



Introduction to Japan's Mandatory GHG Accounting and Reporting System

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Climate Change Policy Division, Global Environment Bureau
Ministry of the Environment



- 1. Japan's Mandatory GHG Accounting and Reporting System**
- 2. Recent Movements on Decarbonization**
- 3. Revision of the System**

1. Japan's Mandatory GHG Accounting and Reporting System

About Japan's Mandatory GHG Accounting and Reporting System



(1) How the policy started

○ Introduced in the revision Act on Promotion of Global Warming Countermeasures in 2005 (Enforced in 2006)

○ A policy under which entities that emit considerably large amounts of GHG are required to calculate and report their GHG emissions to the government, and the government compiles and publicizes the reported data

(2) The aim of the policy

○ To establish a foundation for voluntary efforts by having emitters to calculate their own emissions

• Promote efforts through the PDCA cycle, which involves planning and implementing measures to reduce GHG emissions, checking the effectiveness of the measures, and formulating and implementing new measures.

○ Promote and build momentum for voluntary efforts by citizens and businesses through information disclosure

• The government aggregates and publishes the calculated and reported emissions based on certain rules
→ Allows emitters to recognize their current emissions and their reduction measures, and the need for further measures, and therefore induce social movements for emission reduction at every level

About Japan's Mandatory GHG Accounting and Reporting System

- Entities with over 3,000t-CO₂e annual emissions (specified emitters) are **required to report to the government their emissions once a year, and the government disclose the data.**

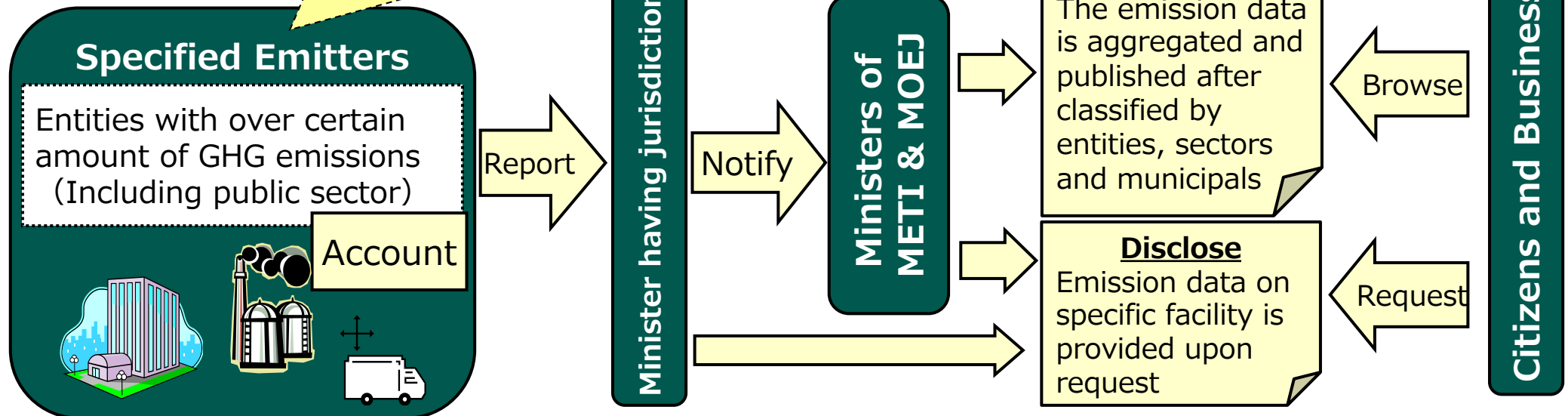
※12,341 enterprises and 1,319 (Accounts for about half of the national inventory) (FY2017)

<How it works>

① Specified emitters are required to account and report by the end of July (or by the end of June for Specified transport service providers) their emissions of the previous fiscal year.

② Minister having jurisdiction over the business in question aggregate the reported data, and notify to Ministers of MOEJ and METI

③ Information aggregated by MOEJ and METI and is published.



※ Relevant information (such as reason of increase/decrease of emissions) can also be submitted.

※ When invading its right and interest by information disclosure to public, protection of the right and interest can be requested.

※ Violation of reporting obligation and false of report are imposes of penalty.

(Reference) Features of the system

- While large corporations are subject to report, unlisted companies (about 85%) and small and medium-sized enterprises (more than 60%) are the main reporters. Non-corporate entities such as local governments are also included.
- The data is compiled by the government, and therefore organized. It is also published free of charge as a highly public data.

1 Covers business units with more than certain amounts of GHG emissions

- The coverage of energy-derived CO₂ is high in the industrial sector (more than 90%)
- SMEs also report, in addition to large businesses.
- Non-corporate entities such as local governments are also included.

2 Specified emitters have reporting duty

- It is mandatory for the specified emitters to report their emissions.
- There are also punitive provisions.

3 Highly organized data are publicized

- The government compiles reports from businesses, and the data is published in a highly organized manner.
- Published data can be used free of charge.

Types of emissions & GHG to be reported

◆ Calculated emissions of greenhouse gases (actual emissions)

Greenhouse gas emissions resulting directly or indirectly from business activities.

◆ Adjusted Greenhouse Gas Emissions

Based on the Actual Emissions, adjusted by taking into account the amount of credits that the businesses have obtained, etc.

◆ Types of greenhouse gases to be reported

Types of GHG	
Energy-derived CO2	
Other GHG than energy-derived CO2 (6.5 gas)	Non energy-derived CO2
	Methane (CH ₄)
	Nitrous oxide (N ₂ O)
	Those hydrofluorocarbons specified by Cabinet Order (HFC)
	Those perfluorocarbons specified by Cabinet Order (PFC)
	Sulfur hexafluoride (SF ₆)
	Nitrogen trifluoride (NF ₃)

Covered GHG and Reporting Entities

Type of greenhouse gas	Reporting entity (specified emitter)
<p><u>Energy-derived carbon dioxide (CO₂)</u> (Carbon dioxide emitted in connection with fuel combustion or the use of electricity or heat supplied by another party.)</p>	<p>[Specified establishment emitters]</p> <ul style="list-style-type: none"> Parties whose total annual energy consumption of all business establishments has a crude oil equivalent of at least 1,500 kiloliters. If a party has a business establishment whose annual energy consumption has a crude oil equivalent of at least 1,500 kiloliters, it has to report the breakdown of the emissions of the establishment. <p>[Specified transportation emitters]</p> <ul style="list-style-type: none"> Specified freight carriers, specified passenger carriers, specified air carriers, and specified consigners under the Energy Conservation Act.
<p><u>Greenhouse gases other than the above (“6.5 gas”)</u></p> <ul style="list-style-type: none"> Non-energy derived CO₂ Methane (CH₄) Nitrous oxide (N₂O) Hydrofluorocarbons (HFC) Perfluorocarbons (PFC) Sulfur hexafluoride (SF₆) Nitrogen trifluoride (NF₃) 	<ul style="list-style-type: none"> Parties meeting both of the following conditions: <ul style="list-style-type: none"> [1] Business operators that engage in business activities subject to calculation, whose total emissions of each type of greenhouse gas for all business operators have a carbon dioxide equivalent of at least 3,000 tons. [2] Parties having at least 21 full-time employees in their overall business. If a party has a business establishment whose emissions of each type of greenhouse gas have a carbon dioxide equivalent of at least 3,000 tons, it has to report the breakdown of the emissions of the establishment (as Specified establishment emitters).

※ A franchise chain is regarded as one business operator.

Whether an entity should report or not is judged using the calculation method specified in the government/ministerial ordinances.

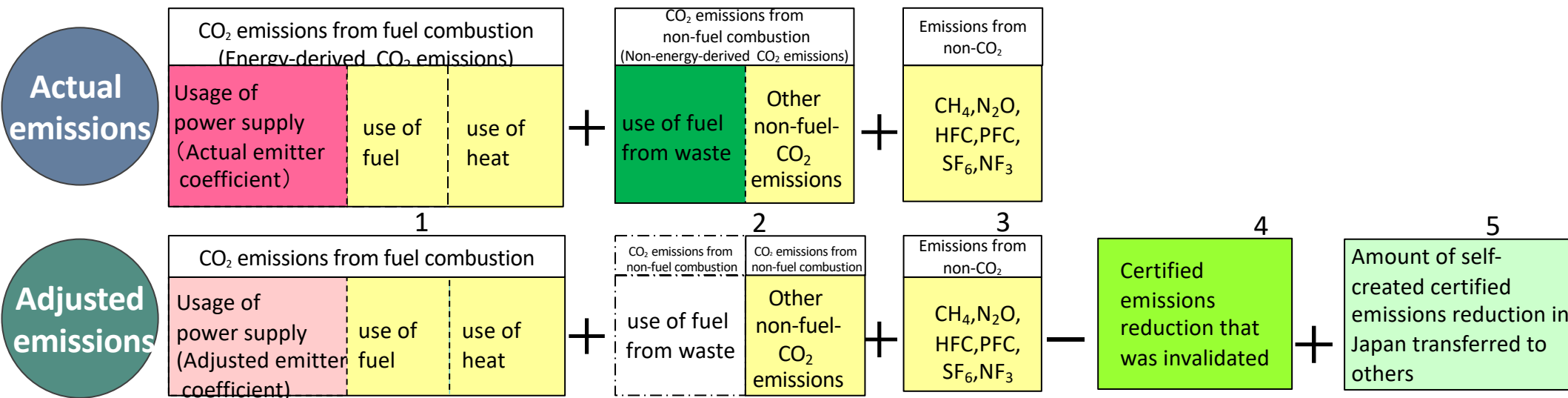
Required Reporting Items



Items	Calculation Methods and Others
<p><u>Calculated emissions of greenhouse gases (actual emissions)</u> 【Periodic report of Energy Conservation Act or the 1st form from the Global Warming Countermeasures Act】</p>	<p>Calculate by the following flow 1 to 4:</p> <ol style="list-style-type: none"> 1. Select the emission activity 2. Calculate by using the formula and emitter coefficient stipulated by the government and ministerial ordinances for each selected activity $\text{Greenhouse gas emissions} = \text{amount of activity} \times \text{actual emitter coefficient}$ 3. Add up the emissions calculated per activity for each type of greenhouse gas 4. Convert the emissions of each type of greenhouse gas into CO₂ units $\text{Greenhouse gas emission (t-CO}_2\text{)} = \text{Greenhouse gas emission (t-Gas)} \times \text{Global Warming Potential (GWP)}$
<p><u>Adjusted greenhouse gas emissions</u> 【Periodic report of Energy Conservation Act or the 1st form from the Global Warming Countermeasures Act】</p>	<p>Adjust with the following <u>1 + 2 + 3 - 4 + 5</u></p> <p>* It will be considered to be 0 if the adjusted results is under 0</p> <ol style="list-style-type: none"> 1 = CO₂ emissions from fuel combustion (excluding the power and heat supply to others) <ul style="list-style-type: none"> • Usage of power supply from other sources x adjusted emitter coefficient(*1) • Actual emissions from use of fuel and heat 2 = CO₂ emissions from non fuel combustion (excluding use of fuel from waste) 3 = Actual emissions from methane, N₂O, HFC, PFC, SF₆, and NF₃ 4 = Certified emission reduction that was invalidated(*2) 5 = Amount of self-created certified emission reduction in Japan transferred to others <p>*1 If electricity is supplied by an electricity provider of which emitter coefficient per menu is shared publicly, the corresponding emitter coefficient per menu must be used. In other cases, the respective adjusted emitter coefficient per power supplier by which your electricity is supplied is to be used.</p> <p>*2 Presently, there are 5 types of certified emission reduction in Japan: Domestic credit in Japan, Green energy CO₂ reduction amount, Offset credit (J-VER), Japan Credit(J-Credit), and JCM Credits</p>

Report on the Adjusted Greenhouse Gas Emissions

- The idea of adjusted GHG emissions has been introduced to promote the effort of business operators to reduce greenhouse gas emissions by others.



- The adjusted greenhouse gas emissions will be adjusted with **【1 + 2 + 3 - 4 + 5】**
(It will be considered to be 0 if the adjusted results is under 0)

1 = CO₂ emissions from fuel combustion (excluding power and heat supply to other sources)

- Usage of power supply from other sources x adjusted emitter coefficient
- Actual emissions from use of fuel and heat

2 = CO₂ emissions from non-fuel combustion (excluding use of fuel from waste)

- * Use of fuel from waste is excluded, to contribute to the effective utilization of resources.

3 = Actual emissions from methane, N₂O, HFC, PFC, SF₆, and NF₃

4 = Certified emissions reduction that was invalidated

5 = Amount of self-created certified emissions reduction in Japan transferred to others

- Presently, there are 5 types of certified emissions reduction: Domestic credit in Japan, Green energy CO₂ reduction amount, offset credit (J-VER), Japan Credit(J-Credit), and JCM Credit

Business Activities for which the Emissions Calculation is Required (1/2)



Energy-derived CO₂

- Use of fuels
- Use of electricity supplied from another party
- Use of heat supplied from another party

Non energy-derived CO₂

- Appraisal exploration and production of crude oil or natural gas
- Production of cement
- Production of calcined lime
- Production of soda-lime glass of steel
- Production of soda ash
- Use of soda ash
- Production of ammonia
- Production of silicon carbide
- Production of calcium carbide
- Production of ethylene
- Use of acetylene using calcium carbide as raw material
- Production of crude steel using electric furnace
- Use of dry ice
- Use of sprayer
- Incineration or use in product manufacturing of waste materials, or use of waste fuels

Methane(CH₄)

- Use of fuels in facilities or equipment where fuels are used for combustion
- Use of electricity in electric furnaces
- Mining of coal
- Appraisal exploration and production of crude oil or natural gas
- Refining of crude oil
- Production of city gas
- Production of chemicals such as carbon black
- Livestock feeding
- Management of livestock excrement
- Rice-growing
- Incineration of agricultural waste
- Waste disposal by landfill
- Industrial wastewater treatment
- Treatment of sewage, night soil, etc.
- Incineration or use in product manufacturing of waste materials, or use of waste fuels

Business Activities for which the Emissions Calculation is Required (2/2)



Nitrous oxide (N₂O)

Use of fuels in facilities or equipment where fuels are used for combustion
Appraisal exploration and production of crude oil or natural gas
Production of chemicals such as adipic acid
Use of anesthetic
Management of livestock excrement
Use of fertilizer in cultivated land
Use of crop residue as fertilizer in cultivated land
Incineration of agricultural waste
Industrial wastewater treatment
Treatment of sewage, night soil, etc.
Incineration or use in product manufacturing of waste materials, or use of waste fuels

Hydrofluorocarbons (HFC)

Production of chlorodifluoromethane (HCFC-22)
Production of hydrofluorocarbon (HFC)
Charging of HFC in production of HFC-charged products such as household-use electric refrigerators
Charging of HFC when starting the use of professional-use refrigeration air conditioners
Charging and recovery of HFC in maintenance of professional-use refrigeration air conditioners
Recovery of HFC in disposal of HFC-charged products such as household-use electric refrigerators
Use of HFC as foaming agent in plastics production
Charging of HFC in production of sprayers or digesters
Use of sprayers
Use of HFC for dry etching, etc. in manufacturing process of semiconductor devices, etc.
Use of HFC for solvents, etc.

Perfluorocarbons (PFC)

Production of aluminum
Production of PFC
Use of PFC for dry etching, etc. in manufacturing process of semiconductor devices, etc.
Use of HFC for solvents, etc.

Sulfur hexafluoride (SF₆)

Casting of magnesium alloy
Production of SF ₆
Charging of SF ₆ when producing or starting the use of electromechanical devices such as transformers
Use of electromechanical devices such as transformers
Recovery of SF ₆ in checkup of electromechanical devices such as transformers
Recovery of SF ₆ in disposal of electromechanical devices such as transformers
Use of SF ₆ for dry etching, etc. in manufacturing process of semiconductor devices, etc.

Nitrogen trifluoride (NF₃)

Production of NF ₃
Use of NF ₃ for dry etching, etc. in manufacturing process of semiconductor devices, etc.

Optional Reporting Items



Items	Calculation Methods, etc.
<p><u>Request for protection of rights and profits</u> 【Form 1-2 in the Global Warming Countermeasures Act】</p>	<ul style="list-style-type: none"> ● A request to the competent minister can be made when the <u>disclosure or officially reported emission may impair the rights and profits</u> ● The request is made by the specified establishment emitters or specified establishment ● The followings are the information that are subject to request for protection of rights and profits: <ol style="list-style-type: none"> a) The actual emission of the total business operation or specific operation (submit a request per type of greenhouse gases) b) Adjusted emissions c) Total amount per type of certified emission reduction ● <u>There are cases where the request for protection of rights and profits are not accepted</u>
<p><u>Submitting other related information</u> 【Form 2 in the Global Warming Countermeasures Act】</p>	<ul style="list-style-type: none"> ● If the specified emitter wishes, they can also submit the situation on the increase or decrease of emissions and other <u>related information</u>. ● The followings are the information that can be submitted: <ol style="list-style-type: none"> a) Information on the increase or decrease of the reported emissions b) Information on the increase or decrease of the unit emission of greenhouse gases c) Information on the measures executed to decrease the greenhouse gas emissions d) Information on the calculation methods for greenhouse gas emissions e) Other information

History of Mandatory Greenhouse Gas Accounting and Reporting System

- The process of introducing the Mandatory Greenhouse Gas Accounting and Reporting System (referred to below as the "Accounting and Reporting System") is as follows.

Act on the Rational Use of Energy(partial)

- In 1979, Act on the Rational Use of Energy was enacted, triggered by the oil crisis.
- In 1993, reporting duty of energy usage was introduced to factories which consume energy beyond a certain amount (Periodical Report). Reduction efforts of 1% of energy consumption per year were introduced.
- In 2002, business office were added to the energy usage reporting requirements.
- In 2005, the act was revised by adding CO₂ emission in report. Reporting scope was expanded to cover transportation sector.
- In FY 2006, the revision entered into force.

Act on Promotion of Global Warming Countermeasures (partial)

- In 1997, The Kyoto Protocol was adopted at COP3. Japan targeted to reduce of 6% during 2008 – 2012 from the emission in 1990.
- In 1998, the act was established. The act stipulated a framework to promote climate change measures by nation, local government, private sector and people.
- In 2005, The Kyoto Protocol entered into force. Responding to the increase of domestic GHG emission, the act was revised and the Accounting and Reporting system was introduced which has been implemented since 2006.

History of Mandatory Greenhouse Gas Accounting and Reporting System

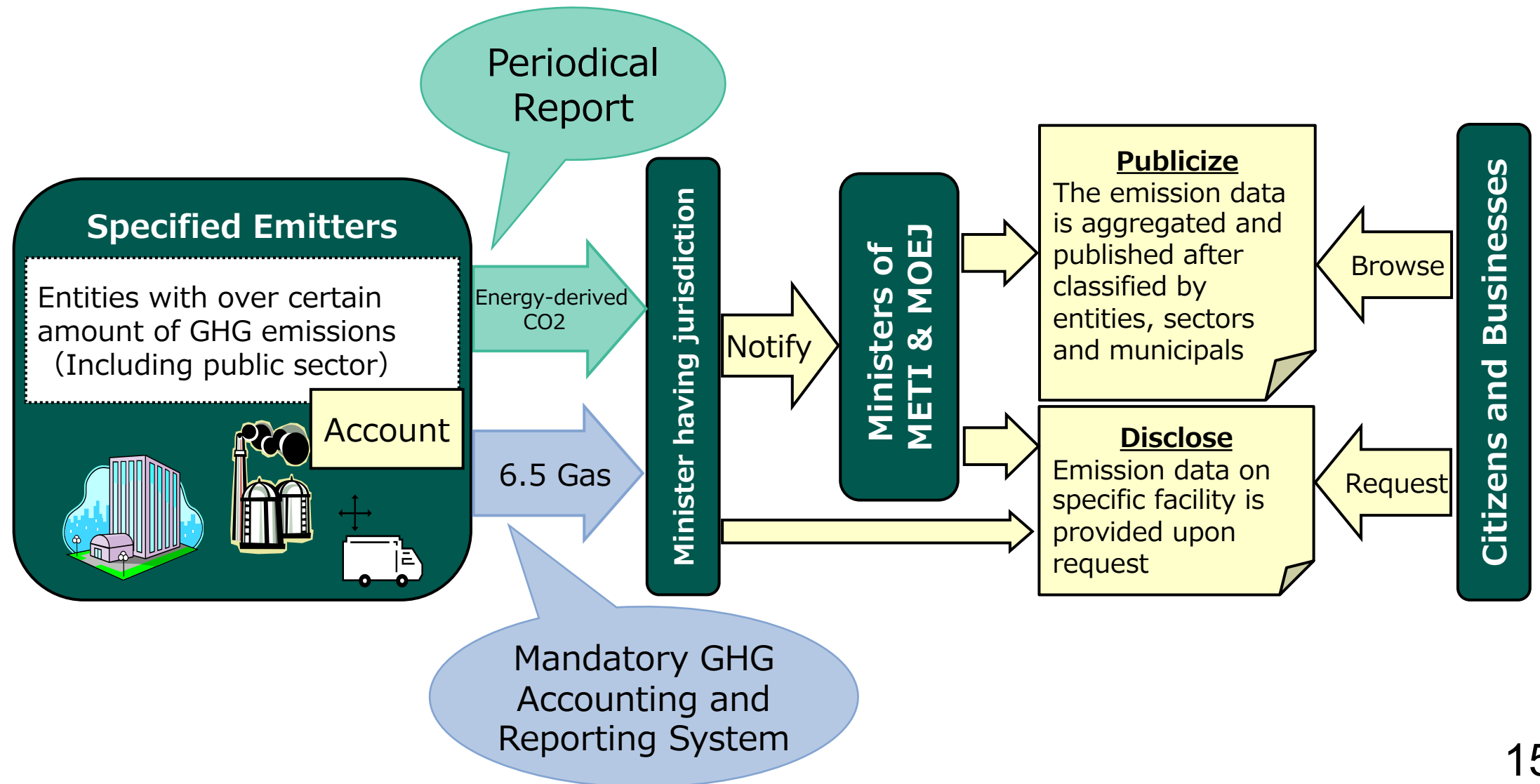
- The amendments of the Accounting and Reporting System after its introduction is as follows.

Major revisions of the Accounting and Reporting System

- In FY 2006, the system was enforced. Reporting on business site level (e.g. factories) has started. Transportation enterprise need to report by their business unit.
- In FY 2009, reporting scope was expanded to business unit (under both Act on the Rational Use of Energy and Act on Promotion of Global Warming Countermeasures). Report of Adjusted GHG Emission was added.
- In FY 2015, NF3 was added to the GHG type subjected to be reported. Operation of electronic reporting system has started.
- In FY 2021, the Act on Promotion of Global Warming Countermeasures was revised.

How the government collect data

- We utilize the Act on the Rational Use of Energy (Periodical Report) to reduce the burden on the specific emitters (avoid double reporting).



- The government seeks to inform the Accounting and Reporting system and reduce business entities' burden in various ways.

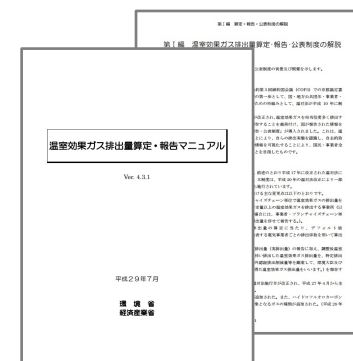
Website to offer information on the system

- A website opened to organize various information about the system and make it public.
- Information related to the operation of the system, such as calculation and reporting manuals and report preparation support tools, and the results of tabulation of emissions have been released.
- URL: <http://ghg-santeikohyo.env.go.jp/>



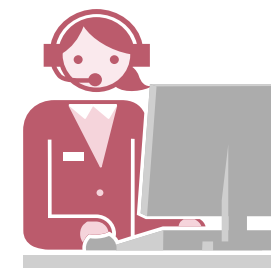
Calculation and reporting manual

- A manual was released to explain in detail what is required to be reported and what is needed to calculate and report GHG emissions.
- The manual is posted on the website, and revisions are implemented as necessary.



Help desk

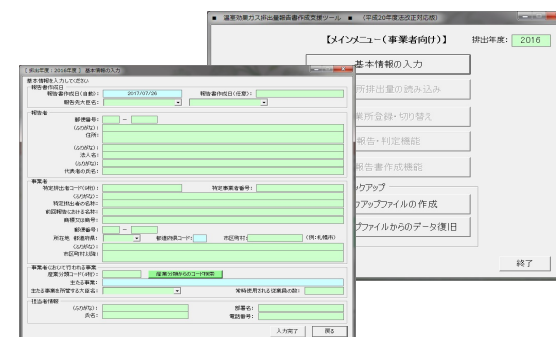
- A help desk is available throughout the year to respond to inquiries on the system as a whole, such as how to calculate emissions and how to report. Available both on phone and email.
- Responds to inquiries from line ministries as well as business operators.



Operation of the Current Accounting and Reporting System (2/2)

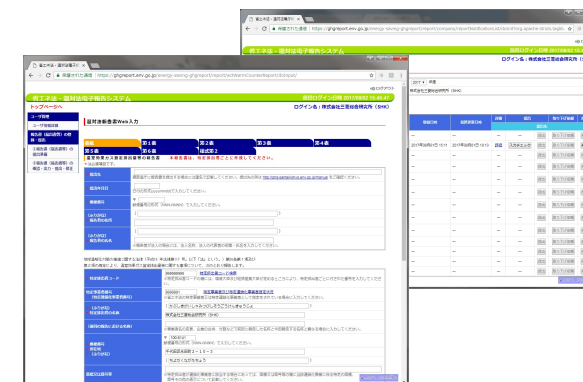
Tools for report preparation

- A tool has been developed to simplify calculation and reporting.
- By inputting activity data, it is possible to determine the non-compliance to be reported, calculate emissions and create a report.
- It is open on the Accounting and Reporting System website



Electronic Reporting System

- A system was established to submit reports via the Internet rather than paper document.
- This system contributes to reduction of the load on business entities and to eliminate errors in entering reports.
- In addition to the data created by the report creation support tool, it is also possible to directly input and submit data.



Domestic seminar

- Seminars are held annually at 10 locations nationwide (approximately 50-200 people each)
- From 2020, the video that illustrates the outline of the system is on YouTube (only in Japanese).



2. Recent Movements on Decarbonization

Net Zero by 2050, and the new FY2030 Reduction Target



【Policy Speech by the Prime Minister to the 203rd Session of the Diet】 (26th Oct., 2020)

- My administration will devote itself to the greatest possible extent to bring about a green society, while focusing on a **virtuous cycle of the economy and the environment as a pillar of our growth strategy**. We hereby declare **that by 2050 Japan will aim to reduce greenhouse gas emissions to net-zero, that is, to realize a carbon-neutral, decarbonized society**.

【Speech by the Prime Minister at Leaders Summit on Climate】(22nd Apr., 2021)

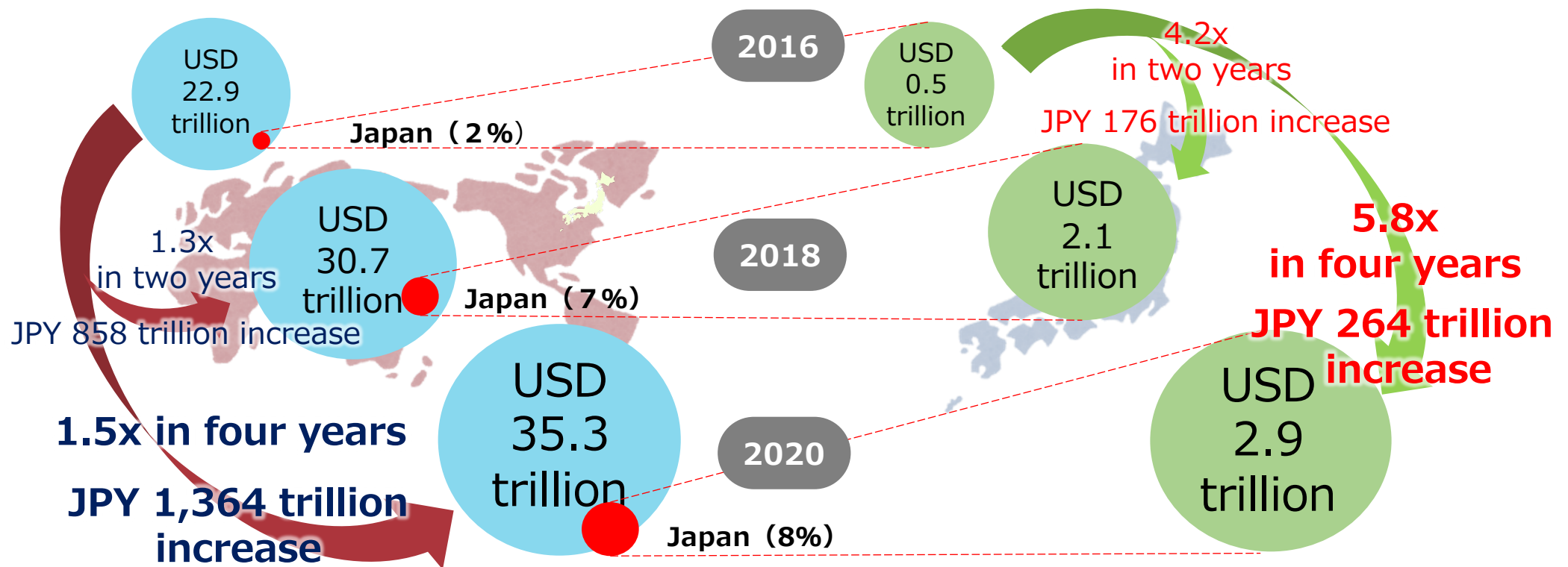
- Japan will take a big step toward overcoming this global issue. **Japan aims to reduce its greenhouse gas emissions by 46 percent in fiscal year 2030 from its fiscal year 2013 levels, setting an ambitious target which is aligned with the long-term goal of achieving net-zero by 2050. Furthermore, Japan will continue strenuous efforts in its challenge to meet the lofty goal of cutting its emission by 50 percent.**

ESG Market Landscape in Japan

- The ESG market in Japan is **seeing significant growth**.
- ESG investment assets in Japan **sextupled (5.8x) from 2016 to 2020**, which now represents approx. **8% of the global ESG assets**.

Global ESG Market

Japanese ESG Market



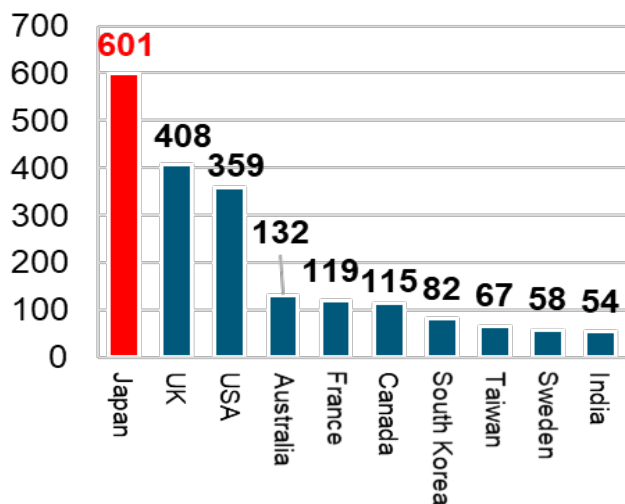
Spread of Decarbonization in Corporate Management

*As of November 30, 2021

TCFD

- 2,785 financial institutions, companies and governments around the world (601 are in Japan.) expressed their support.
- **The largest number in the world**

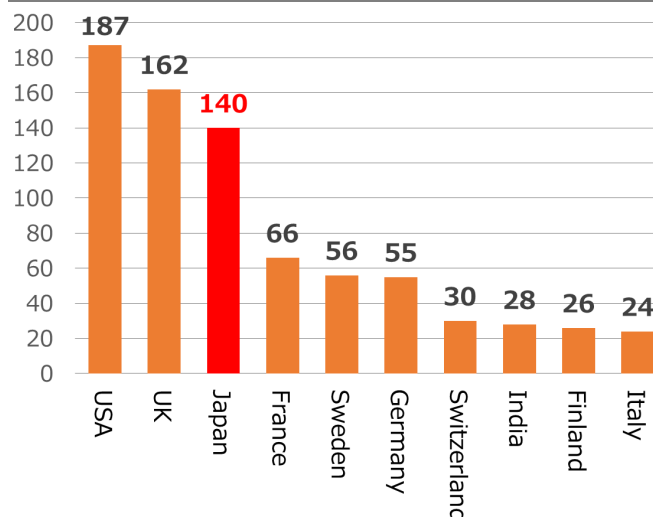
Number of companies that support TCFD (Top10 countries & regions)



SBT

- Number of approved companies: 1044 (140 are Japanese companies.)
- **The 3rd largest in the world**

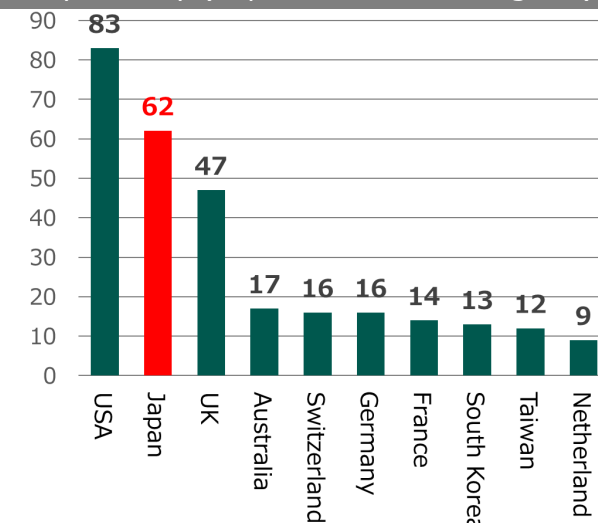
Number of approved companies with SBT by country (Top 10 countries)



RE100

- Number of participating companies: 342 companies worldwide (62 are Japanese companies.)
- **The 2nd largest in the world**

Number of companies participating in RE100 by country (Top 10 countries & regions)



[source] TCFD website TCFD Supporters (<https://www.fsb-tcfid.org/tcfd-supporters/>)

[source] Science Based Targets homepage Compiled from Companies Take Action (<http://sciencebasedtargets.org/companies-taking-action/>). Industry classification is prepared by the secretariat by applying the Japan Standard Industrial Classification, etc.

Compiled from the [source] RE 100 home page (<http://there100.org/>). Industry classification is prepared by the secretariat by applying the Japan Standard Industrial Classification, etc.

List of companies working on TCFD, SBT and RE100

Construction : HAZAMA ANDO CORPORATION /Sekisui House, Ltd. /
Daito Trust Construction Co., Ltd. /
Daiwa House Industry Company, Limited /TODA CORPORATION /
TOKYU CONSTRUCTION CO., / LTD.LIXIL Group Corporation /
Sumitomo Forestry

Grocery : Asahi Group Holdings, Ltd. / Ajinomoto Co., Inc. /
Kirin Holdings Company, Limited /
NISSIN FOODS HOLDINGS CO., LTD.

Electric Appliances : KONICA MINOLTA, INC. / SEIKO EPSON CORPORATION
Sony Corporation / NEC Corporation / Panasonic Corporation
Fujitsu Limited / FUJIFILM Holdings Corporation /
RICOH Company, Ltd.

Chemical: SEKISUI CHEMICAL CO., LTD.

Pharmacy : Eisai Co., Ltd. / ONO PHARMACEUTICAL CO., LTD.
DAIICHI SANKYO COMPANY, LIMITED

Precision equipments :Shimazu Corporation / NIKON CORPORATION

Other products : ASICS Corporation / Kao Corporation /
Meiji Holdings Co., Ltd.

Information & Communication : Nomura Research Institute, Ltd.

Retail Trade : ASKUL Corporation / AEON CO., LTD. /
J. FRONT RETAILING Co., Ltd. / MARUI GROUP CO., LTD.

Real estate : Tokyu Fudosan Holdings Corporation /
Tokyo Tatemono Co.,Ltd. / Mitsui Fudosan Co., Ltd. /
MITSUBISHI ESTATE CO., LTD.

Service : SECOM CO., LTD.

3 . Revision of the System

How the system will be revised

- The digital system will **shorten the period from reporting to publication** (from about two years to less than a year), and **improve the ability of information** to investors, local governments, citizens, etc. by **allowing them to view the reported emissions and other information in the digital system**. At the same time, the digitalized system will be more **convenient for specified emitters**.

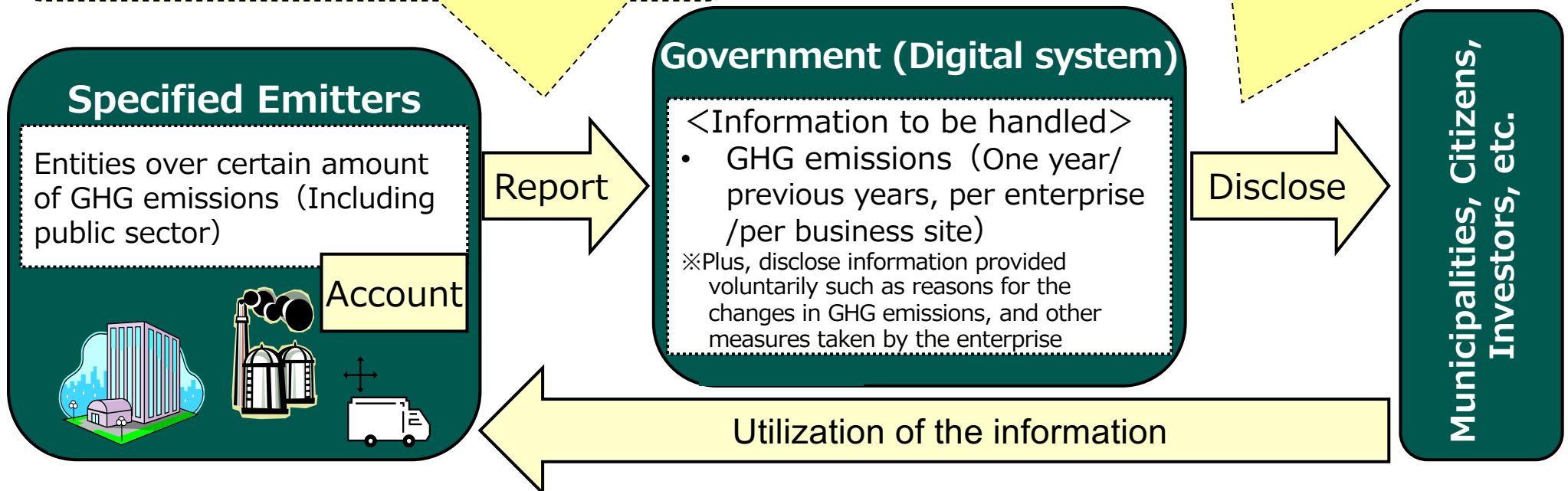
【Digitalization】

- **Digitalize** the reporting system
- **Enhance and promote voluntary reporting** to make the efforts taken by the companies more visible, in addition to GHG emissions data

【Open data】

- **Disclose all the reported info, including the amount of emission per facilities**, without following the current disclosure request procedures

※Except info deemed necessary for the Protection of Rights



Initiatives to be taken to improve the system



- For the time being, we will continue to improve the Mandatory GHG Accounting and Reporting System through the introduction of electronic reporting, promotion of the use of disclosed data, and expansion of voluntary reporting, which will lead to further promotion of voluntary actions by businesses.

Report deadline

	Contents	FY2021	FY2022	FY2023~
Digitalize	① Maintain and improve the online reporting system (EEGS)	Building reporting functions in EEGS	<ul style="list-style-type: none"> Start reporting in EEGS from FY2021 Improve EEGS as the system operates 	
	② Make digital reporting a principle through dissemination	Inform on EEGS	Taking into account the electronic reporting rate and system operation status, consider and implement further dissemination and ministerial ordinance amendment	
Promote the use of disclosed data	① Prompt disclosure through two-step disclosure in addition to online reporting.	Establish rules for two-stage disclosure (Ministerial Ordinance)		Start two-stage disclosure from FY2021 reporting
	② Disclosure in an easy-to-understand manner		Build disclosure function in EEGS	Start disclosing data in an easy-to-understand manner
	③ Disseminate on the data and how to use them	Make clear how to use data	Inform specified emitters and stakeholders	
	④ Review calculation methods	Review of calculation method (to be discussed and reflected sequentially)		
Expand voluntary reporting	① Improve the Voluntary Reporting Format based on TCFD, etc.	Develop Voluntary Reporting Format (Ministerial Ordinance)	<ul style="list-style-type: none"> Reflect in EEGS Inform 	Start using new Voluntary Reporting Format from FY2023 reporting
	② Evaluate proactive business efforts and promote social understanding.		Review reporting items based on international trends	
		Create good practices of the Voluntary Reporting, and develop guidelines		