Kitakyushu City Action Plan for Global Warming Countermeasures (2021～2030)

Overview

1. Background & Purpose【p1～】

The existing “Kitakyushu Action Plan for Global Warming Countermeasures and Kitakyushu Eco-Model City Action Plan” have been revised in line with the latest scientific findings and trends in Japan and around the world. This revised version defines reduction targets for greenhouse gas emissions in anticipation of the realization of a decarbonized society and specific measures for mitigation and adaptation to further accelerate the momentum of measures by this SDGs FutureCity to counter global warming.

This will be positioned as a local government action plan (area policies and administrative projects) as stipulated in Article 21 of the Act on Promotion of Global Warming Countermeasures, and as a local climate change adaptation plan, as defined in Article 12 of the Climate Change Adaptation Act.

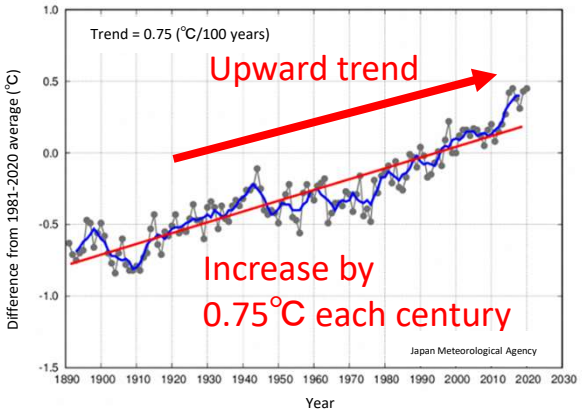
Paris Agreement & IPCC Special Report on Global Warming of 1.5℃

With a shared global goal to “hold the increase in the global average temperature to well below 2℃ above pre-industrial levels (and pursue efforts to limit this to 1.5℃)”, the world must reduce carbon dioxide emissions to net zero by around 2050 in order to limit temperature rise to 1.5℃.

Japanese government’s declaration on achieving carbon neutrality by 2050

Former Prime Minister Suga Yoshihide unveiled an ambitious goal for Japan to become carbon neutral and achieve the creation of a decarbonized society by 2050.

【Global average temperature】



2. Basic Concept【p25～】

The principles of the “Grand Design on the World Capital of Sustainable Development”, a vision of actions led by the city’s residents, NPOs, businesses and government administration, form the foundation of the basic approach of this action plan.

Basic Approach
(Grand Design on the World Capital of Sustainable Development: City with boundless "true wealth and prosperity")

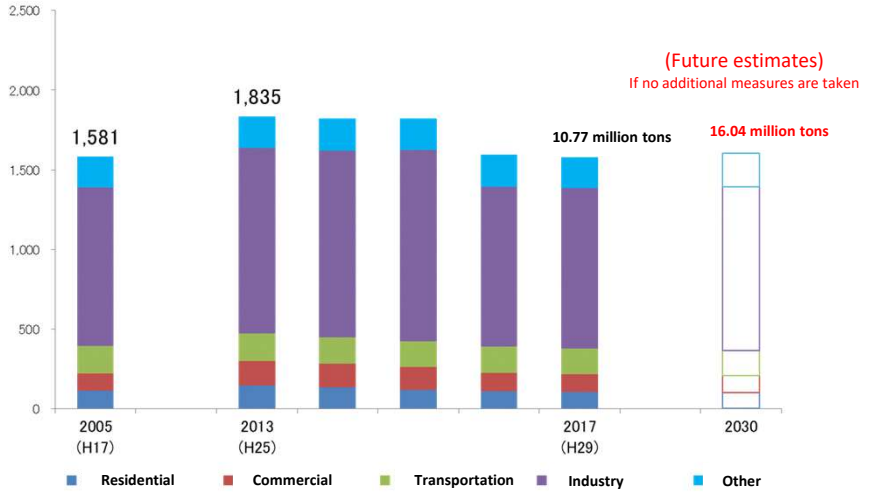
Create a virtuous cycle between the environment and economy

Contribute to decarbonization efforts around the world

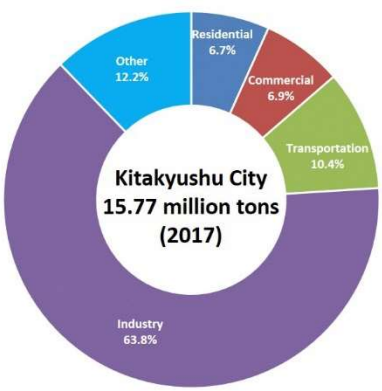
Realize the creation of a livable, disaster-resilient, and inclusive society by enhancing the value and competitiveness of the city and local companies on the basis of decarbonization through a virtuous cycle between the environment and economy

3. Kitakyushu Today & Future Estimates【p27～】

Greenhouse gas emissions in the city area rose after the 2011 tsunami and earthquake in East Japan, but have started to move downward in recent years as a result of the increased use of renewable energy. By sector, industry accounts for about 60% of total emissions. Estimates indicate that emissions in fiscal 2030 will be about the same as they are today, assuming that no additional reduction measures are taken in the future.



【Breakdown by sector】



4. Greenhouse Gas Reduction Targets【p37～】

Reflecting Kitakyushu's commitment to becoming a Zero-Carbon City by 2050, a backcasting approach will be used to build up a future vision (goals) for 2050, as well as specific reduction measures and effects that will be needed over the next decade, and to set reduction targets for fiscal 2030.

2050 (Goals)

Aim to achieve net-zero greenhouse gas emissions in the city **(Zero Carbon City)**

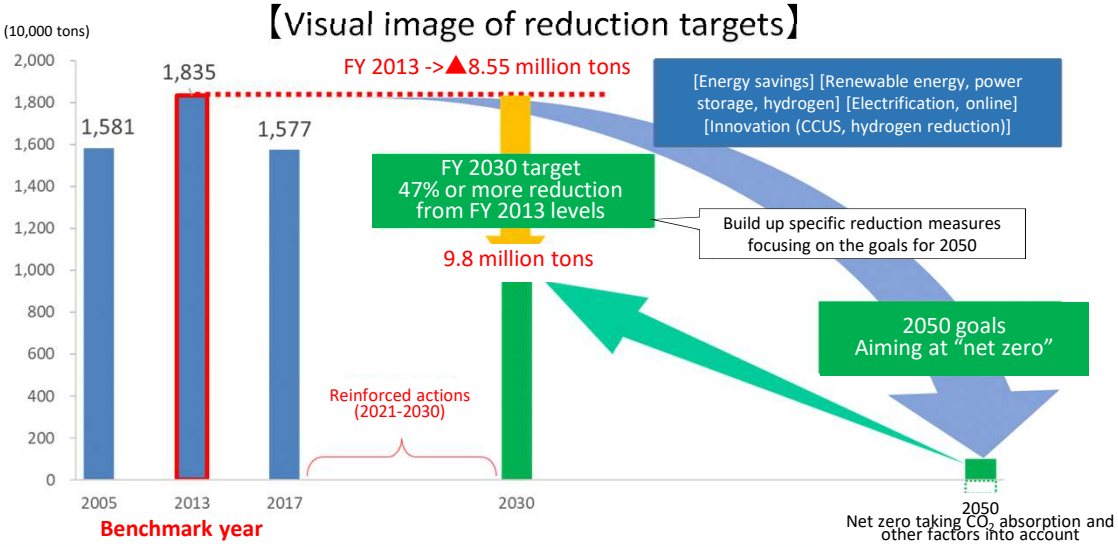
*"Net zero": When CO_2 emissions are regarded to be "zero" (or completely negated) after subtracting the amount of anthropogenic CO_2 emissions from the amount of CO_2 absorbed by forests and other ecosystems

2030 (Targets)

Recognize that the next decade is absolutely critical as a midway point to achieving net zero by 2050, and build up specific reduction measures and effects to **reduce emissions by 47% or more from fiscal 2013 levels**

* Set to the same levels as fiscal 2013, the benchmark year in the national government's Plan for Global Warming Countermeasures, based on manuals and other reference documents from the Ministry of the Environment

【Visual image of reduction targets】

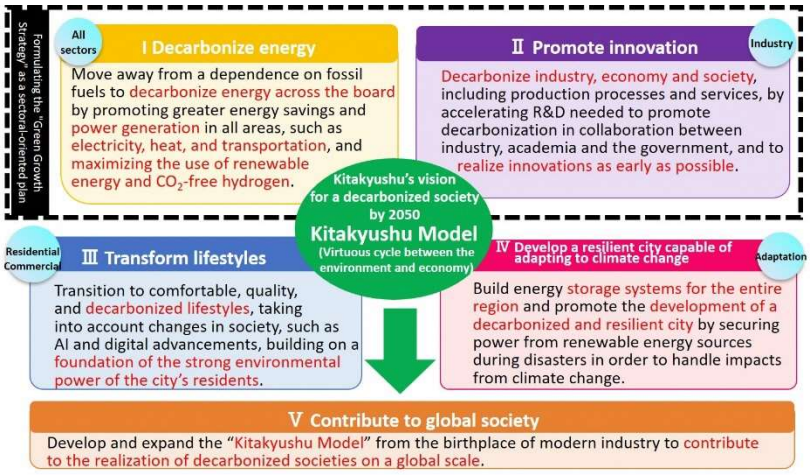


5. Aspiring to become a decarbonized society by 2050【p39～】

Kitakyushu's vision as a decarbonized society by 2050

Kitakyushu has set its sights on transforming itself into a decarbonized society by 2050 with the development of a Kitakyushu Model that can simultaneously decarbonize energy, promote innovation, transform lifestyles, and develop a resilient city capable of adapting to climate change, and thereby, contribute to the global society by developing and extending this model to other areas in Japan and abroad.

【Zero-Carbon City by 2050】

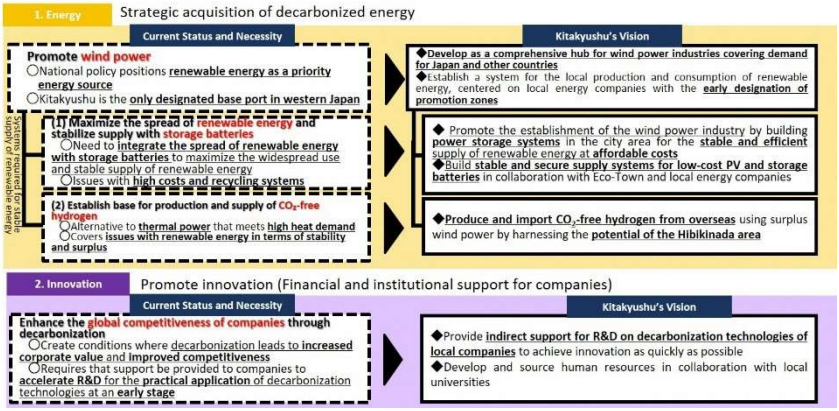


Formulating the Kitakyushu City Green Growth Strategy

With an industrial sector that accounts for nearly 60% of the city's greenhouse gas emissions, Kitakyushu is putting priority focus on energy and innovation.

Dedicated to these two areas, Kitakyushu's Green Growth Strategy has been formulated as a sectoral plan to strategically secure sources of decarbonized energy and accelerate innovation in the future.

【Framework of the Kitakyushu City Green Growth Strategy】



6. Mitigation Measures by Sector (Toward 2030)【p48～】

Target emissions for fiscal 2030 (9.8 million tons) are calculated by subtracting CO_2 reduction effects (②＋③) resulting from reinforced measures in the future from future estimates for fiscal 2030 (① BAU: Where the status quo is maintained and measures are not reinforced.)

【Results of estimates of reduction targets for fiscal 2030】

[Unit: Tons]

Sector/Field	① Emissions (Baseline year) [FY2013]	① Future estimates (BAU) [FY2013]	② CO_2 emissions: Reductions from actions (*1)	③ CO_2 emissions: Reductions from additional actions (*2)	①−(②+③) Target emissions (from baseline year)
① Residential	1.45 million	990,000	▲110,000	▲160,000	720,000 (▲50%)
② Commercial	1.53 million	1.08 million	▲200,000	▲120,000	770,000 (▲50%)
③ Transportation	1.72 million	1.58 million	▲430,000	▲110,000	1.04 million (▲40%)
④ Industry (including industrial processes)	12.67 million	11.24 million	▲4.12 mil	▲460,000	6.66 million (▲47%)
⑤ Other	960,000	1.15 million	▲350,000	▲160,000 (incl. cross-sector)	640,000 (▲33%)
⑥ CO_2 absorption by forests, other	–	–	▲20,000	▲4,000	–
Total	18.35 million	16.04 million	▲5.23 mil	▲1.01 mil	9.80 million (▲47%)

Total values may not match as figures are rounded up or down to the nearest value.

【Methods to calculate reductions】

<Reductions from actions*1>

Reductions taking into account measures listed in the Plan for Global Warming Countermeasures, reduction rates under the Energy Saving Act (1% reduction each fiscal year), and the suspension of operations of production facilities that have already been decided or are planned.

<Reductions from additional actions*2>

Reductions taking into account improvements in electrification rates and energy coefficients, increased use of EVs, and Kitakyushu's original measures based on materials and data from national expert panels with an aim to achieving net-zero emissions by 2050.

Kitakyushu City's Strategic Vision on the Future of Energy

【Image】

① Growing wind power base

【Background】

- Transition to renewable energy as the main power source and accelerate the introduction of offshore wind power
- Designation as a base port, optimal wind conditions for wind power in Hibikinada Sea area

【Kitakyushu's vision】

- Develop as a comprehensive hub for wind power industries
- Accelerate the introduction of offshore wind power with the use of systems to designate promotional zones, and local production of renewable energy for local consumption

② Sophisticated energy storage system base

【Background】

- Increase in surplus electricity due to expanding the introduction of renewable energy (unstable)
- Establishment of systems to expand the use of PV and storage batteries (cost control)

【Kitakyushu's vision】

- Develop stable renewable energy sources and produce electricity from 100% renewable energy sources through the widespread use of PV and storage batteries
- Minimize the impacts of power outages during disasters
- Establish reuse and recycling systems (circular economy)

③ Hydrogen production and supply base

【Background】

- Establishment of hydrogen supply chain by national government
- Scale-up and reduce costs in the production and supply of CO_2-free hydrogen

【Kitakyushu's vision】

- Import and supply low-cost hydrogen
- Produce hydrogen using surplus energy to support the introduction of renewable energy
- Use hydrogen as an alternative energy to thermal power and as a response to demand for high-temperature heat when electrification is difficult.

Residential & Commercial Sectors (Key Initiatives)

【Widespread use of energy-efficient devices (LED, high-efficiency water heaters, other)】

Details	Selection of energy-efficient home appliances and high-efficiency water heaters when purchasing replacements	
Reduction effects	Switch to LED lighting	▲41,000 tons (residential) ▲77,000 tons (commercial)
	Installation of high-efficiency water heaters	▲46,000 tons (residential) ▲32,000 tons (commercial)
Roadmap	【LED lighting (residential)】 2019: 13% ➡ 2030: 100% 【High-efficiency water heaters (commercial)】 2017: 6,000 units ➡ 2030: 18,000 units ➡ 2050: All levels	

【Widespread use of energy-efficient housing and buildings】

* ZEH: Zero Energy House
ZEB: Zero Energy Building

Details	Consideration of comfortable and high-quality living and office environments, such as ZEH and ZEB designs for new housing and buildings, as well as heat insulation when renovating	
Reduction effects	Building insulation	▲7,000 tons (residential) ▲57,000 tons (commercial)
	ZEH, ZEB *	▲15,000 tons (residential) ▲30,000 tons (commercial)
Roadmap	【Double glazing (residential)】 2018: 7.5% ➡ 2030: 25% ➡ 2050: All levels 【ZEH】 New construction (2017): 14% ➡ New construction (2030): 100% ➡ Stock (2050): 100%	

【Key city policies (for residents) 】

- Disseminate information on methods and effects of energy-saving and renewable energy initiatives and subsidy systems
- Support renovations of existing houses at time of purchase
- Promote smart design of residential districts
- Reduce plastic waste and food loss
- Raise awareness and provide opportunities to interact to promote environmental activities, such as Eco-Life Stage

【Key city policies (for businesses) 】

- Disseminate information on methods and effects of energy-saving and renewable energy initiatives and subsidy systems
- Promote the construction of next-generation smart buildings
- Promote the development of environmentally friendly buildings (CASBEE Kitakyushu)
- Support the introduction of PV and storage batteries for private use to promote electrification using 100% renewable energy
- Promote DX in small- and medium-sized enterprises

Transportation Sector (Key Initiatives)

【Widespread use of next-generation vehicles*】

* Hybrid vehicle (HV), plug-in hybrid vehicle (PHV), electric vehicle (EV), fuel cell vehicle (FCV)

Details	Consideration of the use of low-impact, next-generation vehicles when purchasing or trading in vehicles	
Reduction effects	Improved fuel efficiency (HV)	▲310,000 tons
	Introduction of EV, PHV, FCV	▲60,000 tons
Roadmap	【Rate of spread (HV)】 Ownership (2017): 17% ➡ 2030: 40% new vehicles 【Rate of spread (EV)】 Ownership (2017): 0.5% ➡ 2030: 30% new vehicles ➡ 2050: 100% stock	

【Key city policies】

- Provide subsidies for the introduction of next-generation vehicles
- Promote the use of public transportation (formation of intercity BRT, etc.)
- Promote the use of bicycles (Kitakyushu Bicycle Utilization Plan)
- Promote eco-driving and reduced use of private vehicles
- Use FCVs and EVs to secure emergency power sources during disasters
- Disseminate information on the use of new mobility systems

Industrial Sector (Key Initiatives)

【Promotion of energy savings, maximum introduction of renewable energy】

Details	Promotion of energy-efficient development in business activities based on the Energy Saving Act, selection of energy-efficient equipment when updating facilities, and introduction of power generated from renewable energy	
Reduction effects	Energy-saving measures, streamlined production processes	▲1.26 million tons ▲2.86 million tons (Suspension of decided or planned facilities)
	Introduction of renewable energy and electrification	▲460,000 tons
Roadmap	【Energy-saving measures】 Energy efficiency (2030): ▲1%/year ➡ 2050: Ongoing 【Wind power capacity】 2017: 31MW ➡ 2030: 250MW ➡ 2050: Maximum installation	

【Key city policies】

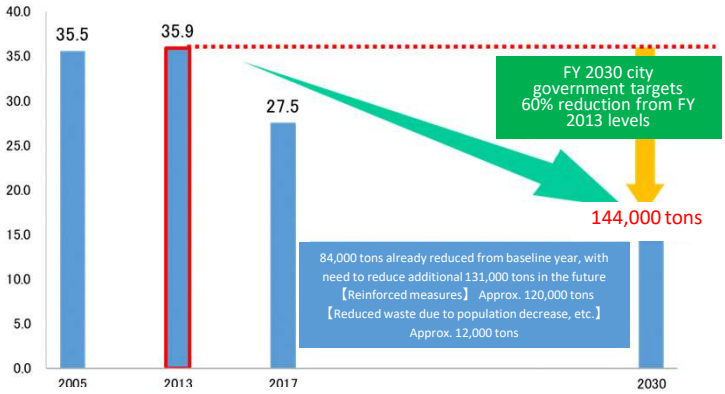
- Promote strategic initiatives based on formulating the "Green Growth Strategy"
- Promote the development of a comprehensive hub for wind power industries
- Support the introduction of PV and storage batteries for private use to promote electrification using 100% renewable energy
- Conduct demonstrations and PR to realize the creation of a hydrogen society
- Promote smart agriculture, forestry and fisheries
- Support the widespread and expanded use of environmental technologies
- Support research and development to create innovation

7. Green Government Initiatives【p117～】

Kitakyushu has set reduction targets for greenhouse gas emissions generated from the functions and undertakings of the city government for fiscal 2030. The city will take a proactive approach in thoroughly implementing energy-saving measures and generating power from 100% renewable energy sources in public facilities as a leading model for the creation of a decarbonized society.

【Image of Targets】

(Functions and undertakings of the Kitakyushu City Government)



Current standards New standards

FY 2030 (Kitakyushu City Government targets)

Reduce greenhouse gas emissions from city operations by **60% from FY 2013 levels**

Key city policies	Reduction effects
Thorough energy-saving measures (Introduction of LED lighting, etc.)	7,000 tons
Conversion of public facilities to 100% renewable energy (All public facilities by FY 2025)	94,000 tons
Introduction of next-generation vehicles for official use	1,000 tons
Decarbonization of waste treatment processes (Plastic waste measures, etc.)	18,000 tons
Total	Approx. 120,000 tons

8. Contributions to Decarbonization Efforts Around the World【p125～】

With its international environmental cooperation network with Asian cities and the Asian Center for Low Carbon Society (established in 2010) taking on a leading role, Kitakyushu will help remedy urgent issues in Asian countries, such as waste disposal, and resolve global issues, such as measures to handle plastic waste and climate change, for the development of a prosperous and enriched society. As the birthplace of modern industry, the city will also contribute to decarbonization efforts around the world with the widespread development and expansion of a new "Kitakyushu Model" that aims to realize the creation of a "virtuous cycle between the environment and economy".

【Reduction targets】

2050 (Goals)

Aim to reduce greenhouse gas emissions in Kitakyushu by **150% or more from FY 2013 levels** by exporting expertise to the entire Asian region to achieve the city's aim of becoming a "Zero Carbon City"

FY 2030 (Targets)

Recognize that, similar to Japan, **the next decade is absolutely critical** as a midway point, and achieve a **75% reduction** in greenhouse gas emissions **from FY 2013 levels** by shifting away from point-to-point support to broader, more comprehensive support

Direct reductions and applications of technology resulting from Kitakyushu's international environmental cooperation activities and technology transfer, and secondary reductions due to the use of products from local companies

【Future actions】

Decarbonize entire cities and industrial parks by supporting the formulation of green growth strategies

- Support for the formulation of city master plans
- Cooperation in greening industrial parks

Identify and commercialize projects based on green growth strategies (Projects promoted by the Asian Center for Low Carbon Society)

- Support for sustainable environmental business development projects
- Support for the introduction of waste incineration facilities
- Support for the introduction of renewable energy and decarbonization technologies
- Promotion of a circular economy

Promote strategic international environmental cooperation initiatives

Develop environmental human resources and build networks

9. Adaptation to Climate Change Impacts (Adaptation Measures)【p141～】

It is important to address adaptation measures to avoid or mitigate damage with the assumption that a certain degree of impacts from climate change will be inevitable in the coming decades.

Reflecting its own distinct local characteristics, Kitakyushu will take up initiatives in each sector and promote adaptation measures in cooperation with the national government, Fukuoka Prefecture and other related organizations, with reference to the results of climate change impact assessments by the Japanese government.

Area	Future Impacts	Key City Policies
Agriculture, forestry, fisheries	・Lower quality crops due to higher temperatures ・Death of fish and shellfish	・Promote awareness of varieties/species that are resistant to high temperatures and measures to deal with pests and diseases ・Monitor the appearance and conditions of red tide
Water environment Water resources	・Deteriorating water quality in lakes and rivers ・Changes in water supply and demand	・Monitor water quality and bottom sediment ・Improve water quality through the development of sewerage systems, etc.
Natural ecosystems	・Changes in habitats and breeding environments of organisms and living things	・Conduct surveys of habitats, breeding environments, and invasive species ・Protect and utilize green spaces, raise public awareness on the natural environment
Natural disasters Coastal areas	・Increased risk of flooding from storm surges ・Increased risk of landslides due to heavy rains	・Improve local capacity to prevent disasters ・Improve hazard maps ・Construct rainwater harvesting pipes and seawalls
Health	・Rising number of people with heat stroke ・Changes in infectious diseases ・Changes in concentrations of photochemical oxidants	・Raise awareness of ways to prevent heat stroke using health apps, etc. ・Conduct surveys of mosquito habitats for infectious disease vectors ・Monitor air quality
Industrial and economic activities Lifestyles of people in Japan Urban lifestyles	・Suspended operations due to torrential rains ・Disruption of urban infrastructure ・Generation of disaster waste	・Strengthen disaster prevention capabilities of SMEs with the widespread application of BCP (Business Continuity Plans) ・Secure emergency power sources for disasters using storage batteries and EVs ・Secure disposal and treatment systems for disaster waste

10. Promotion of Plan【p161～】

Kitakyushu will promote efforts to build momentum for the creation of a decarbonized society with all stakeholders by exchanging ideas with residents and businesses, reporting to and receiving advice from the Kitakyushu City Environmental Council, and implementing necessary improvements.

The city will also establish "progress management indicators", such as the status of the widespread use of energy-efficient equipment and next-generation vehicles, in addition to understanding the implementation status of different measures to ensure that progress is managed effectively.

【Follow-up system】