, have them take initial actions to prevent the spread of damage, and evaluate the seriousness of the accident. The security department shall determine the seriousness of the accident, report the matter to the executive in charge of security, isolate the accident site if necessary, and secure the body, evidence, and traces of related persons.
- 3) If a security accident occurs and has a serious adverse impact on the company, the head of the security department shall report the matter to the executive in charge of security and senior management, call an "emergency accident response organization," and discuss response measures. If external communication is necessary, the channels shall be combined into one channel, such as the PR Department, to prevent additional damage from communication errors.



Accident investigation and report

- 1) The security department or emergency accident response organization shall investigate the security accident after taking initial actions to prevent collected evidence and traces from losing their evidential power. If necessary, the department or organization may seek cooperation from external agencies.
- 2) Preemptive actions can be taken during the investigation if necessary to prevent the spread of damage.
- 3) Upon completion of the accident investigation, the security department or emergency accident response organization shall prepare a report containing the following matters and submit the report to the executive in charge of security, depending on the seriousness of the accident. If necessary, these matters may be reported to the executive in charge of security even during the investigation.
 - ① Person who caused the accident and personal profile;
 - ② Date, time, and place of occurrence;
 - ③ Details and course of the accident;
 - ④ Judgment on the investigation results; and
 - ⑤ Follow-up measures and recommendations for improvement
- 4) Details of the security accident shall not be disclosed until the investigation is concluded. The investigation results are only disclosed to the relevant employees, the executive in charge of security, and the top management.



Follow-up actions on security accidents

- 1) If actions are required to prevent the recurrence of the security accident, persons in charge of the target department shall take preventive actions or establish an action plan within two weeks from the date notified of the results and report the measures to the security department.
- 2) Members of the security department shall confirm that the persons in charge of the target department took appropriate preventive actions. However, the time of confirmation may be changed according to the urgency and importance of the matter.
- 3) The company may take disciplinary actions or punish related employees and persons in charge based on the investigation results, taking legal action as necessary.

ESG Roadmap



076 Mid and Long-term ESG Roadmap of Doosan Fuel Cell

077 Environmental Roadmap

078 Social Roadmap

079 Economy/Governance Roadmap

Mid and Long-term ESG Roadmap of Doosan Fuel Cell

ESG Vision

ESG First Step to Biggest Step

Strategic Direction



Positive environmental value



Inclusive social value



Trustworthy management value

Mid to long-term goals

- Enhancing Carbon Neutrality and environmental efficiency
- Promoting an environmental management certification system
- Reinforcing management of climate change risks
- Contributing to biodiversity

- Reinforcing management of human rights risks
- Empowering employees
- Promoting a family-friendly corporate culture
- Diversifying the employee evaluation system

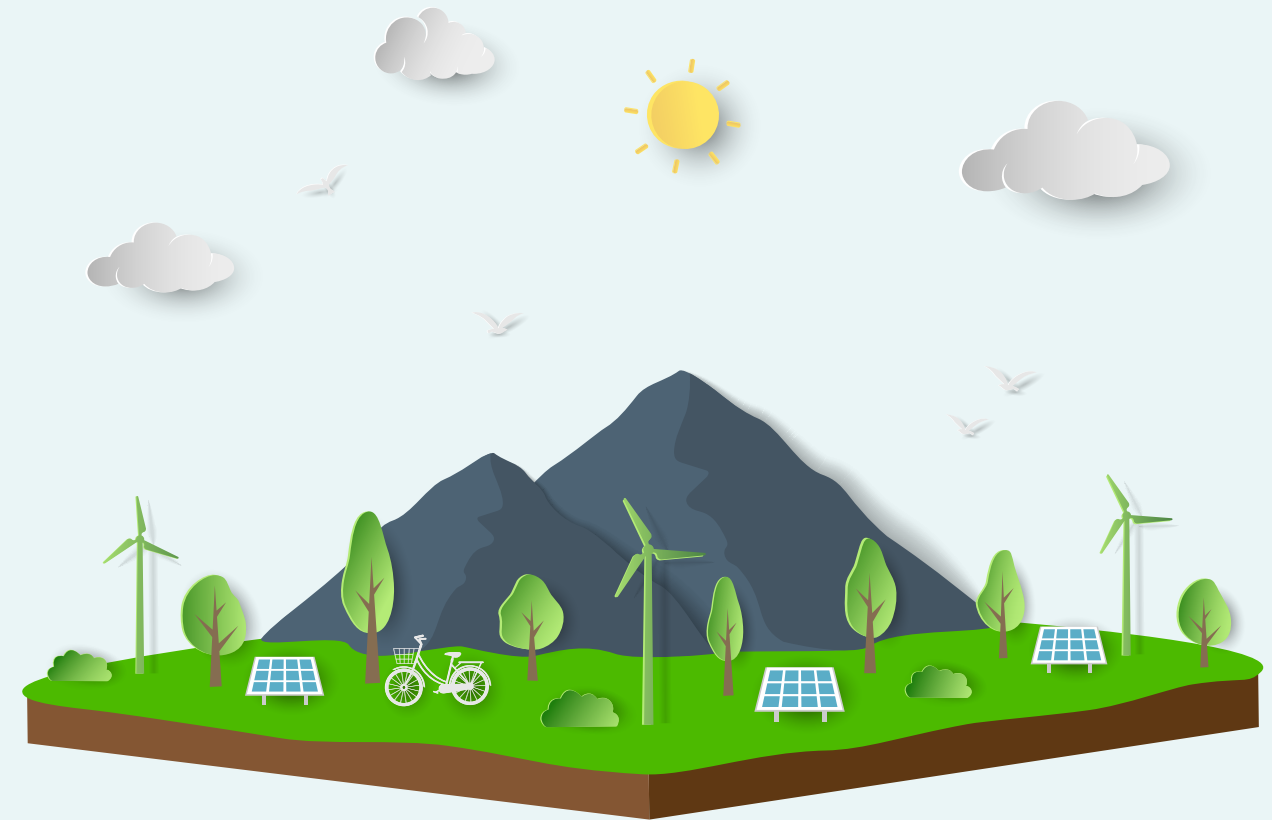
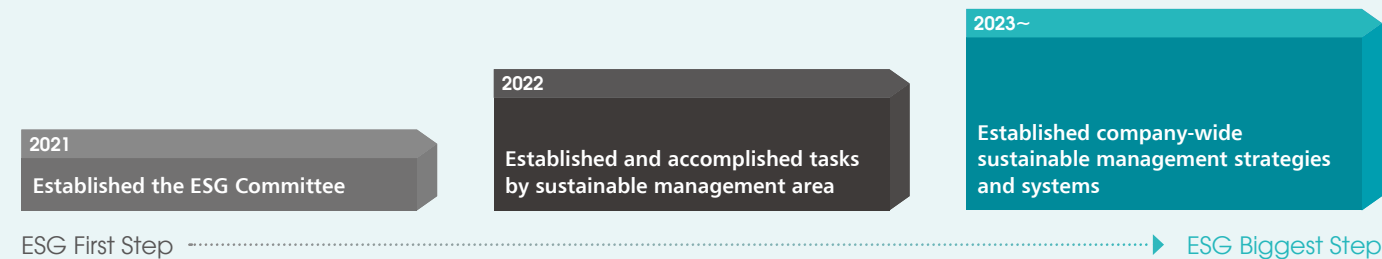
- Spreading a culture of fair trade
- Reinforcing the diversity and professionalism of the Board of Directors
- Reinforcing risk management
- Reinforcing performance in emerging markets

Sustainable Management Aspirations of Doosan Fuel Cell

In 2021, Doosan Fuel Cell suggested a direction for sustainable management and established the main goals to achieve it. The goals are classified into short-term tasks and mid and long-term tasks, and the sustainable management results until the first half of 2022 were used for this first sustainability report. We will take the first step as a global company that fulfills sustainable management through our response to domestic and international sustainable management assessments, such as DJSI and KCGS. We will demonstrate Doosan Fuel Cell's aspirations regarding sustainable management more clearly through various and effective communication channels with our stakeholders by reviewing our past outcomes and reflecting sustainable management trends worldwide.

Mid and Long-term Sustainable Management Strategies of Doosan Fuel Cell

From 2021 to the first half of 2022, Doosan Fuel Cell established 'ESG, the First Step to the Biggest Step' as the ESG vision to create positive environmental value, inclusive social value, and trustworthy management value in each governance area of environment, society, and economy. We will establish mid and long-term goals in addition to the outcomes achieved through our short-term tasks and implement mid and long-term tasks in the environment, society, economy, and governance areas.



Environmental Roadmap

Sustainable Management Performance in the Environment Area

Strategic sustainable management tasks	Sustainable management performance
Reinforcement of environmental business management	Establishing environmental management organizations/policies/goals/strategies, conducting environmental management programs/education, disclosing any violations of environmental laws, performing environmental impact assessments
Response to climate change and expansion of green business sites	Performing activities to manage and reduce GHG/energy/water/waste/ hazardous substances, improving air quality, pricing the internal carbon price
Development of green products and responsible management of products	Developing low carbon products, enhancing the eco-friendliness of product design standards, performing simplified life cycle assessments, responsibly managing products with ended lifecycle, enhancing environmental efficiency in the use stage

Mid and Long-term Sustainable Management Plan in the Environment Area

In the environment area, we aim to carry out activities for enhancing environmental efficiency and acquire environmental management certifications to establish a Carbon Neutrality roadmap. In addition, we will reinforce the management of climate change risks and carry out policies and activities to contribute to the diversity of species and prevention of forest destruction.

Mid to long-term goals	Detailed plan
Enhancement of Carbon Neutrality and environmental efficiency	Establishing a Carbon Neutrality roadmap, management of scope 3 emissions, reduction of energy/waste/hazardous wastes
Promotion of an environmental management certification system	Acquiring ISO14001/green certifications
Reinforced management of climate change risks	Reviewing the publication of a TCFD report, setting KPIs for achieving climate change performance/introducing a reward system, analyzing physical/financial risks of climate change
Contribution to biodiversity	Establishing policies to preserve biodiversity and prevent the destruction of forests



Social Roadmap

Sustainable Management Performance in the Social Area

Strategic sustainable management tasks	Sustainable management performance
Safety and health management	Establishing safety and health management goals/strategies/checklists and promoting management activities
Promotion of human rights management	Establishing human rights policies, carrying out human rights education, installing reporting channels/grievance handling processes regarding human rights issues, establishing a human rights risk mitigation plan
Promotion of quality management	Establishing quality management policies, reinforcing and expanding the quality management system
Promotion of human resource management	Conducting employment/talent training/human resources development programs, establishing a sound labor-management culture, establishing policies to prevent discrimination and harassment, providing fair performance evaluations and reward
Promotion of shared growth	Establishing a shared growth promotion system, implementing support programs
Performance of CSR activities	Establishing a CSR promotion system, establishing a Social Contribution Committee, and promoting CSR activities

Mid and Long-term Sustainable Management Plan in the Social Area

In the social area, we will make sure that our employees receive reasonable compensation and are able to work in a pleasant environment by reinforcing the management of human rights risks, empowering employees through education programs, improving the corporate culture, and diversifying the employee evaluation system.

Mid to long-term goals	Detailed plan
Reinforcement of the management of human rights risks	Promoting activities to facilitate human rights assessments
Empowerment of employees	Carrying out a performance assessment of employee educational programs
Enhancement of a family-friendly corporate culture	Acquiring certification as a family-friendly company
Diversification of the employee evaluation system	Introducing multilateral performance evaluations



Economy/Governance Roadmap

Sustainable Management Performance in the Economic and Governance Area

Strategic sustainable management tasks	Sustainable management performance
Establishment of a trusted governance structure	Establishing a BOD operation system, disclosing data on BOD performance evaluations and rewards/BOD status and Operating Committee activities, communicating with stakeholders
Reinforcement of supply chain management	Education on the code of conduct to be followed by suppliers, analyzing supply chain risks and disclosing the results, integrating supply chain strategies and ESG, disclosing conflict mineral policies
Promotion of ethics management	Establishing a code of conduct, internal reporting system and a cyber reporting center; disclosing information on violations and handling status; conducting anti-corruption surveys; strengthening customer information protection
Promotion of innovative management	Technical innovations through R&D, disclosing cases of open innovation, disclosing the definition of product innovation and data, disclosing process innovation cases, establishing information security system/reporting processes, conducting education

Mid and Long-term Sustainable Management Plan in the Economic/Governance Area

In the economic/governance area, we have the following goals. We will build a trusted governance structure by reinforcing the diversity and professionalism of the BOD, work hard to pursue shared growth with suppliers by carrying out the fair trade compliance program, establish a risk management governance and management system to build a company-wide risk management system, and achieve economic outcomes by reinforcing performance in emerging markets.

Mid to long-term goals	Detailed plan
Strengthening the Fair Trade Culture	A fair trade compliance manual, declaration of the CEO's commitment, appointing a fair trade compliance manager, introducing personalized guidebooks/education
Reinforcement of professionalism and diversity of the BOD	Increasing the participation of directors with industrial expertise, appointing female directors
Reinforcement of risk management	Establishing risk management governance, appointing monitoring officers, establishing a company-wide risk education system
Reinforcement of performance in emerging markets	Reinforcing R&D targeting emerging markets, developing R&D platforms

Appendix



- 082 Major ESG Outcomes
- 090 GRI Standards Index
- 092 Third-party Assurance Statement
- 094 Organizational and Group Membership

Major ESG Outcomes

Economy and Governance

Consolidated Statement of Financial Position

Classification	Unit	2020	2021
Revenue	KRW million	461,839	381,412
Total revenue	KRW million	50,623	48,202
Operating income	KRW million	26,033	17,990
Net income before income taxes	KRW million	18,267	18,630
Current net income	KRW million	14,190	18,630
Liabilities	KRW million	277,644	180,667
Capital	KRW million	512,544	518,188
Total assets	KRW million	790,188	698,855
Management expenses concerning risk and opportunity factors due to climate change	KRW million	-	-

Research and Development

Classification	Unit	2020	2021	
Research and development	R&D investment	KRW million	3,923	13,452
	Percentage to sales [Total R&D expenses ÷ Sales of the current term × 100]	%	0.9%	3.6%
	Number of research personnel	Person	45	62
	Number of development of new products/new technologies	Case	0	2
Product innovation	Sales ratio of innovative product*	%	90	100
Total assets	KRW million	790,188	698,855	
Management expenses of crisis and opportunity elements due to climate change	KRW million	-	-	

* Doosan Fuel Cell was separated from Doosan and established in October 2019, but the 5-year sales, including the initial year of selling Doosan Fuel Cell products produced since 2017, was used to calculate the sales of innovative products based on the total sales by year X ratio of innovative products produced in the year.

Economic Results Distribution

Classification	Unit	2020	2021
Dividends to shareholders(Dividend)	KRW million	-	-
Total tax paid to government(Corporate tax)	KRW million	4,076	9,934
Total amount provided to employees(Labor expense and welfare expense)	KRW million	28,869	37,745
Amount purchased from suppliers	KRW million	588,880	542,415
Amount invested in the community	KRW million	10	1,053
Expenditures on investors	KRW million	4,826	5,764
Total economic results distributed	KRW million	626,662	596,911

Confirmed Cases of Corruption and Unfair Trade and Countermeasures

Classification	Unit	2020	2021
Number of corruption cases	Case	0	0
Number of workers who have taken training	Person	0	0
Violation of fair trading	Case	0	0

Notices and Training Relating to Anti-Corruption Policy and Procedure

Classification	Unit	2020	2021	
Number of governance(BOD) members	Person	0	0	
Number of governance(BOD) members who have taken anti-corruption training	Person	0	0	
Ratio of governance members who have taken training	%	0	0	
Number of workers who have taken training(By employment type)	Regular worker	Person	390	466
	Non-regular worker	Person	0	0
	Total	Person	390	466
Ratio of workers who have taken training	Total	%	95.6	96.9
Ratio of workers who have taken training(By employment type)	Regular worker	%	100	100
	Non-regular worker	%	-	-
Number of workers who have taken training(Domestic)	Person	390	466	
Ratio of workers who have taken training(Domestic)	%	95.6	96.9	

Workers who have taken training: Workers who have taken anti-corruption education

Ethical Management

Classification	Unit	2020	2021
Ratio of application of employee code of conduct	%	100	100
Ratio of signing of code of ethics by employees	%	68	97
Ratio of provision of employee code of conduct	%	68	97

Policy Expenditures

Classification	Unit	2020	2021
Lobby	KRW million	0	0
Political donations	KRW million	0	0
Membership costs of related organizations	KRW million	28	295

Main Policy-related Expenditures

Classification	Unit	2021
Fuel Cell Industry Promotion Association	KRW million	257
Hydrogen Convergence Alliance	KRW million	10
Energy Alliance	KRW million	10
Energy Transition Forum	KRW million	8
Korea New & Renewable Energy	KRW million	5

IT Infrastructure Accidents

Classification	Unit	2020	2021
Number of IT infrastructure accidents	Case	0	0
Amount of damage from IT infrastructure accidents	KRW million	0	0

Supply Chain Risk Management

Classification	Unit	2020	2021
Total number of suppliers	EA	200	66
Number of key suppliers	EA	5	13
Suppliers subject to ESG risk evaluation	%	-	13
High-risk suppliers	%	N/A	1

Information Security

Classification	Unit	2020	2021
Number of information security violations	Case	0	0
Ratio of information security investment(Compared to total IT costs)	%	NA	7.8%

Society

Status of Employees

Classification	Unit	2020	2021	
Total number of employees	Person	408	481	
Number of employees	Male	359	425	
	Female	49	56	
Regular employee status	Number	Male	341	411
		Ratio	49	55
		Total	390	466
	Ratio	Male	83.6	85.5
		Female	12	11.4
Contract employee status	Number	Male	18	12
		Female	0	1
		Total	18	13
	Ratio	Male	4.4	2.5
		Female	0	0.2
		Total	4.4	2.7
		Number of employees by age	Number	Under 30
30~50	233			263
Over 50	7			10
Total	408			481
Ratio	Under 30		43.08	43.24
	30~50		59.74	53.43
	Over 50		1.79	3.33
Number of employees by region	Ratio of domestic and overseas employees*	%	0.5	0.41
	Domestic nationality(Regular position)	Person	388	464
	Domestic nationality(Temporary position)	Person	18	15
	Total number of employees with domestic nationality	Person	406	479
	Overseas nationality(Regular position)	Person	2	2
	Overseas nationality(Temporary position)	Person	0	0
	Total number of employees with overseas nationality	Person	2	2

* The executives are all of Asian nationality.

Turnover

Classification	Unit	2020	2021	
By country	Domestic	Person	24	47
	Overseas	Person	0	0
By gender	Male	Person	20	42
	Female	Person	4	5
By age	Under 30	Person	4	21
	30~50	Person	18	23
	Over 50	Person	2	3
	Total	Person	24	47
Voluntary turnover	%	5.88	9.77	
Turnover	%	5.88	9.56	

New Hires

Classification	Unit	2020	2021	
Gender	Male	Person	65	110
	Female	Person	14	12
	Total	Person	79	122
By age	Under 30	Person	57	76
	30~50	Person	22	42
	Over 50	Person	0	4
Number of new hires	Person	79	122	
Number of persons transferring division	Person	165	98	
Employment of experienced employees	Person	26	44	
Fixed-time workers	Person	1	2	
Average employment costs	KRW million	140	66	
Open positions filled by inside candidates	%	86%	69%	

Diversity of employees

Classification	Unit	2020	2021		
Diversity of employees	Female	Ratio of female employees	%	12	11.6
		Ratio of all female managers	%	6.2	7
		Ratio of female executives	%	0	0
		Ratio of all female entry-level managers	%	2	2.5
		Ratio of female employees within profit-making divisions	%	0	0
		Ratio of female employees within STEM division	%	56	59
	Disabled persons	Number	Person	2	1
		Ratio	%	0.49	0.21

* Target ratio of disabled employment 3.6% increase expected(by the end of 2022)

* Entry-level managers: Manager or higher positions

Labor Union and Collective Agreement

Classification	Unit	2020	2021
Ratio of employees with union membership	%	23.2	25.7

Performance Evaluation

Classification	Unit	2020	2021
Ratio of senior executives with long-term incentives	%	100	100
Ratio of employees who received performance evaluations	%	100	100
Number of target employees of performance evaluations	Person	263	307
Number of employees who received performance evaluations	Person	263	307
Ratio of employees subject to MBO	%	NA	70.7
Ratio of employees subject to multilateral performance evaluations	%	NA	-
Ratio of employees subject to priority evaluation of same positions	%	NA	70.7

Employee Satisfaction Survey

Classification	Unit	2020	2021
Ratio of employees that participated in the employee satisfaction survey	%	54	75
Employee satisfaction survey score	%	N/A	69

* The 2020 employee satisfaction survey was evaluated qualitatively.

Safety and Health

Classification	Unit	2020	2021	
Occupational accident rate	%	0	0.21	
Lost time incident rate(LTIR)	Employees	Occupational accident frequency per million hours	0	0.22
	Suppliers	Occupational accident frequency per million hours	0	0
Occupational illness frequency rate(OIFR)	Employees	Occupational accident frequency per million hours	0	0
Workers in charge of work and/or workplaces within the organization (excluding employees)	Person	Person	58	89
	Ratio	%	14	18
Number of occupational deaths of employees	Total	Person	0	0
Number of recordable work-related injuries of employees	Person	Person	0	1
Ratio of recordable work-related injuries of employees	%	%	0	0.21
Number of deaths of workers in charge of work and/or workplaces within the organization (excluding employees)	Person	Person	0	0
Site safety inspection(number of inspections per site)	Inspection	Inspection	28	9

Human Resources Development

Classification	Unit	2020	2021	
Total number of education participants	Total	Person	338	459
Total hours of education	Total	Time	16,322	13,568
Education hours per person	Total	Time	48	30
Total educational expenses	KRW million	KRW million	766	924
Educational expenses per person	KRW million/Point	KRW million/Point	2.3	2
Educational satisfaction(business benefits/effects of education)	Point	Point	99	98.8
Ratio of regular employees taking the Service Field Training course	%	%		5
Ratio of regular employees taking the Junior MBA	%	%		1

Equal Compensation

Classification	Unit	2020	2021		
Average base pay	Executive	Male	KRW million	219.6	220.4
Average base pay		Female	KRW million	0	0
Average wage(base pay + incentive)	Executive	Male	KRW million	330.8	375.1
Average wage(base pay + incentive)		Female	KRW million	0	0
Average base pay	Management (manager or higher)	Male	KRW million	71.1	74.7
Average base pay		Female	KRW million	72.6	73.9
Average wage(base pay + incentive)	Management (manager or higher)	Male	KRW million	82.2	89.7
Average wage(base pay + incentive)		Female	KRW million	80.9	88.1
Average wage(base pay + incentive)	Non-management	Male	KRW million	41.7	50.8
Average wage(base pay + incentive)		Female	KRW million	49	53.4
Difference between male and female wages	Total employees	Ratio	%	14.2	18.4
Difference between male and female median wage values		Ratio	%	-0.3	20

Parental Leave

Classification	Unit	2020	2021	
Number of employees with parental leave rights	Male	Person	94	103
	Female	Person	4	5
	Total	Person	98	108
Number of employees who received parental leave	Male	Person	4	2
	Female	Person	0	2
	Total	Person	4	4
Number of employees who returned after parental leave	Male	Person	2	1
	Female	Person	0	0
	Total	Person	2	1
Number of employees who worked for 12 months or longer after returning from parental leave	Male	Person	0	2
	Female	Person	0	0
	Total	Person	0	2
Work return rate after using parental leave	%	%	50	25
Ratio of returners who worked for 12 months or longer	%	%	100	100

Human Rights Management

Classification	Unit	2020	2021	
Number of discrimination and harassment cases	Case	Case	2	2
Total human rights education	Time	Time	1,116	1,704
	Total human rights education	%	100	100
Total number of workplaces that performed human rights reviews or human rights impact evaluations	EA	EA	0	3
Total ratio of workplaces that performed human rights reviews or human rights impact evaluations	%	%	0	100

CSR

Classification	Unit	2020	2021	
Ratio of workplaces operating community participation, impact evaluation, or development programs	%	%	100	100
CSR expenditures	KRW million	KRW million	4	1,076
Ratio to total expenditures	Charitable donations	%	0	0
Investment in community	Charitable donations	%	100	7
Commercial initiatives(public marketing, etc.)	Charitable donations	%	0	93
Donation in cash	Amount	KRW million	4	1,076
Employee voluntary activities during working hours (excluding weekends)	Conversion to the amount of money	KRW million	0	0
Donation in kind: Products and services, projects/partnerships	Conversion to the amount of money	KRW million	0	0
CSR project costs	KRW million	KRW million	0	0

Environment

Environmental Management

Classification		Unit	2020	2021
Environmental law violation	Number of violations	Case	0	0
Environmental management and eco-friendly product certification	Number of business places certified with ISO14001	Place	0	0
	Total number of business sites	Place	3	3
	Ratio of business places certified with ISO14001	%	0	0
Environmental investment	Capital investment	KRW million	-	22.9
	Operating costs	KRW million	105.1	126.2
	Cost reduction(profit, tax benefits)	KRW million	1,860.0	4,154.6

Environmental Education

Classification		Unit	2020	2021
Environmental Education	Number of Participating Employees	Person	97	116
	Education hours per person	Time	1	1

Supply Chain Environmental Impact Assessment

Classification		Unit	2020	2021
Number of new suppliers		EA	28	68
Number of new suppliers that passed environmental standards evaluation		EA	0	1
Number of suppliers subject to environmental impact assessment		EA	8	-
Number of high-risk suppliers		EA	0	-

Greenhouse Gases

Classification		Unit	2020	2021
Scope 1(direct emissions)	Emissions	tCO ₂ -eq	788	948
Scope 2(indirect emissions)	Emissions	tCO ₂ -eq	2,626	2617
Total emissions of reporting organization(Scope 1+2)	Emissions	tCO ₂ -eq	3,414	3,565
Total emissions of reporting organization(Scope 1+2)	Basic unit	tCO ₂ -eq/facility	22.609	28.294

Energy Usage

Consumption		Unit	2020	2021
Total non-renewable energy consumption		MWh	11,436	12,391
Total renewable energy consumption		MWh	0	0
Energy intensity		MWh/KRW 1 billion	0.1684	0.2049
Data scope(%)		%	100	100

Pollutants

Classification		Unit	2020	2021
Hazardous chemical generation		mg	0	0
Water pollutant emissions	Chemical oxygen demand(COD)	mg/L	10	7
	Biochemical oxygen demand(BOD)	mg/L	10	7
	Suspensions(SS)	mg/L	4	6
Air pollutant emissions	Dust(PM)	mg/Sm ³	4	3
	NOx emissions	ppm	N/A	N/A
	SOx emissions	ppm	N/A	N/A

Water

Classification		Unit	2020	2021
Amount of water used	Water and sewage usage	ton	30,359	30,622
	Fresh water(lake, river, etc.) usage	ton	0	0
	Underground water usage	ton	0	0
	Total	ton	30,359	30,622
Amount of water reused	Water recycling rate	%	0	0
Amount of wastewater discharged	Discharge rate	ton	241	161
	Recycling rate	ton	2,615	4,083
	Total discharge rate	ton	2,856	4,244

Waste

Classification		Unit	2020	2021
Total waste recycled/reused		ton	204.64	105.79
Total waste disposed		ton	221.90	235.73
Waste reclaimed		ton	166.90	212.39
Waste incinerated with energy recovery		ton	0	0
Waste incinerated without energy recovery		ton	55	23.34
Hazardous waste treated with different methods(on-site storage)		ton	0	0
Waste with no record of disposal method		ton	0	0
Data scope		%	100	100
Total waste generated in KWR unit		ton/facility	2.825	2.71

Hazardous Waste

Classification		Unit	2020	2021
Total hazardous waste recycled/reused		ton	19.25	4.34
Total hazardous waste disposed		ton	0	1.15
Hazardous waste reclaimed		ton	0	0
Hazardous waste incinerated with energy recovery		ton	0	0
Hazardous waste incinerated without energy recovery		ton	0	0.3
Hazardous waste treated with different methods(on-site storage)		ton	0	0.85
Hazardous waste with no record of disposal method		ton	0	0
Data scope(%)		%	100	100

Product Responsibility

Classification		Unit	2020	2021
Sales improvement performance of green products and services		KRW million	461,839	381,412
Purchase improvement performance of green products and services		KRW million	N/A	N/A

General Disclosure

Classification	Index	Description	Page	Note
Organizational Profile	102-1	Name of the organization	6	
	102-2	Activities, brands, products, and services	12~19	
	102-3	Location of headquarters	8	
	102-4	Location of operations	8	
	102-5	Ownership and legal form	8	
	102-6	Markets served	8~9	
	102-7	Scale of the organization	8	
	102-8	Information on employees and other workers	84	
	102-9	Supply chain	8~9	
	102-10	Significant changes to the organization's size, structure, ownership, or supply chain	64	
Strategy	102-14	Statement from senior decision-maker about the relevance of sustainability to the organization	4~5	
	102-15	Key impacts, risks, and opportunities	4~5	
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	65~66	
	102-17	Mechanisms for advice and concerns about ethics for seeking advice about ethical and lawful behavior, and organizational integrity	66~67	
Governance	102-18	Governance structure of the organization, including committees of the highest governance body	60~62	
	102-19	Process for delegating authority for economic, environmental, and social topics from the highest governance body to senior executives and other employees	60~62	
	102-20	Reporting whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental, and social topics	60~62	
	102-21	Processes for consultation between stakeholders and the highest governance body on economic, environmental, and social topics	60~62	
	102-22	Composition of the highest governance body and its committees	62	
	102-23	Reporting whether the chair of the highest governance body is also an executive officer in the organization	60	
	102-24	Nomination and selection processes for the highest governance body and its committees	61	
	102-26	Highest governance body's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental, and social topics	61~63	
	102-27	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental, and social topics	62	
	102-29	Highest governance body's role in identifying and managing economic, environmental, and social topics and their impacts, risks, and opportunities – including its role in the implementation of due diligence processes	62	
	102-30	Highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics	62	
	102-31	Frequency of the highest governance body's review of economic, environmental, and social topics and their impacts, risks, and opportunities	62	
	102-33	Process for communicating critical concerns to the highest governance body	61~62	
	102-34	Total number and nature of critical concerns that were communicated to the highest governance body and mechanism(s) used to address and resolve critical concerns	61~62	
	102-35	Remuneration policies for the highest governance body and senior executives for the following types of remuneration	60	
	102-36	Process for determining remuneration	60	
	Participation of Stakeholders	102-40	A list of stakeholder groups engaged by the organization	22
102-41		Percentage of total employees covered by collective bargaining agreement	85	
102-42		The basis for identifying and selecting stakeholders with whom to engage	22	
102-43		Approach to stakeholder engagement	22	
102-44		Key topics and concerns that have been raised through stakeholder engagement, including reporting	22	
Reporting Practice	102-45	A list of all entities included in the organization's consolidated financial statements or equivalent documents	82	
	102-46	Defining report content and topic boundaries	2	
	102-47	A list of the material topics identified in the process for defining report content	23	

Classification	Index	Description	Page	Note
Reporting Practice	102-48	The effect of any restatements of information given in previous reports, and the reasons for such restatements	2	
	102-49	Significant changes from previous reporting periods in the list of material topics and topic boundaries	2	
	102-50	Reporting period	2	
	102-51	Date of most recent report	2	
	102-52	Report cycle	2	
	102-53	Contact point for questions regarding the report	2	
	102-54	Claims of reporting in accordance with the GRI Standards	2	
	102-55	GRI content index	90~91	
	102-56	External assurance	92~93	

Topic-Specific Disclosure

Classification	Index	Description	Page	Note
Economic Performance	201-1	Direct economic value generated and distributed	82	
Energy	302-1	Energy consumption within the organization	88	
	302-4	Reduction of energy consumption	31~32	
Water and Effluents	303-3	Water withdrawal	33	
Emissions	305-1	Direct(Scope 1) GHG emissions	88	
	305-2	Energy indirect(Scope 2) GHG emissions	88	
Waste	306-2	Management of significant waste-related impacts	89	
Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	30	
Employment	401-1	New employment and job change	84	
Training and Education	404-1	Average hours of training per year per employee	86	
	404-2	Programs for upgrading employee skills and transition assistance programs	48~49	
Diversity and Equal Opportunity	405-2	Ratio of basic salary and remuneration of women to men	86	
Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	51	
Human Rights Assessment	412-1	Operations that have been subject to human rights reviews or impact assessments	44	
	412-2	Employee training on human rights policies or procedures	42~44	

General Disclosure

Classification	Index	Description	Page	Note
Anti-corruption	205-1	Total number and percentage of operations assessed for risks related to corruption	67	
	205-2	Communication and training about anti-corruption policies and procedures	67	
	205-3	Confirmed incidents of corruption and actions taken	66	
Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	66	
Energy	302-3	Energy intensity	88	
Water	303-1	Interactions with water as a shared resource	89	
	305-4	GHG emissions intensity	88	
	305-5	Reduction of GHG emissions	31~32	
Emissions	305-7	Nitrogen oxides(NOx), sulfur oxides(SOx), and other significant air emissions	88	
	306-1	Waste generation and significant waste-related impacts	89	
Waste	306-1	Waste generation and significant waste-related impacts	89	
Employment	401-3	Return to work and retention rates of employees that took parental leave	87	
Occupational Health and Safety	403-2	Hazard identification, risk assessment, and incident investigation	86	
Communities	413-1	Operations with local community engagement, impact assessments, and development programs	87	
Supplier Social Assessment	414-2	Negative social impacts in the supply chain and actions taken	64	

Third-party Assurance Statement

To the management of Doosan Fuel Cell

We have undertaken a limited assurance engagement in respect of the selected sustainability information(the 'Identified Sustainability Information') in the Doosan Fuel Cell's Sustainability Report for the year ended 30 June 2022('the Sustainability Report') listed below.

Identified Sustainability Information

The Identified Sustainability Information included in the Doosan Fuel Cell's Sustainability Report for the year ended 30 June 2022 is summarized below:

- Global Reporting Initiative(GRI) Standards Index' stated on pages 90~91
- Company Overview, Eco-business and ESG First Step heading on pages 04~73
- ESG Road Map and Appendix heading on pages 74~94

Our assurance was with respect to the year ended 30 June 2022 information only and we have not performed any procedures with respect to earlier periods or any other elements included in the Sustainability Report and, therefore, do not express any conclusion thereon.

Criteria

The criteria used by Doosan Fuel Cell to prepare the Identified Sustainability Information on 'GRI Standards with Core Option'

Doosan Fuel Cell's Responsibility for the Identified Sustainability Information

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measures and measurement techniques and can affect comparability

Inherent Limitations

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measures and measurement techniques and can affect comparability.

Our Independence and Quality Control

We have complied with the ethical requirements of the Republic of Korea, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. Our firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Identified Sustainability Information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements 3000(Revised), Assurance Engagements other than Audits or Reviews of Historical Financial Information issued by the International Auditing and Assurance Standards Board. These standards require that we plan and perform this engagement to obtain limited assurance about whether the Identified Sustainability Information is free from material misstatement.

A limited assurance engagement involves assessing the suitability in the circumstances of Doosan Fuel Cell's use of the Criteria as the basis for the preparation of the Identified Sustainability Information, assessing the risks of material misstatement of the Identified Sustainability Information whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the Identified Sustainability Information. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

Given the circumstances of the engagement, in performing the procedures listed above we:

- Interview with the personnel responsible for internal reporting and data collection regarding Doosan Fuel Cell's Identified Sustainability Information to understand their approaches to managing material issues
- Understand the systems and processes in place for managing and reporting the Identified Sustainability Information of Seoul office and IKSAN head office
- Review documents relevant to output from the risk assessment process, sustainability-related policies and standards, materiality assessment, engagement activities of the stakeholders and others
- Perform inquiries and analytical reviews on the Identified Sustainability Information

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether Doosan Fuel Cell's identified Sustainability Information has been prepared, in all material respects, in accordance with the Criteria.

Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Doosan Fuel Cell's Identified Sustainability Information the year ended June 30, 2022 is not prepared, in all material respects, in accordance with the Criteria.

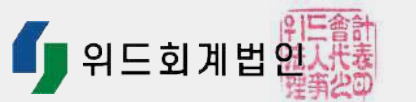
Restricted Use

This Report is prepared solely for the management of Doosan Fuel Cell to assist in obtaining understanding of Doosan Fuel Cell's sustainable management performance and activities. Accordingly, we accept no liability or responsibility to any third party, other than Doosan Fuel Cell and its management, who gains access to this report.

WITH Accounting Corporation
Seoul, Korea

YoungSuk Lee,
Chief Executive Officer

July 06, 2022



Organizational and Group Membership

Organizational Membership

Name of Organization	
Fuel Cell Industry Promotion Association	Iksan Chamber of Commerce and Industry
Hydrogen Convergence Alliance	Korea Project Management Association
Korea New & Renewable Energy	Korea Listed Companies Association
Energy Future Forum	Korea Investor Relations Service
Energy Transition Forum	Korea Plant Industries Association
Energy Alliance	Korea Industrial Technology Association
Clean Ammonia Council	Korea Industrial Safety Association

Building Your Tomorrow Today

Doosan Fuel Cell Sustainability Report 2022

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