

# Sapporo City

Area: 1,121.26 km<sup>2</sup>

Population: 1.96 million



- Located in the far north of the Japan, Sapporo, with 1.96 million residents, is one of the few major cities in the world located in a snowy cold region.
- With more people moving into the city at present, the city's population is growing, but is expected to shift toward a decreasing trend after 2020 due to a declining birthrate and aging population.
- Wholesale/retail, lodging/beverage service, and real estate/leasing account for approximately 50% of industry (based on number of enterprises), with a strikingly large proportion in tertiary industry.

## Global Warming Countermeasures

- Based on policies set forth in the Sapporo City Planning Strategic Vision (2013), the city drafted the Sapporo Energy Vision (2014) and the Sapporo City Global Warming Countermeasures Plan (for the 2015-2030 period) in its efforts to "become a global environmental capital city that carries out sustainable city planning to create a low carbon society that is free from dependence on nuclear power." The city continues to engage in global warming countermeasures suited to its special characteristics as a major city located in a snowy, cold area.
- In the 2<sup>nd</sup> Environment Basic Plan formulated in 2018, the city shows its intent to promote cross-cutting and integrated environmental policies based on the concepts outlined in the Sustainable Development Goals (SDGs) that will simultaneously bring about ripple effects in the socioeconomic sector.

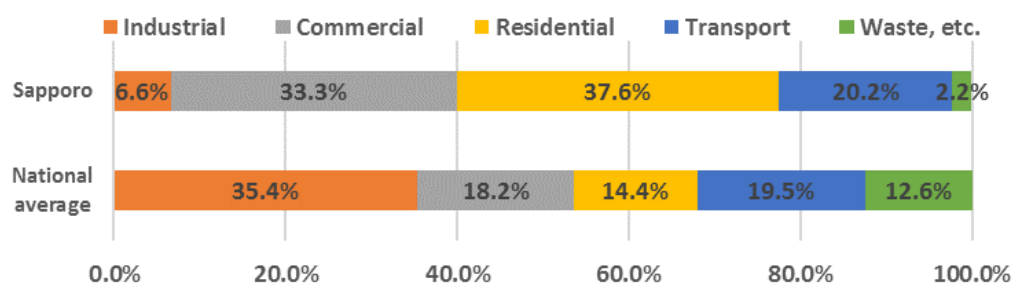
## Greenhouse Gas Emissions

### <Overview>

- GHG emissions: 12.08 million t-CO<sub>2</sub> (2016 preliminary figures)
  - GHG Emissions per capita: 6.1 t-CO<sub>2</sub>
- Although emissions have increased compared to the 1990 base year, overall emissions have been reduced by 8.6% and per capita emissions by 11.5% compared to the year 2012, when the city created its plan for global warming countermeasures,

### <Emissions by sector>

While emissions the private household sector account for 37.6% and private-sector business for 33.3% of emissions, the industrial sector's ratio is small at 6.6%, differing from the distribution of emissions by sector nationwide. Regional characteristics, such as the cold and snowy climate, make energy use for heating in the winter high in the private sector, and the reduction of greenhouse gas emissions resulting from kerosene and gas fuels has become a difficult issue.



Proportion of CO<sub>2</sub> emissions by sector for Sapporo City and nationwide (2012, %)

(Sapporo City Global Warming Countermeasures Plan (March 2015))

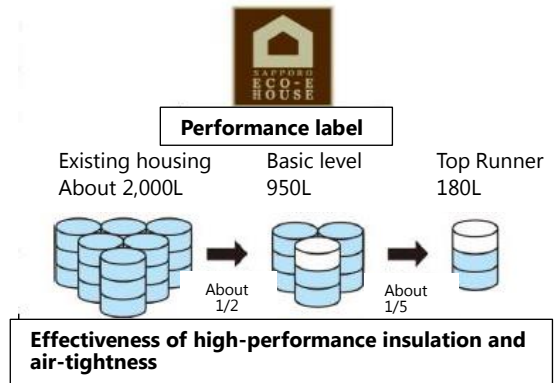
### Greenhouse Gas Reduction Targets

- Long-term target: 80% reduction by 2050 compared to 1990 <target reduction amount 1.87 million t-CO<sub>2</sub>>
- Mid-term target: 25% reduction by 2030 compared to 1990 <target reduction amount: 7.01 million t-CO<sub>2</sub>>  
(Sapporo City Global Warming Countermeasures Plan (March 2015))

### Examples of Initiatives

#### Rebuilding homes to conform to Sapporo next generation housing standards

In 2012 Sapporo City launched a certification and subsidy scheme entitled, "Sapporo Next Generation Housing Standards", that set Sapporo's own standards for high performance insulation and air-tight housing. Standards for energy conservation are set higher than those at the national level, in the city's effort to shift to more energy-efficient high performance insulation and air-tight housing. There are five ranks for newly-built homes (top-runner, high-level, standard, basic and minimum). Subsidies ranging from 300,000 to 2 million yen are given according to rank when homes are built. Moreover, Sapporo City also put in place a subsidy program for the "eco-renovation" of free-standing houses that subsidizes a portion of costs involved in renovations to make energy-efficiency improvements and barrier-free improvements.



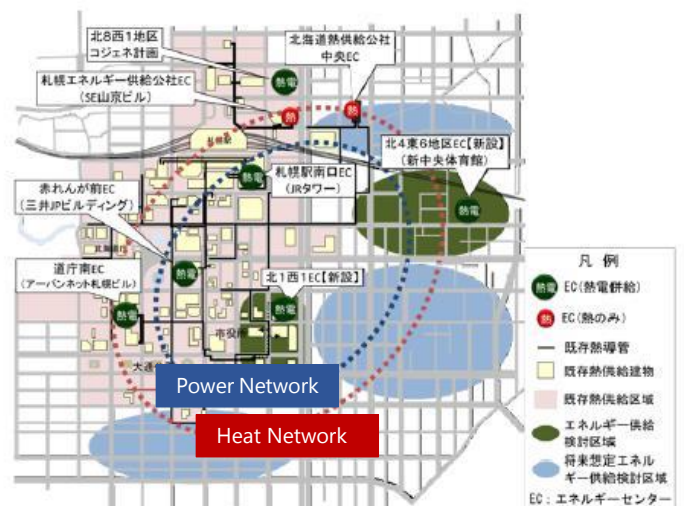
Rank of newly built housing	Subsidy amount	UA value* W/m <sup>2</sup> K	Primary energy consumption		Corresponding area of gaps (C value) [cm <sup>2</sup> /m <sup>2</sup> ]
			Overall	Heating and ventilation	
Top- runner	2,000,000 yen/case	Under 0.18	Grade 5	Under 35%	Under 0.5
High-level	1,500,000 yen/case	Under 0.22		Under 45%	
Standard-level	800,000 yen/case	Under 0.28		Under 60%	Under 1.0
Basic-level	300,000 yen/case	Under 0.36		Under 75%	
Minimum-level	none	Under 0.46	Grade 4	Under 90%	Under 1.0

\*UA value: exterior average thermal transmittance rate

#### Formulation of the City Center Energy Master Plan

In connection with the 1972 Sapporo Winter Olympics, the city adopted a district heat supply system to address the issue of soot from heating with coal. Thereafter, along with the growth of the city center district, a district heat supply network was built. The present supply area is 128 ha, with heat supplied to 100 buildings, about 20% of the total buildings in the area. Moreover, the city has endeavored to improve energy efficiency based on adoption of cogeneration systems, utilization of woody biomass, and direct use of cold heat from snow and cold air, as its energy measures targeting the city center area with its high-energy-consuming large-scale buildings have produced results.

Sapporo's "City Master Plan" formulated in March 2018, sets a target for an 80% reduction (base year: 2012) in CO<sub>2</sub> emissions in the city center by 2050. Building upon initiatives in the city center to date, Sapporo plans to continue to improve the quality of people's lives, work to address global warming, improve the appeal of the city and enhance its competitiveness by engaging in efficient use of energy in the city center area and establishing a new regional power company.



# Itabashi District, Tokyo

Area : 32.22km<sup>2</sup>

Population : 566,510



- Located in the northwestern part of the 23 Districts of Tokyo, Itabashi District was a post-station town during the Edo era. Its urban area expanded from the Meiji era, due to the construction of a railway station. The majority of the district landscape is urban with some industrial areas located in the northern part.
- The population has steadily grown since Fiscal Year (FY) 1970 to 47,000 in 2018. Although the proportion of young people (aged 15~24) is relatively high within the 23 Districts of Tokyo, it is estimated that cities will face issues associated with low birthrates and an ageing population, resulting in a declining total population. Therefore, it is essential to set up mechanisms for sustainable city management which is responsive to the changes in social structure.
- Itabashi has a variety of industries, from retail trades, lodging, food services (36%, a number of establishments), manufacturing (10.7%), medical and health (9.9%) and others.

## Global Warming Countermeasures

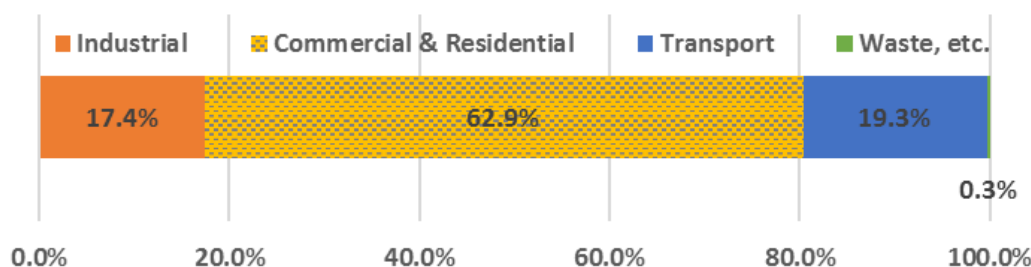
- Following the adoption of "Agenda 21" in 1992 at the UN Conference on Environment and Development (Rio Summit), Itabashi District adopted the Environmental City Declaration "Eco-Polis Itabashi" in FY1993, which showed the commitment of the district and its people to the protection of earth's environment.
- For the past 25 years, the district has made efforts to preserve the natural environment through re-evaluating and re-imagining lifestyles. Special focus has been put on sustainable urban development for cohabitation of people and environment through ESD and the promotion of environmentally friendly and locally multi-beneficial lifestyles.
- For climate action, Itabashi revised the "Itabashi District Action Plan for Global Warming Countermeasures" in March 2013, which newly integrated the idea of "Collaboration (Collaboratively Creating: Kyoso)" among the district government, businesses, and inhabitants in order to enhance existing actions for global warming countermeasures.
- The above-mentioned plan defines a vision for the district in FY2050 as "Environmentally collaborative city Itabashi for building low-carbon society with locals" and lists six basic principles, 14 policy directions, and 61 concrete implementation plans. It aims to not only reduce GHGs but also achieve better convenience and comfort, thus transforming the city to be more environmentally- and people-friendly.

## Greenhouse Gas Emissions

### <Overview>

- GHG emissions: 2,108,000 ton (2015)
- GHG emissions per capita: 3.7 ton

### <Emissions by Sector>



(data provided by Itabashi District)

## Greenhouse Gas Reduction Targets

- 1.8% reduction by FY2020 (compared to FY1990)
  - \*This target was set in the FY2013 Action Plan (revision planned for FY2020)
  - \*Part of the District Policy in "Itabashi District Action Plan for Global Warming Countermeasures" was revised soon after the Great East Japan Earthquake in 2011. Because of the uncertainty of national energy policy at the time, the target was set by calculating the estimated outcomes of realizable implementation plans, prioritizing feasibility.

## Examples of Initiatives

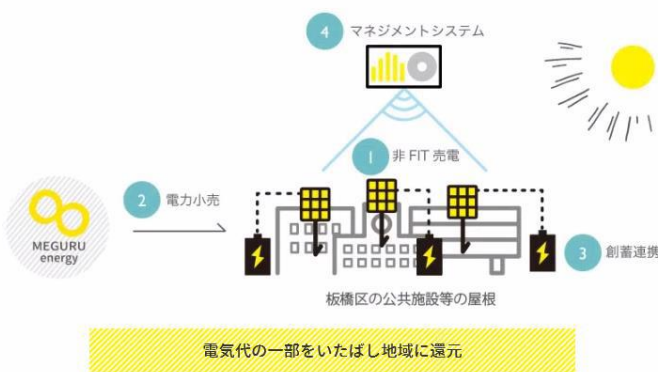
### Forest : utilization of regional resources and complementary relationship between urban and rural areas.

Based on the "Agreement on green and culture exchange", Itabashi district and Nikko city, Tochigi Prefecture (former Kuriyama village) agreed to collaborate on better use of regional resources and education.

Itabashi District conducts its environmental education on "Forest of Itabashi District", originally donated by Nikko city, and uses timber from Nikko to renovate district elementary and junior high schools. "Forest of Itabashi District" captures roughly 94.0 ton CO<sub>2</sub> annually. Both actions generate the circulation of benefits such as forest conservation, environmental education, and cultural inheritance by connecting urban areas that tend to have a lack of exposure to the natural environment with rural areas abundant in natural resources.



### Energy: promoting smart cities, and local production and consumption of electricity



Guided by the "Itabashi District Promotion Principles of Smart City", Itabashi District had an open call for ideas to enrich local areas and is already supporting implementation of selected initiatives.

Through the first selected case "local power initiative for local production and consumption of electricity, centered on renewable energy", the district has already put efforts into promoting local production and consumption of electricity, improving resilience and spreading renewable energy use by introducing solar power generation equipment and storage, and re-investing the saved cost of electricity to invigorate local communities and solve local challenges.

# Yokohama City

Area: 435.3 km<sup>2</sup>

Population: 3,741,765 (as of November 1, 2018)



- Yokohama is a major city with the largest population of all the municipalities in Japan. The city's GDP accounts for 2.5% of the country's gross domestic product in 2014.
- The population is expected to decline after peaking in 2019. With the population falling amidst the rise of a super-aging society and declining birthrates, it has become necessary to address the myriad problems accompanying these developments.
- The tertiary industry (mainly the service industry) accounts for 74% of industries in Yokohama in value added basis. The value of shipments of manufactured goods is the largest among the country's ordinance-designated cities. A breakdown of these figures shows that the petroleum and coal product manufacturing industry is the highest, followed by food production.

(Reference: City of Yokohama "Looking Economies of Yokohama 2014" (in Japanese) )

## Global Warming Countermeasures

- Since 2010, Yokohama has promoted projects on smart cities in collaboration with the private sector and with support from the national government. The city is one of several that has actively taken measures to counter global warming, including the establishment of Japan's sole Climate Change Policy Headquarters at the municipal level in 2011.
- Yokohama is the only city in Asia to take part in the Carbon Neutral Cities Alliance (CNCA) since 2015, a network of cities with the goal of aggressive cuts in greenhouse gases by 2050, and has also participated in other city networks in Japan and overseas that actively take measures to counter global warming in Japan, such as C40 (Large Cities Climate Leadership Group).
- Yokohama has set the "achievement of net-zero greenhouse gas emissions as soon as possible in the second half of this century" with an eye on 2050 as the city's vision (goal) for global warming countermeasures in the "Yokohama City Action Plan for Global Warming Countermeasures" formulated in October 2018.

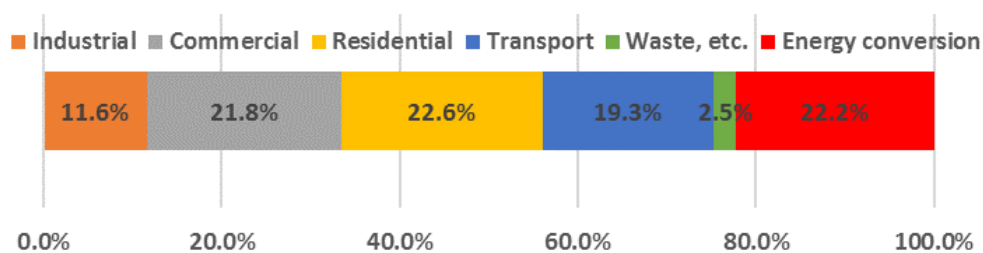
## Greenhouse Gas Emissions

- GHG emissions: 19.34 million t-CO<sub>2</sub> (2015)
- GHG emissions per capita: 5.2 t-CO<sub>2</sub>/person  
Despite fluctuations by fiscal year against the backdrop of a reduction in energy consumption and power emission factors that had been rising since the Great East Japan Earthquake and started to decline after peaking in 2013, GHG emissions began to fall after hitting a peak in FY 2013. Per capita emissions are also about half of the national average.

### <Emissions by sector (2015)>

The composition of CO<sub>2</sub> emissions by sector is largest in the residential sector, followed by the energy conversion and commercial sectors. One feature of CO<sub>2</sub> emissions in Yokohama is that emissions from the energy conversion sector are high.

(Reference: City of Yokohama "Yokohama City Action Plan for Global Warming Countermeasures (October 2018)" )



## Greenhouse Gas Reduction Targets

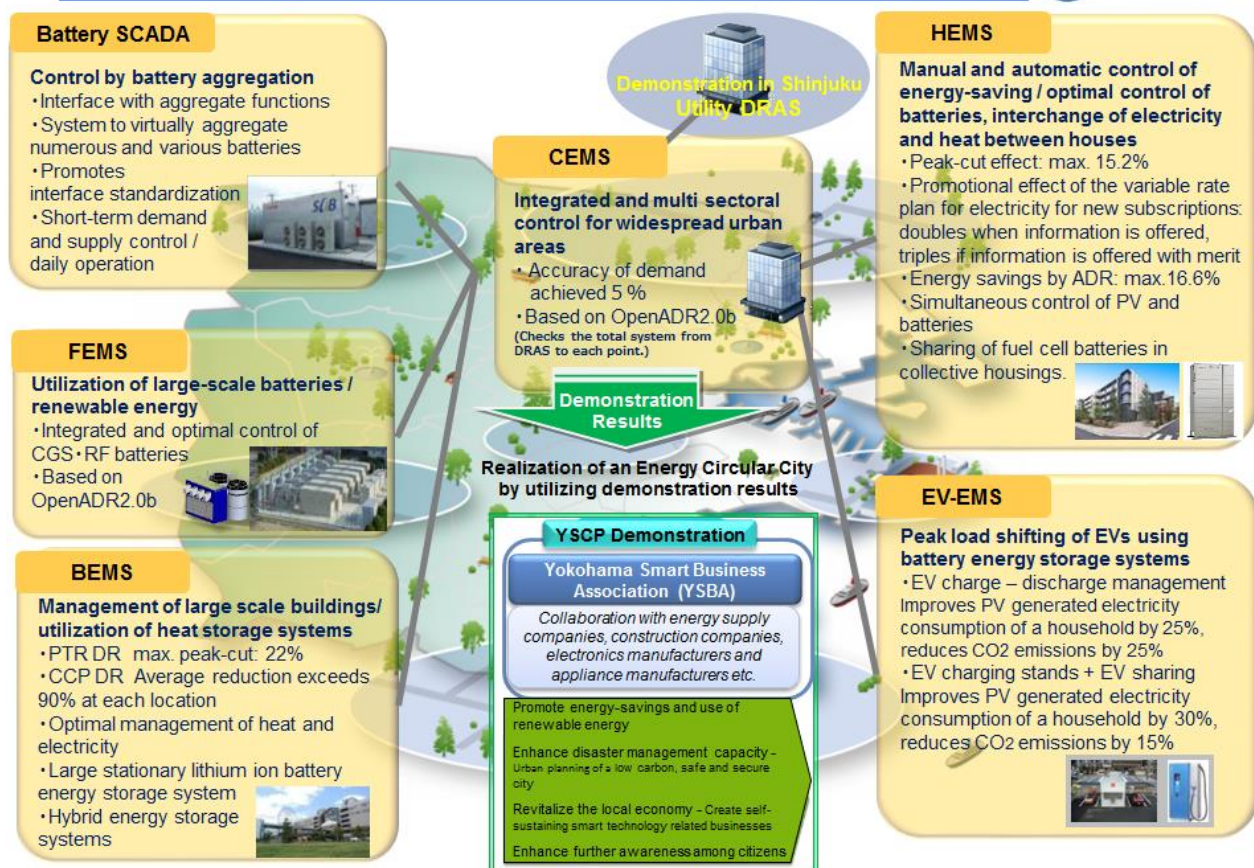
- Base year: FY 2013
- Short and mid-term targets: 22% reduction (FY 2020), 30% reduction (FY 2030)
- Long-term target: 80% or higher (2050)
- Target goal: Achievement of net-zero greenhouse gas emissions (decarbonization) as soon as possible in the second half of this century" with an eye on 2050

## Examples of Initiatives

### Promotion of the Yokohama Smart City Project (YSCP)

With Yokohama's selection as a Next-Generation Energy and Social System Demonstration region by the Ministry of Economy, Trade and Industry in 2010, the Yokohama Smart City Project (YSCP) has been implemented in collaboration with 47 energy companies, electrical manufacturers, and construction companies (see figure below). Since 2015, Yokohama has established the Yokohama Smart Business Association (YSBA), a new organization linking the civil and public sector to promote actions aiming at becoming an energy-circulation city with excellent disaster prevention, environmental and economic properties. Between fiscal 2016 and 2018, Yokohama has installed storage batteries in 36 elementary and junior high schools that also function as community disaster prevention bases and is working on the development and demonstration of "Virtual Power Plans (VPP)" that can be used to adjust the balance of supply and demand for electricity at normal times and used at these bases in the event of a disaster. Yokohama is planning to promote actions, such as expanding these activities to places other than elementary and junior school.

## Case study 1 YOKOHAMA Smart City Project



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### Wide-area cooperation built on renewable energy

In order to achieve the goals of decarbonization, it is necessary to build a society where renewable energy takes center stage and to maximize the introduction of renewable energy. However, the potential of renewable energy in Yokohama is only about 10% of the current level of energy consumption and wide-area cooperation with regions that have a rich source of potential for renewable energy is needed in order to aim at the creation of a decarbonized society. Yokohama is considering linkages with local companies that are taking part in RE100, a corporate initiative aiming to identify partnering municipalities, understand power supply sources not covered by FIT (Feed-in Tariffs) in municipalities, ways to implement projects, smart city projects, and procuring energy with 100% renewable energy that can be used in projects. This type of wide-area cooperation is in line with the idea of regional circulation symbiotic areas that appear in the Fifth Basic Environmental Plan (Cabinet decision in April 2018).

# Toyama City

Area: 1241.77km<sup>2</sup>

Population: 410,000



- Toyama City is located in the middle of Honshu Island on the Japan Sea side, boasting diverse terrain and grand natural scenery with an elevation range of approximately 4,000 m—all the way from the waters of Toyama Bay, which are 1,000 m deep and provide a treasure trove of seafood, to the Northern Alps Tateyama Mountain Range rising 3,000 m above sea level.
- It has developed as a leading city with rich culture and various industries including pharmaceuticals, biotechnology, robotics, and electronics. The recent opening of the Hokuriku Shinkansen (Japanese bullet train) that connects Toyama to the Tokyo metropolitan area has promoted a rise in the number of tourists visiting the city, and is now promoting business innovation through new unique technology and products.
- Compact city planning based on polycentric transport networks serves as the backbone for Toyama which has been challenged by the drop in public transport users and the falling population density, triggered by a decreasing population and super aging society. Toyama has also been selected as a SDGs FutureCity in 2018 by the national government.

## Global Warming Countermeasures

- Toyama City was selected to participate in the national initiatives for leading cities, the Eco-Model City project in 2008 and FutureCity project in 2011. It has also been selected as an “Energy Efficiency Improvement City” by the **United Nations Sustainable Energy for All (SE4All)** program, and as a member of the 100 resilient cities programme by the Rockefeller Foundation. It hosted the G7 Environmental Ministers’ Meeting in 2016 and receives wide acclaim as a leading environmental city within and outside of the country, and for its compact city planning which serves as the backbone of its policies.
- Toyama City declared, in its 2nd Environmental Basic Plan of 2017, to raise awareness for energy saving among households and the work place, to continue to facilitate further dissemination of energy saving technology, and to make efforts to increase the energy efficiency levels of the whole city in order to address climate change.
- The 3rd Eco-Model Action Plan which will be updated in 2018 will introduce new goals for decarbonization with a substantial reduction in GHG emissions.

## Greenhouse Gas Emissions

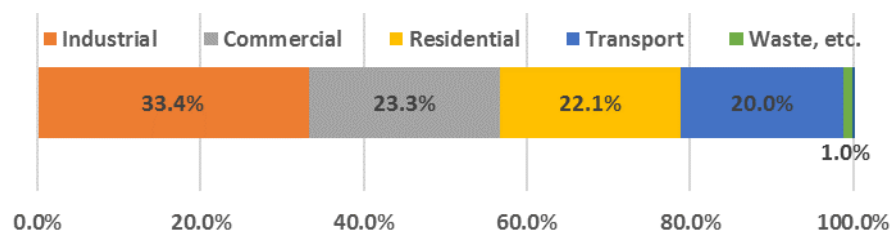
### <Overview>

- GHG emissions reduction in total: 4,079,000 t-CO<sub>2</sub> (FY2015 preliminary figures)
- GHG emissions reduction per capita: 9.7 t-CO<sub>2</sub>  
Emissions are higher than the baseline of FY2005 but in FY2015 there was a drop of 8.6% compared to FY2012.

### <Emissions reduction by sector>

Lifestyles in Toyama City used to be heavily dependent on cars and an urban structure with dispersed facilities, and this triggered a rise in GHG emissions by approximately 15.7% between 1990 and 2005 across four divisions: industry, residential, commercial, and transport. The growth rate during the same time period for the residential, commercial and transport divisions exceeded the national average. In FY2012, however, due to efforts on climate change mitigation, total emissions dropped by 7.9% compared to the baseline.

Industry accounts for 33% of GHG emissions, the commercial sector 23%, the residential sector 22% and transport sector 20%. The city must continue efforts to reduce GHG emissions by actively promoting next-generation vehicles, eco-driving, and environmentally-friendly use of cars. (source: 2nd Environmental Basic Plan)



### Greenhouse Gas Reduction Targets

- Long-term target : 50% reduction from 2005 baseline by 2050.  
(scheduled for upward adjustments in the 3rd Eco-City Action Plan)
- Medium-term target : 30% reduction from 2005 baseline by 2030

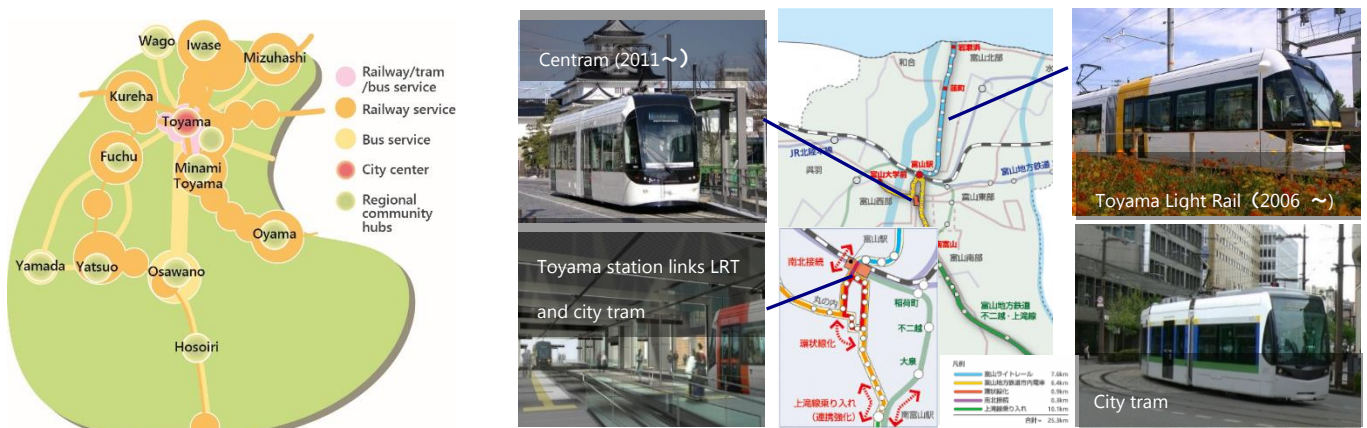
### Examples of Initiatives

#### SDGs FutureCity – realizing a sustainable value-added innovative city with compact city planning serving as the backbone

Toyama City aims to realize a compact and highly energy efficient city by developing a Light Rail Transport (LRT) system and revitalize bus routes to reduce dependency on passenger cars, densify the population and gather the city’s scattered functions for better efficiency.

In the Toyama SDGs FutureCity Plan of August 2018, the city aims to strengthen compact city planning with an emphasis on public transport and promote technical and social innovation that would realize the sustainable valued-added innovative city concept the city promotes. It will add onto the LRT network and other public transport policies, new policies for building a network for an autonomous and diversified energy infrastructure which utilizes local renewable energy sources.

The city’s compact city planning has resulted in generating multiple benefits: a population rise; rise in real estate price levels in the city center; and encouraging senior citizens to step out of their homes, and promote healthy lifestyles. It also reduced the fiscal burden due to better efficiency in city services such as snow ploughing, and nursing services for the disabled. Public facilities were relocated and concentrated where possible.



#### Toyama Vision to promote SDGs

Future vision: realizing a sustainable value added innovative city with compact city planning serving as the backbone

<p>Urban structure: Promote compact urban planning with emphasis on public transport. Transition into a compact city with a strong transport network connecting the regional community hubs in the surrounding villages</p>	
<p>Citizen lifestyles: Create a healthy and smart city: and develop lifestyles of high quality, becoming a healthy city with strong collaboration among citizens. Create a “healthy and collaborative” community that seeks a better environment for being healthy, rearing children and creating a good education system.</p>	
<p>Energy: Develop a safe and environmentally smart city with a regional energy management system. Integrate resilience and decarbonization strategies to create a “safe and environmentally smart city”.</p>	
<p>Industry: Enhance industrial activity to generate technical and social innovation. Revitalize the private sector within the city and utilize new technology to create “technical and social innovation”.</p>	
<p>City/region: Enhance the brand image through collaboration among various stakeholders. Become a designated city with a competitive edge made possible through public private partnerships, diversity and global activities.</p>	

#### Team Toyama City’s Activities – collaboration with the “COOL CHOICE” initiative

Team Toyama City is a voluntary initiative in which groups and/or companies form teams with the purpose of reducing GHG emissions. They should create and carry out their own detailed outline of activities and targets. This will scale up the level of citizen participation and raise the impact of GHG emission reduction. It is also related to the “COOL CHOICE” movement promoted by the Ministry of Environment Japan.





# Nagano Prefecture

Area: 13,562 km<sup>2</sup>

Population: 2,063,865 (2018/10/1)



- About 79% of the land in Nagano prefecture is occupied by forests. It has a large altitude difference of about 3,000m and it has more hours of sunshine than the national average.
- The population size started to decrease from a peak in 2000. It is estimated that there continues to be a large loss of population, especially among the production-age population.
- Retail traders, lodging, food services, and construction account for roughly 51% (establishment base) of prefectural industry.

## Global Warming Countermeasures

- For the purpose of holistically implementing more effective global warming countermeasures, saving energy, the use of renewable energy as well as an environmental energy policy ( policies for appropriate use of energy, for controlling over-concentrated use of energy, and for enabling territorial energy independence by promoting locally-led energy projects), Nagano prefecture has established the "Nagano Sustainable Energy and Climate Change Policy Plan – Third Nagano Prefectural People Action Plan for Global Warming Countermeasures" to outline the policy and goals to be achieved for eight years between FY2013 and FY2020.
- This plan aims to build a sustainable, low-carbon, environmental energy territorial/regional society, where socio-economic structure promotes economy growth while reducing total GHG emissions and energy consumption, through cooperation and collaboration between people, businesses, local governments, and other relevant stakeholders.

## Greenhouse Gas Emissions

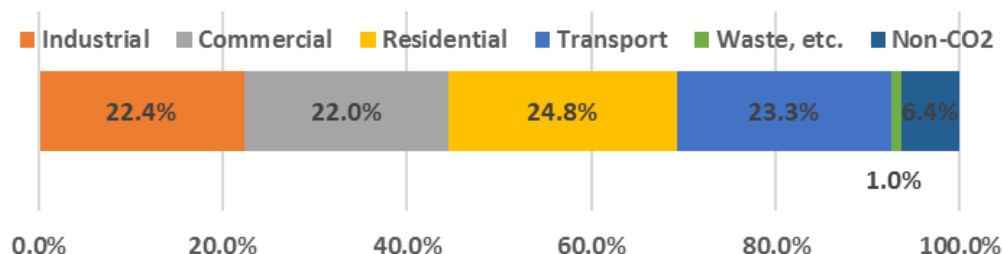
### <Overview>

- GHG emissions 15,930,000 (2014)
- GHG emission per capita: 7.5 ton

Although GHG emissions increased by 8.3% between FY1990 and FY2014, total emissions have been declining since FY2010. This is primarily due to a reduction in GHG emissions other than CO<sub>2</sub> and to declining GHG emissions from industry and transportation. Meanwhile data from the business and household sectors shows a flat or slightly increasing trend.

### <Emissions by Sector>

By comparing the current sectoral total amount of GHG emissions with the sectoral GHG emissions reduction targets in FY2020, it can be seen that the waste sector has already achieved the targets other than for CO<sub>2</sub>; however, data for the household and service sectors still falls short of the set targets. Therefore, urgent action is necessary to reduce emissions in both of these sectors.



## Greenhouse Gas Reduction Targets

- Base year: FY1990
- Targets: 10% reduction in FY2020 (short term). 30% reduction in FY2030 (mid-term). 80% reduction in FY2050 (long term)
- \*Targets were calculated based on the emission factors for FY2010 given by CHUBU Electric Power Co., Inc., except the amount to be captured by forests.

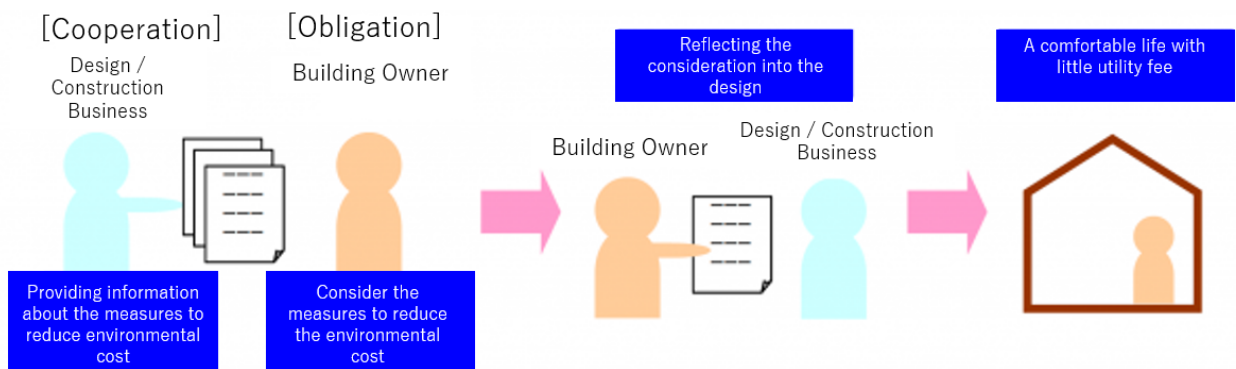
## Examples of Initiatives

### Mandatory Reporting and Planning System of Global Warming Countermeasures in Business Activities

Applicable factories and business operators, such as the transportation sector, are required to set up a plan for Global Warming Countermeasures and report progress on its implementation. The contents have been made available to the public by business operators and Nagano prefecture. Nagano prefecture evaluates the plan submitted by business operators and make publically available its results of the evaluation and the originally submitted plan. After the defined period of the plan, Nagano prefecture assesses the quality of implementation for the entire duration, shares the results of evaluation, and awards good practices. In addition, Nagano prefecture further advises business operators on how to further reduce their GHG emissions based on their submitted plan, assesses progress on implementation of the plan by visiting the site, and gives guidance on how to best respond to the system.

### Assessment System of Environmental Energy Performance for Buildings

This system mandates the construction company to consider environmental cost and energy efficiency of buildings. By doing so, this encourages the construction of housing with a smaller burden on the environment. This mechanism enables building owners to identify the expected utility costs before construction begins and thus, without imposing energy efficiency, ensures building owners voluntarily selects the building with a high heat insulating performance and encourages them to use the energy-saving equipment.



#### ■ For the Building Owner...



The house with high environmental energy performance is durable and can reduce the energy consumption needed for air-conditioning and heating. This means such a house is cost-saving for long-term, especially in Nagano where winter is severe.

#### ■ For the Design / Construction Business



Building a good rapport with the Building Owner from the designing process, it is more likely to be consulted about maintenance and renovation of the client's house. It also increases the likelihood of dealing with construction and sales of high-value and high-performance housing.

### Renewable energy introduction examination system

This system encourages building owners to introduce renewable energy equipment by requiring them to consider this matter before construction begins. This increases the likelihood of voluntary introduction of renewable energy without mandating their installation.



# Kyoto City

Area: 827 km<sup>2</sup>

Population: 1,468,980 (2018/10/1)



- Kyoto is a rare historical city as it has developed over a thousand years without disruption to its functions and/or cultural continuity. While it is a large city with over one million inhabitants, three-quarters of its territory is covered by forests. Hence, Kyoto has prioritized building an environmentally-friendly city, respecting the natural environment and nurturing its culture in harmony with nature.
- It is predicted that the population of Kyoto City in 2035 will be 87% of that in 2005 due to the falling birthrate, with this trend further exaggerated by the aging population and low marital rate.
- According to the ratio of business establishments, the ratio of industries is high in the wholesale / retail, food and beverage, and service industries. Meanwhile, the manufacturing industry accounts for 11%.

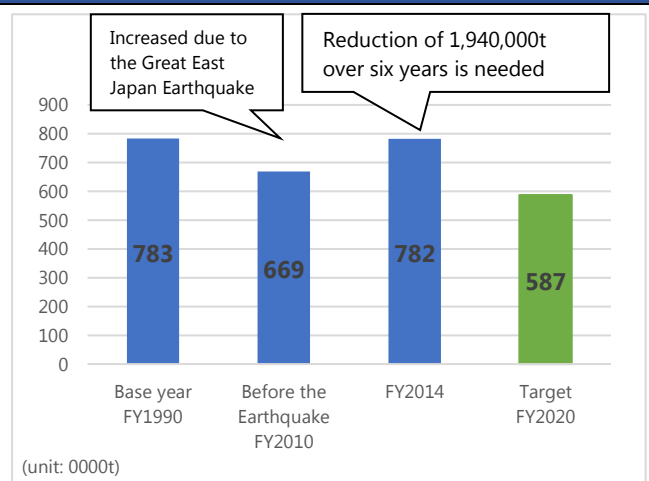
## Global Warming Countermeasures

- With the pride and sense of duty as the birthplace of Kyoto Protocol, Kyoto City enacted an "Ordinance for Global Warming" in Fiscal Year (FY) 2004, which was the first of its kind in Japan. The city has implemented progressive agendas in partnership with citizens, businesses, and other various stakeholders. As a result, GHG emissions have already peaked and started to decrease.
- Kyoto City has launched a strategy called "Project Pathway towards 0(zero)" in the Kyoto City Plan for Global Warming Countermeasures, revised in March 2017, and is taking further advanced actions on global warming countermeasures.
- Kyoto City hosted the "20<sup>th</sup> Anniversary of the Kyoto Protocol - Kyoto Conference on Global Environment (Kyoto +20)" in December 2017 and invited around a thousand participants from 18 different countries and regions. This conference showcased leading examples of measures against global warming taken by cities and adopted the "Kyoto Declaration towards the Formation of Sustainable City Culture in balance with the Environment" which contains "the vision for cities of the world 2050" in order to achieve the Paris goal which requires zero GHG emissions in the second half of this century.  
(a reference to the declaration: [secretariat.ne.jp/kyoto20/en/data/Kyoto\\_Declaration\\_en.pdf](http://secretariat.ne.jp/kyoto20/en/data/Kyoto_Declaration_en.pdf))

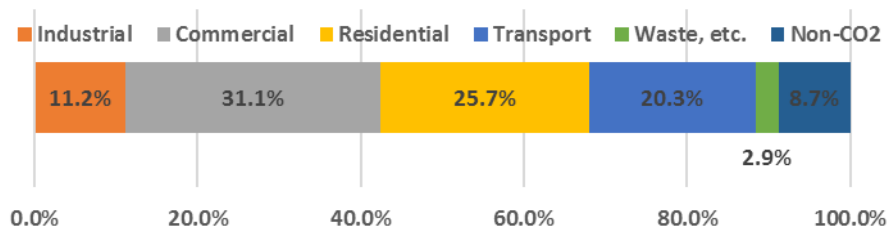
## Greenhouse Gas Emissions

### <Overview>

- GHG Emissions: 7,520,000 ton (2016)
- GHG Emissions per capita: 5.2 ton  
Reduction of GHG emissions within Kyoto City was promoted until the Great East Japan Earthquake, which made it inevitable to use thermal power plants to fulfill the electric shortage caused by the halt in nuclear power plants operations. As a result, despite the reduction in total energy consumption, efforts to reduce GHG emissions are not visible.



### <Emissions by sector>



## Greenhouse Gas Reduction Targets

- Benchmark year: Fiscal 1990
- Target of GHG emissions reduction:  
fiscal 2020(short term) 25%, fiscal 2030(mid-term)40%, fiscal 2050(long-term) more than 80%  
(Source) Kyoto global environment countermeasure plan (2014)

## Examples of Initiatives

### Wood product certification system for promoting local wood consumption for low-carbon –“Miyako-Somagi” Certification System

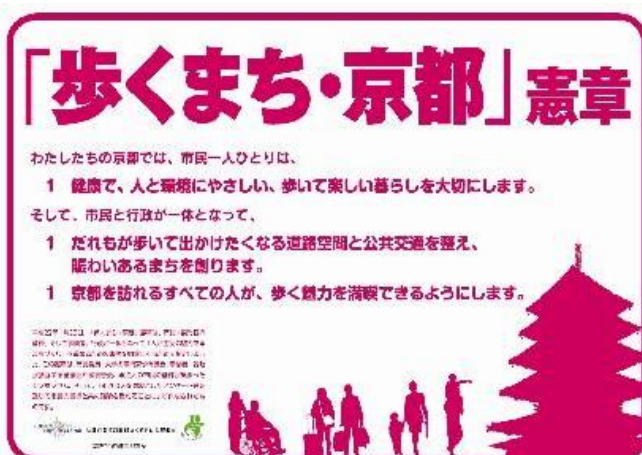
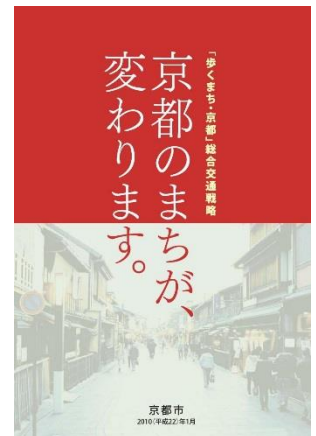
Kyoto City is a city valuing local wood culture and it promotes local consumption of local wood certified as “Miyako-Somagi” to be identified by a symbol shown on the right. It is hoped this will vitalize local forestry and wood processing industry, and thereby create a material-circulation society for low-carbon. While Kyoto City developed a culture in traditional architecture symbolized by “Kyo-Machiya” utilizing natural materials including wood, the city was confronted with problems due to collapse of the forestry industry. To address the problems, Kyoto City began a certification system in 2007 for local wood and local processed wood products to promote local consumption of local wood, leading to improved sustainability of local wood economy by branding local wood and enhancing demand.



Symbol of Miyako-Somagi Certification

### Promoting global environmental countermeasures by establishing an integrated transport plan to enhance “Walker-friendly City of Kyoto”

Kyoto City established an integrated transport plan “Walker-friendly City of Kyoto” to contribute to GHG emissions reduction through countermeasures to deal with challenges such as traffic congestion in the city. Kyoto is major tourist destination with a rich history, culture and tradition and it attracts 50 million visitors each year. However, it faced an increase in GHG emissions due to traffic congestion caused by excessive use of private vehicles and there was concern that this would make Kyoto a less livable and attractive city. Therefore, Kyoto City organized the “Council for making integrated transport plan, Walkers-friendly City of Kyoto” and set up a plan in 2010 consisting of three major factors: reform and enhancement of public transportation; walker-friendly city planning; and lifestyle changes to enjoy walking. In-depth discussion among citizens were incorporated from the early stages of planning. Kyoto City is enhancing its effectiveness of projects/programs under the plan and adjusting it to meet social changes. It has successfully reduced its share of visitors using private vehicles (8.7%) in fiscal 2017 to one-fifth that of (41.7%) fiscal 1994. This is a remarkable achievement, and has contributed to creating a livable environment as well as mitigating traffic congestion.



Kyoto Charter on Friendly City

Kyoto Charter on Walker-Friendly City, shown left, clarifies the conduct code for realizing a Walker-Friendly City, and was established through in-depth discussion with citizens at various opportunities, such as council meetings, interview survey, workshops, and public comments.