9th Asia-Pacific Eco-Business Forum
Presentation material

Efforts by Kawasaki City toward the realization of a low carbon society

KAWASAKI CITY

January 2013

Global Environment and Sustainability Office,
Environment Bureau, Kawasaki City

Basic philosophy of the Kawasaki Plan for Promotion of Measures against Global Warming

Basic philosophy

To build a sustainable low-carbon society on the basis of harmony and a good cycle between environment and economy and to hand down a healthy environment to future generations

Reduction target

Kawasaki City aims to reduce its GHG emissions by over 25% by 2020 compared to the 1990 level. It will reduce GHG emitted from the City and at the same time contribute to the global reduction of GHG emissions by utilizing advanced environmental technologies characterizing Kawasaki City.

It will achieve this reduction target through collaborative approaches as well as individual efforts made by each entity to cut its own emissions

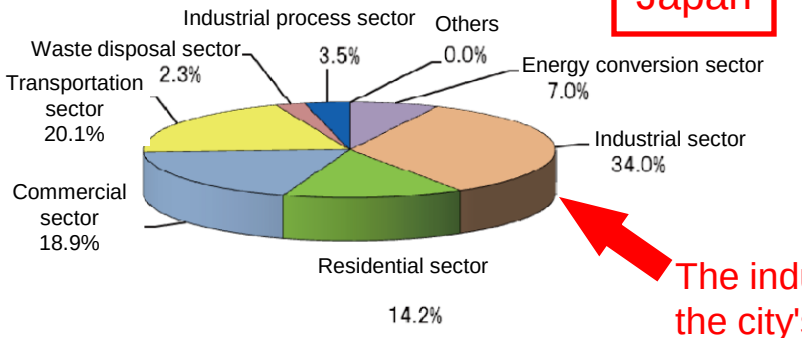
It will consider revising the target if necessary in light of the progress toward the national mid-term target

Fight against global warming　Kawasaki City

Current status of GHG emissions from Kawasaki City (FY 2009)

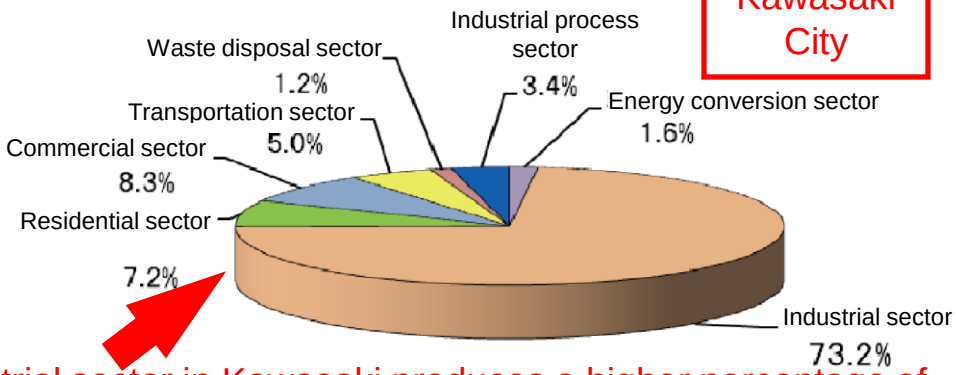
Breakdown by sector of CO2 emissions in Japan (FY 2009)

Japan



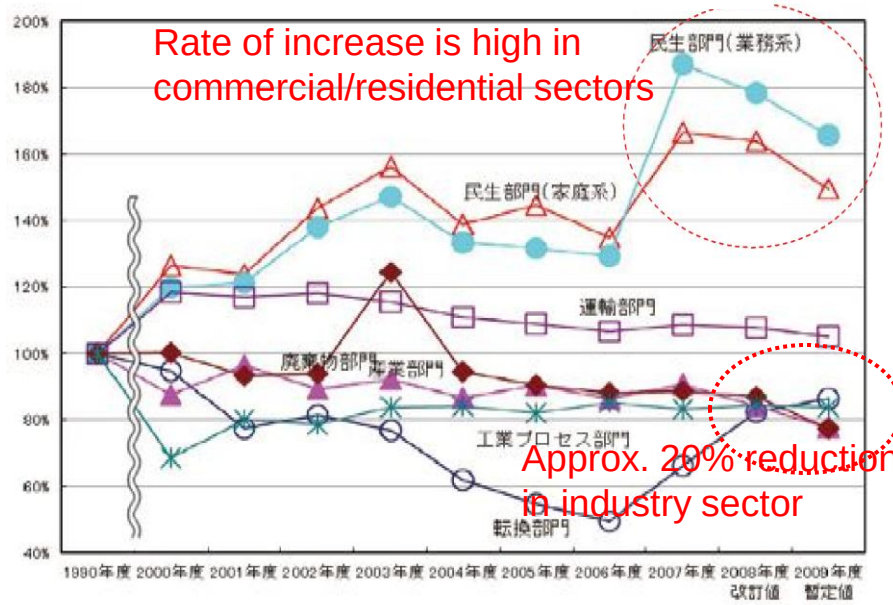
Breakdown by sector of CO2 emissions from the City (provisional values for FY 2009)

Kawasaki City

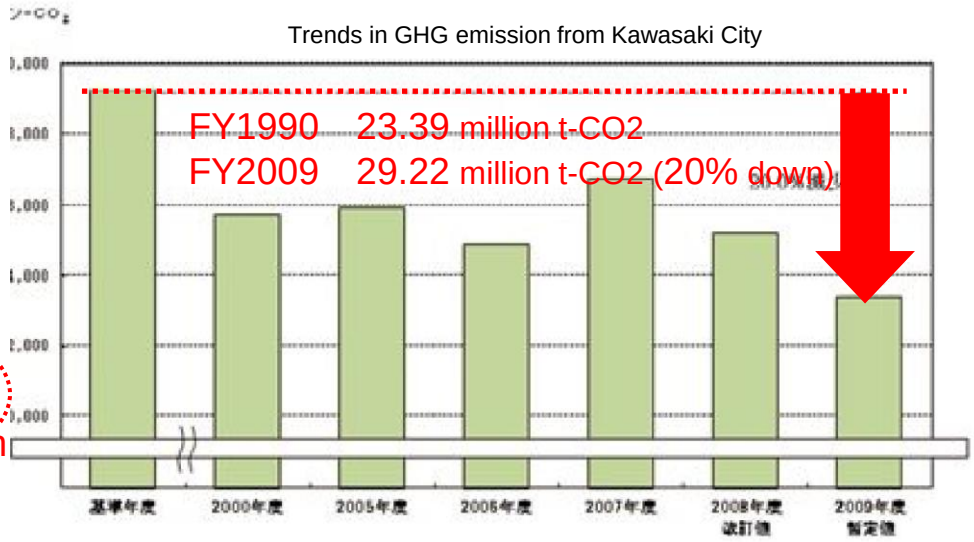


The industrial sector in Kawasaki produces a higher percentage of the city's total CO2 emissions than the national figure.

Trends in CO2 emission by sector (1990 level = 100%)



Trends in GHG emission from Kawasaki City



Basic components of the Kawasaki Plan for Promotion of Measures against Global Warming

Ⅰ	Promotion of GHG emission reduction through business activities
Ⅱ	Promotion of GHG emission reduction through citizens lives
Ⅲ	Utilization of renewable energy sources
Ⅳ	Promotion of building a low-carbon city
Ⅴ	Promotion of establishing a recycling society
Ⅵ	Promotion of measures against global warming in transportation
Ⅶ	Promotion of awareness and education on global environment issues
Ⅷ	Conservation and promotion of greenery
Ⅸ	Promotion of measures against heat island phenomenon
Ⅹ	Promotion of international contribution through environmental technologies
ⅩⅠ	Promotion of R&D on environmental technologies
ⅩⅡ	Promotion of leadership by the city government

Promotion of GHG emission reduction through business activities

Planning/reporting of anti-warming measures in business activities

Business operators emitting a considerably high total of GHG are mandated by City ordinance to submit a plan and a report on anti-warming measures implemented in business activities.

Excerpt from Kawasaki City Ordinance on Promotion of Measures against Global Warming (hereinafter "Ordinance")

(Plan on implementation of anti-warming measures in business activities)
Article 9: Business operators specified as emitting a considerably high total of GHG as prescribed by rules (hereinafter "specified operators") must, under the Policy for Measures against Global Warming in Business Activities and in accordance with rules, prepare and submit to the City Mayor a plan describing the following items (hereinafter "Plan on Anti-warming Measures in Business Activities").

①

Business operators* with an energy (electricity, gas, etc.) use of 1,500 kl crude oil equivalent or more per year.

* With regard to franchise operators, business activities at sites operated by franchise members meeting certain conditions are included.

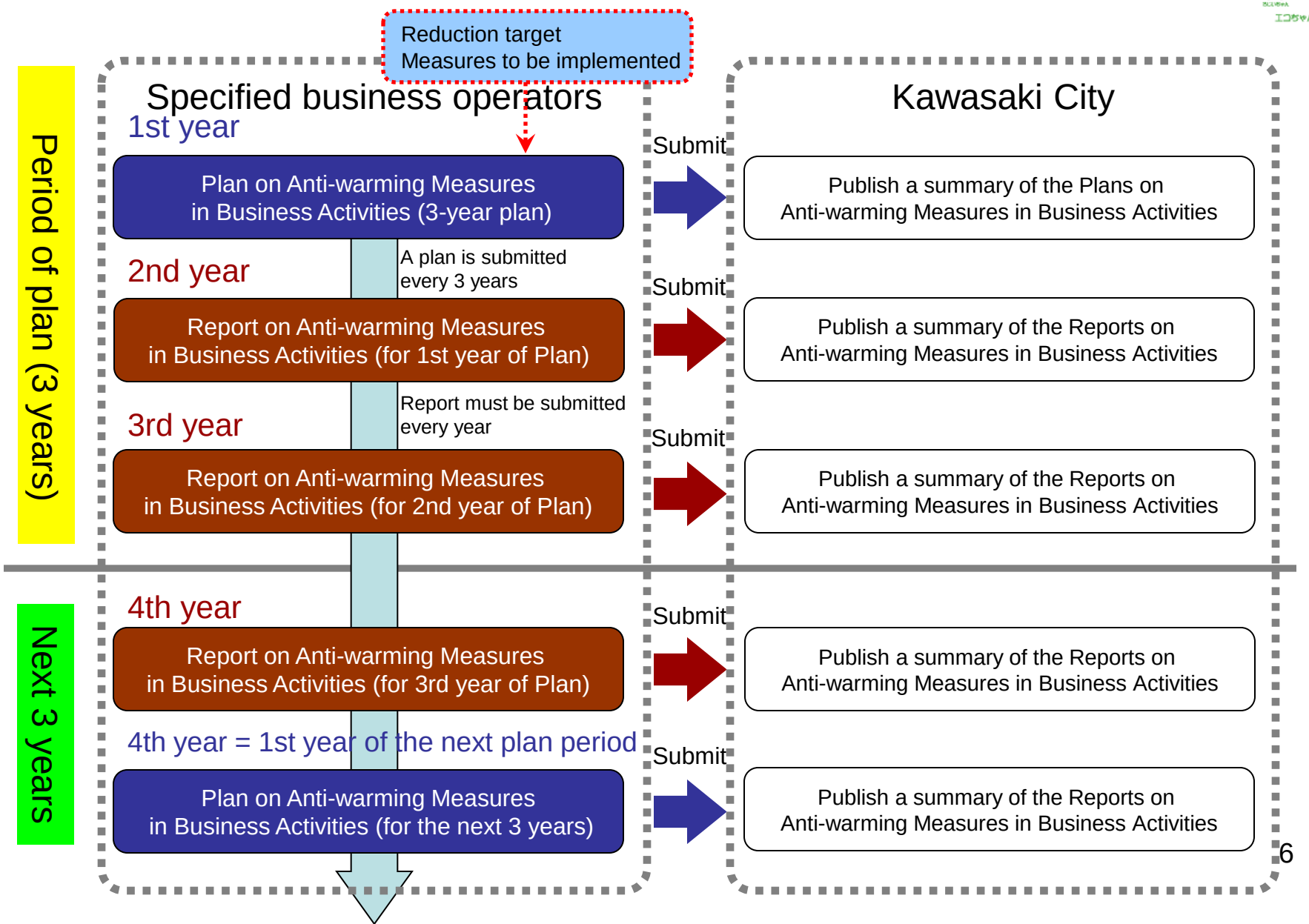
②

Business operators with. at the end of the 100 or more vehicles used for its business activities.

③

Business operators emitting from within Kawasaki City a GHG of 3,000t CO2 equivalent or more per year. (As for CO2, emissions associated with energy consumption are excluded.)

Promotion of GHG emission reduction through business activities



Support for SME operators

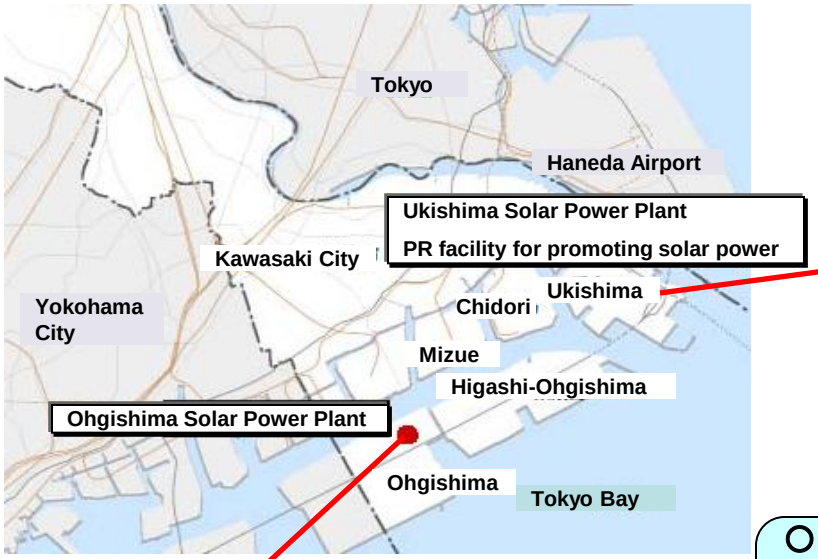
To promote the reduction of GHG emission by SME operators, Kawasaki City provides information, advice, and other necessary support based on ordinances.

【Menu of environment-related support offered by Kawasaki City to SME operators (Programs for FY 2013)】

Energy conservation diagnosis	The city provides diagnosis free of charge based on application from operators
Financing of environment-related expenditures	Funding necessary for the introduction of energy-saving equipment or for the development of environmentally friendly products/technologies will be jointly financed by the City, Credit Guarantee Corporation, and financial institutions.
Support program for environmental projects	The City offers subsidy to cover part of the funding necessary for introducing renewable energy equipment or replacing to energy-saving equipment
Voluntary submission of Plan	Based on ordinances, SME operators may also voluntarily submit a Plan on Anti-warming Measures

Utilization of renewable energy sources

Large-scale solar power plants (Mega-solars)



- Constructed by TEPCO in the waterfront of Kawasaki City (Ukishima and Ohgishima)
- Kawasaki City provided part of the land
- Kawasaki City established a PR facility and CC Kawasaki Energy Park for promoting solar power

Among the largest solar power plants in Japan

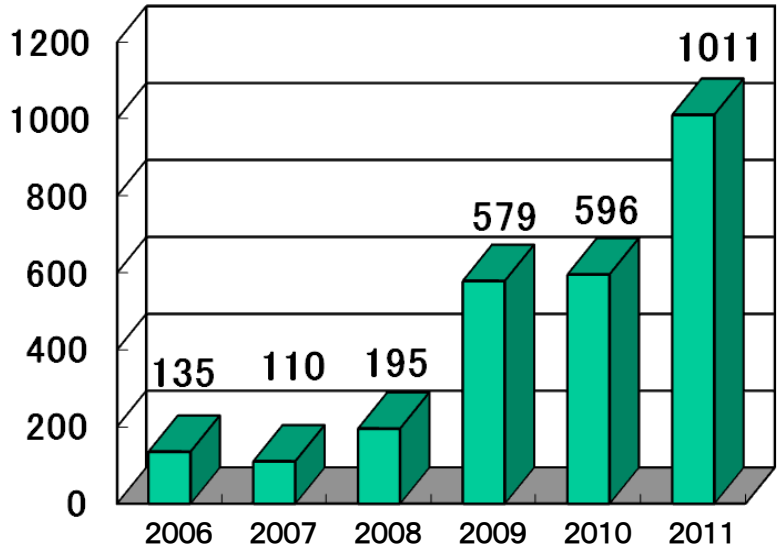
- Total output of Ukishima and Ohgishima plants: Approx. 20,000kW
- Generates approximately 21 million kWh of electricity, equivalent to annual electricity consumed by 5,900 homes
- Annual CO_2 reduction of approx. 8,900t.

Utilization of renewable energy sources

Support for installation of residential photovoltaic systems

- ◆Kawasaki City has offered grants for home PV systems since 2006 to meet citizen needs
- ◆Up to 1,500 grant applications will be accepted for FY2012 (950 applications have been accepted as of Jan.7, 2013)

Number of grants provided for residential PV systems

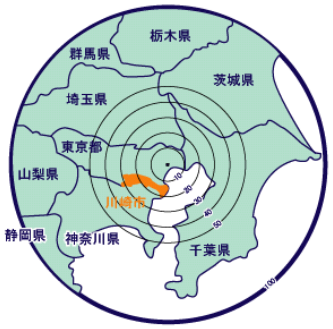


Support for installation of residential solar heating systems

- ◆Grants have been offered since 2011 to promote dissemination of energy efficient solar heating systems
- ◆Up to 30 applications will be accepted for FY2012 (15 applications have been accepted as of Jan.7, 2013)

Promotion of international contribution through environmental technologies

Global companies located in Kawasaki City



SUNTORY Suntory Holdings Ltd.
商品開発センター

NEC NEC Corporation
玉川事業場、中央研究所

TOSHIBA Leading Innovation Toshiba Corporation
研究開発センター、
ソフトウェア技術センター
小向工場、
小向ＳＡシステム工場、
浜川崎工場
マイクロエレクトロニクスセンター

AJINOMOTO Ajinomoto Co., Inc.
川崎事業所（工場）、
生産技術開発センター、
ライフサイエンス研究所、
健康基盤研究所、
加工食品開発・工業化センター、
調味料開発・工業化センター、
アプリケーションセンター、
アミノサイエンス研究所、
発酵技術研究所、
生産開発統括センター、
医薬研究所

HITACHI Inspire the Next Hitachi, Ltd.
新川崎オフィス、
システム開発研究所 川崎ラボラトリ

Zeon Corporation
川崎工場、総合開発センター

AsahiKASEI Asahi Kasei Corporation
川崎製造所

Yakin Kawasaki Co. Ltd.

FUJITSU Fujitsu Ltd.
本店、川崎工場

花王 Kao Corporation
川崎工場

FUSO Mitsubishi Fuso Truck and Bus Corporation
本社

Pioneer sound.vision.soul Pioneer Corporation
川崎事業所

TonenGeneral Sekiyu K.K.
川崎工場、東燃化学川崎工場、中央研究所

DELL Dell Inc.

Tokyo Electric Power Company
川崎火力発電所、東扇島火力発電所

IBM IBM Japan, Ltd.
川崎事業所

Canon Canon Inc.
矢向事業所、川崎事業所、玉川事業所、
小杉事業所

Showa Denko K.K.
川崎事業所、研究開発センター、
生産技術センター

JFE JFE Steel Corporation
東日本製鉄所（京浜地区）
スチール研究所

日清製粉グループ Nisshin Flour Milling Inc.
鶴見工場

エネルギー・フロンティア TOKYO GAS Tokyo Gas Co., Ltd.
川崎天然ガス発電（株）

ENEOS JX Nippon Oil & Energy Corporation
川崎事業所
川崎天然ガス発電（株）

Promotion of international contribution through environmental technologies

LOW CARBON

低CO2川崎ブランド

Promotion of Low-Carbon Kawasaki brand

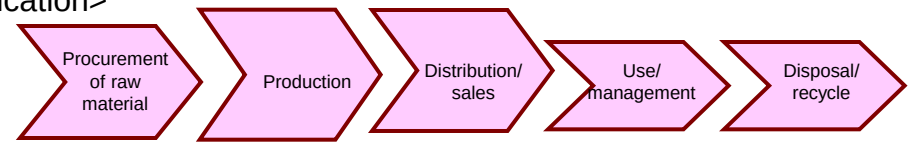
- Evaluate Kawasaki-based technologies that contribute to reducing CO2 through its lifecycle
- Widely communicate the potentials of these products/technologies
- Contribute to reduction of GHG at the global level through promotion of Kawasaki brand

Kawasaki model for CO2 reduction

Visualize CO2 emissions throughout all processes

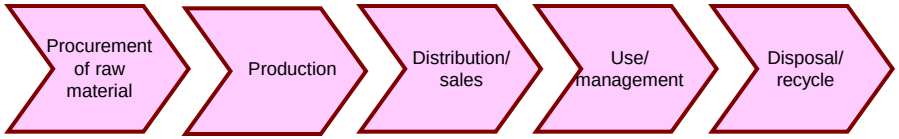
Framework to evaluate products and technologies that contribute to CO2 reduction through its lifecycle: Determine the CO2 reduction effect of the product/technology based not only on its production process but on lifecycle comparison with conventional products

< Low carbon products, etc.: products/technologies subject to certification>



CO2 reduction effect = compare + compare + compare + compare + compare

<Comparison with baseline (conventional or standard) product>



Permeation of the concept of evaluating CO2 reduction based on lifecycle

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Promotion of international contribution through environmental technologies

36 products/technologies certified in 4 years

○ Products/technologies contributing to prevention of global warming through its entire lifecycle
○ Determination of CO2 reduction is based not only on the effect of the final product but also takes account of the materials and components used

Company name: JFE Engineering Corporation
Certified product: Geothermal air conditioning system utilizing steel pipe piles
○ LCCO2 reduction effect
Lifecycle CO2 emission is reduced by 29% compared with a standard type air-source heat pump

Cuts LCCO2 by 29%

Company name: Nihon Genryo Co., Ltd.
Certified product: Saito Tank (Water filtration system without the need for filter media replacement)
○ LCCO2 reduction effect
Lifecycle CO2 emission is reduced by 9% compared with a water filtration system without an automatic washing function (Saito Cleaning)

Cuts LCCO2 by 9%

Company name: Kawasaki Steam Net Ltd.
Certified product: Project to supply steam from a high-efficiency power generation system
○ LCCO2 reduction effect
Lifecycle CO2 generation is reduced by 45% compared with other means of steam supply (such as boilers) owned by individual users

Cuts LCCO2 by45 %

Promotion of international contribution through environmental technologies

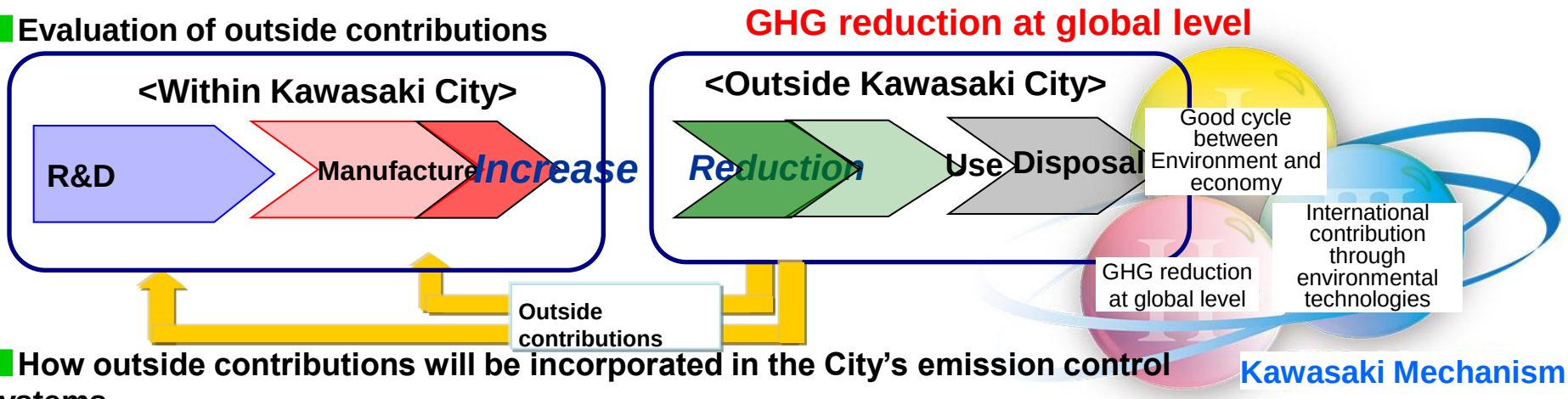
Kawasaki Mechanism Certification System

Starting from 2013

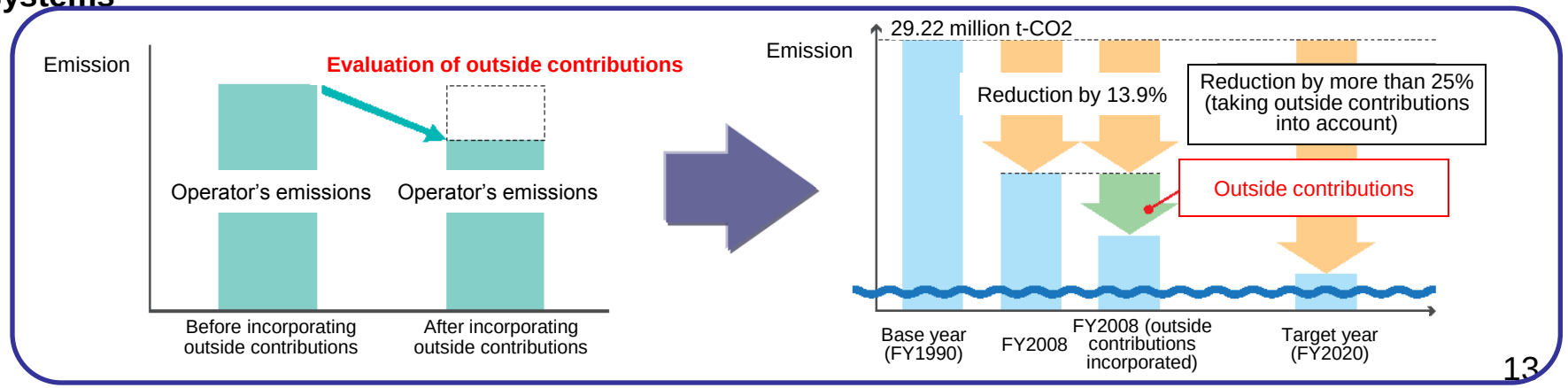
First among Japanese municipalities

Appropriately evaluates, throughout the lifecycle from material procurement to disposal, the amount of contribution to CO2 emission reduction outside Kawasaki City (outside contributions) made through environmental technologies of business operators located in the City

Evaluation of outside contributions



How outside contributions will be incorporated in the City's emission control systems



Incorporation into operator's report

Incorporation into the Kawasaki Plan

Policy for the promotion of eco-friendly contracts

【Basic concept】

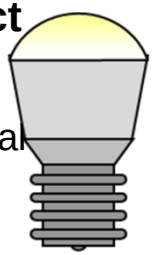
The following factors will be considered for all contracts made by Kawasaki City

1. To consider whether the contract will contribute to GHG reduction
2. To build a mechanism for evaluating the contractor's approaches to environmental management
3. To clarify requirements on environmental performance/standards

【Focus areas】

1. **Electricity purchase contract**

Actively conduct power supply bidding in recognition of environmental efforts made by power companies



3. **Energy saving renovation works by energy service companies (ESCO)**

Reduce environmental burden through renovation of public buildings

2.**Vehicle purchase/lease contract**

Specify hybrid or EV models when purchasing public vehicles

4.**Building contracts**

Ensure environmental performance and encourage eco-friendly proposals

Examples of eco-friendly contracts

1. Electricity purchase contract: Contract to purchase eco-friendly power supply

	Number of notices	Number of eco-friendly supply contracts concluded as a result of bidding (includes prospective contracts)
FY 2010	43	16
FY 2011	44	25
FY 2012	61	9
FY 2013	As of December 2012	162 (prospect)

Drop due to impact of the Great East Japan Earthquake

To be implemented in city schools

2. Vehicle purchase contract: Designation of hybrid or EV models for purchase of public vehicles

	Total	CNG	HYBRID	**EV**	Gasoline / diesel
As of March 2011	1,733	**23**	**111**	**6**	1,593

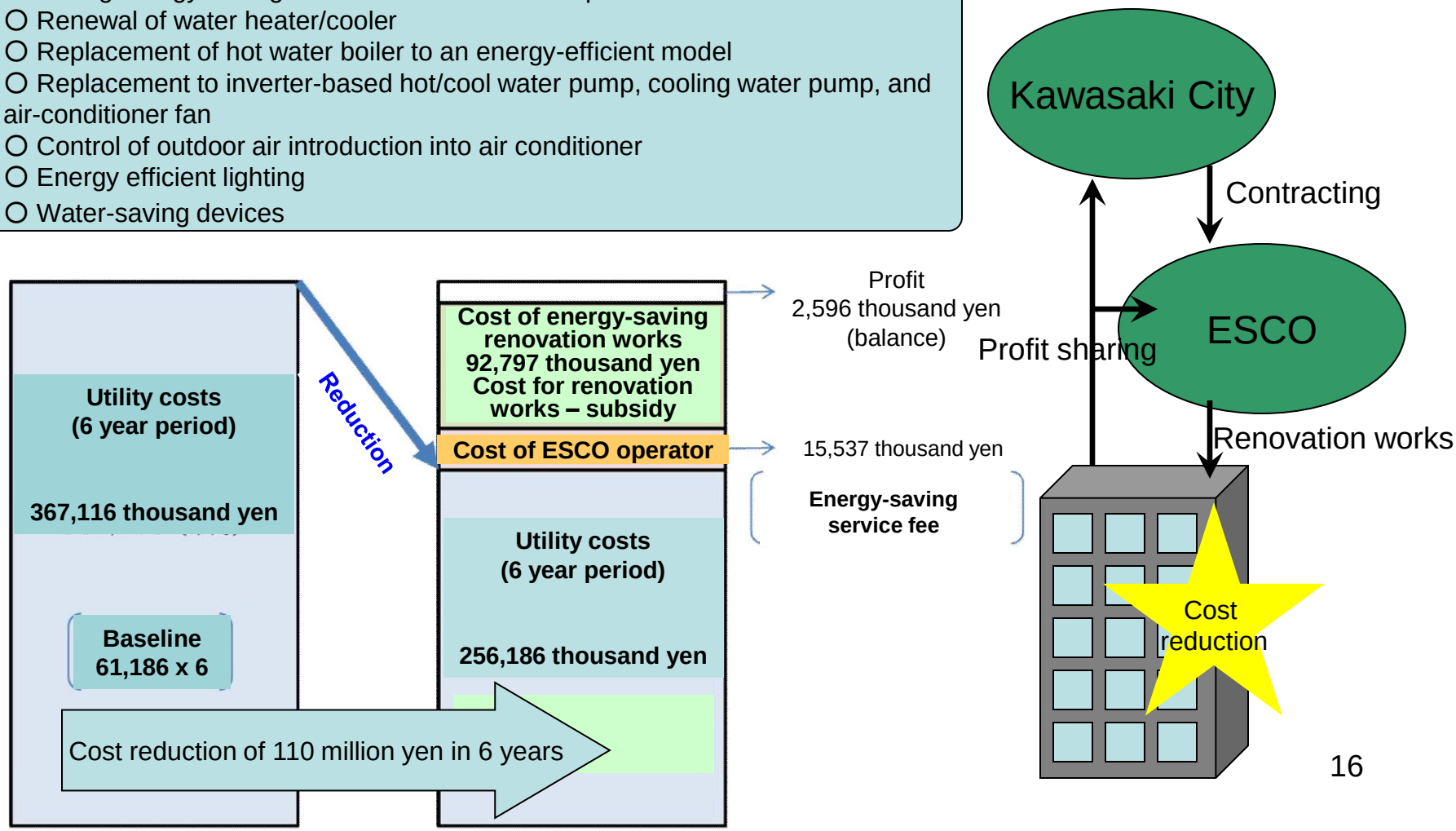
Approximately 8% of total

Examples of eco-friendly contracts

3. Energy-saving renovation works by energy service companies (ESCO)

Renovation projects implemented at Miyamae Civic Hall/Library and Aso Civic Hall/Library from 2009

Following energy-saving renovation works were implemented:
- ○ Renewal of water heater/cooler
- ○ Replacement of hot water boiler to an energy-efficient model
- ○ Replacement to inverter-based hot/cool water pump, cooling water pump, and air-conditioner fan
- ○ Control of outdoor air introduction into air conditioner
- ○ Energy efficient lighting
- ○ Water-saving devices



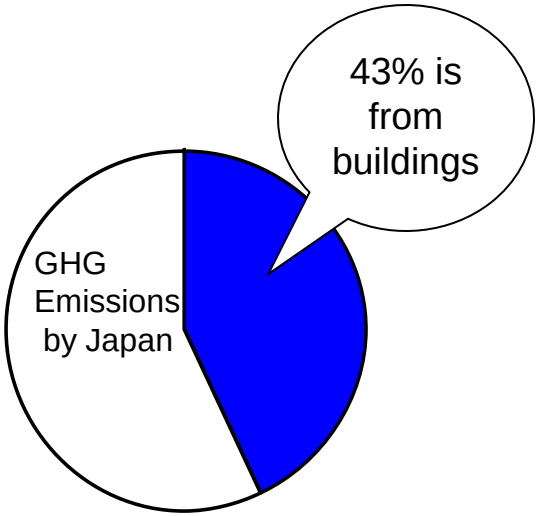
Examples of eco-friendly contracts

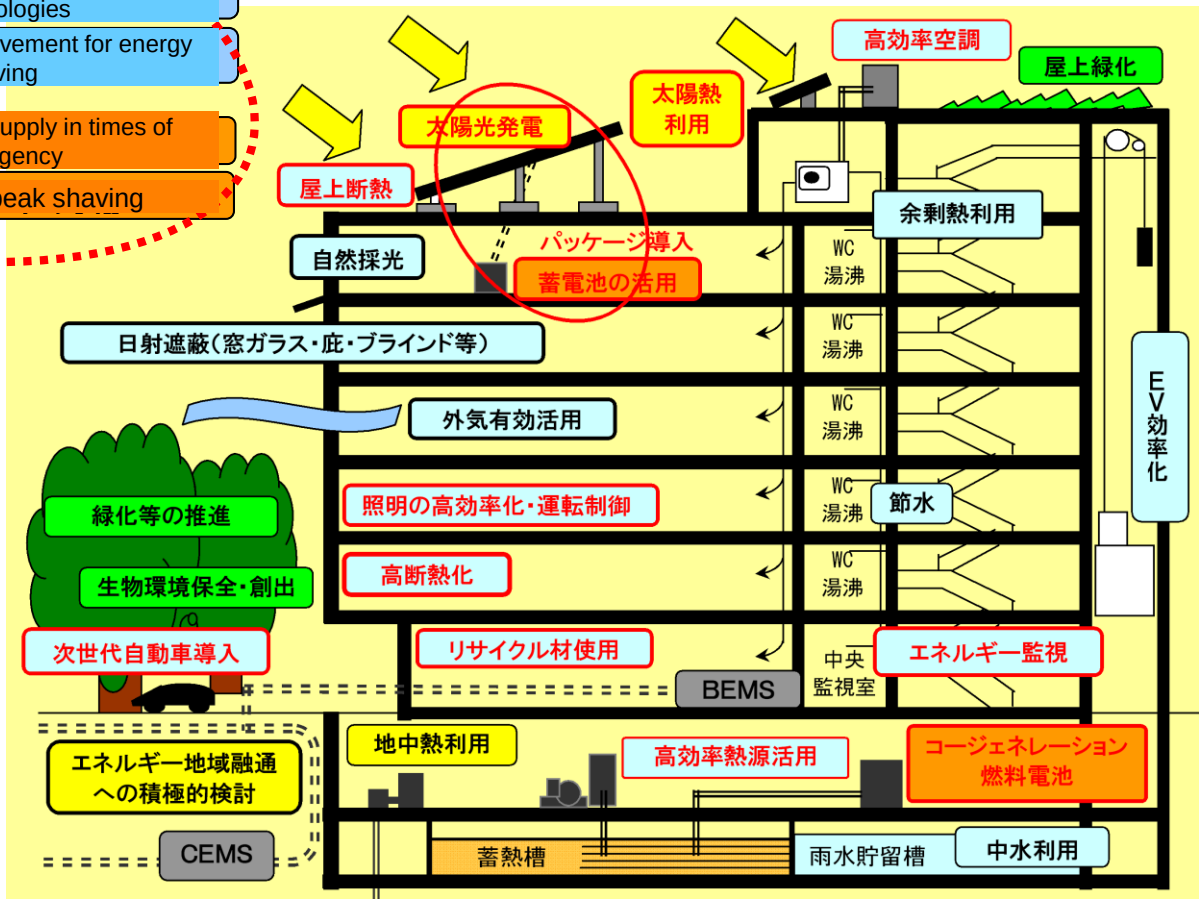
4. Building contracts

Packaging of 3 energy solutions

- **Create energy**
  - Active utilization of renewable energy
  - Awareness and education
- **Save energy**
  - Effective use of energy-saving technologies
  - Awareness improvement for energy saving
- **Reserve energy**
  - Stable energy supply in times of emergency
  - Means for peak shaving

Environmental standards for Kawasaki City's Public Buildings
- To be developed/announced in FY 2013





Thank you for your attention

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