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Introduction to Major Efforts by the Cities



Shimokawa Town is an inland town located in the northern part of Hokkaido. About 90% of the area is forested, and forestry and agriculture are its key industries.

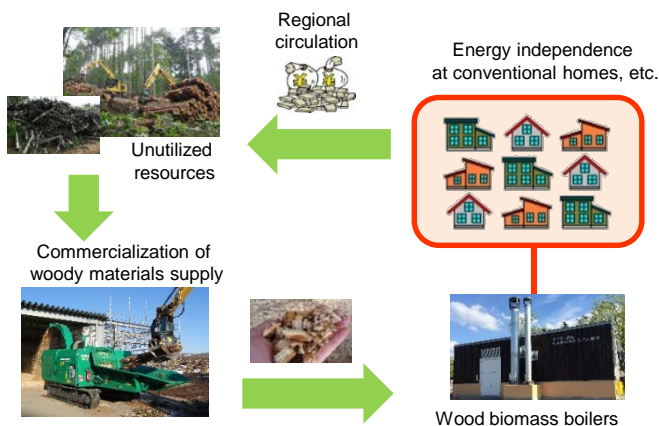
Based on the know-how of the society co-existing with forest that Shimokawa Town has created over the past half century, they will complete a Forest "FutureCity" Model by 2030. And they will export their policies and projects to small municipalities in the Asian countries.

Forest "FutureCity" is a city surrounded by rich forestland where people can gain enough income from forestry, learn and play in the forest, nourish their mental and physical health, and spend a spiritually affluent life surrounded by trees. The modeling of a small municipality with rich forest has started in Shimokawa Town.

Toward the Comprehensive Forestry Business and Being Completely Self-Sufficient in Energy

In order to revitalize the economy through forestry and agriculture based on the rich forest resources, Shimokawa Town has a comparative advantage over the world, and the town works on innovating the forestry system and forest product system on the basis of the cyclical type of forest management and zero-emission wood processing system.

Also, the town will upgrade the small-scale distributed renewable energy supply system centering on the use of woody biomass and aim at being completely self-sufficient in energy. The town will build a comprehensive forestry that covers forestry to biomass and create a forest culture with the townspeople.



International Expansion by Cooperating with a University

Shimokawa Town has been trying to build a network with municipalities in European countries, build a Forest "FutureCity" model, while referring advanced cases, and aim at exporting to Asian countries.

Shimokawa Town has concluded a collaboration agreement with the Center for Sustainability Science, Hokkaido University, and has been proposing its policies and business models to municipalities in Asia while utilizing the network. Also, they have been widely accepting visitors and trainees at home and abroad and exporting their know-how.



Building of a Self-Sustained Community through Collective Living

The town designated the Ichinohashi area in Shimokawa Town, which has a super-aging issue, as a model area, and will make efforts to reduce the environmental burden, by building a collective living area in which area characteristics are used, reconstructing the social community, and being self-sufficient in food to create new industry by the senior citizens and youths.

In the collective living area, wood boilers which totally cover hot-water supply and heating, and the photovoltaic facility have also been maintained in order for the area to become self-sufficient in energy and to create a model that realizes both self-sufficiency in energy and respond to the super-aging issue.



↑Collective living area



↑Research Institute for the Cultivation of Non-timber Forest Products



↑Community restaurant



↑Wood biomass boilers



Kashiwa City is located in the northwestern part of Chiba Prefecture and is a major urban area about 30 minutes away from Tokyo. The city is a bedroom suburb for those who commute to Tokyo, and there are national academic institutions, such as Kashiwa Campus of the University of Tokyo and Center of Environment, Health and Field Sciences, Chiba University, and an industrial complex of major companies.

Kashiwa City presents three problem-solving models of an Eco City, The City of Health and Longevity, and New Industry Creating City and envisions and makes proposals by combining Most-Advanced Wisdom from its universities, etc., and local bodies, such as citizens and companies, to continually and autonomously conduct the management of its programs and initiatives. The city intends to realize a mechanism that anyone, from elderly people to young people who are responsible for the next generation, and to children with freewheeling thinking and who wish to do something for the community, can participate in developing the city.

Local Health Institute "A-SHI-TA" (Efforts for the Super Aging Population and Citizen Participation)

In Japan, which is already a super-aging society, challenges including social security costs and an increase in senior citizens have become more obvious.

In response, the Promotion Council for the "FutureCity" Initiative made the "Declaration of Health Future City Kashiwa," which provides three important issues that need to be addressed in everyday life for healthy living: "Aruku (walking) – Shaberu (speaking) – Taberu (eating)."

Moreover, a local health institute named "A-SHI-TA" was developed as a promotion base for the ideal conditions of said three issues.

The city is making efforts to popularize such health values and develop places for the residents to create a meaningful life while promoting social participation across the whole city.



Building KOIL that Creates Business Chances (Efforts for the Creation of New Industries)

Business starts from exchange with various people, links to knowledge and technology, and encounters with curiosity and inquiry. These are exactly the initiators of new innovation. Therefore, entrepreneurs and researchers established Kashiwa-no-ha Open Innovation Lab (KOIL) in front of the Kashiwa-no-ha Campus Station as a place for creating new businesses, products, and services, with the largest co-working space in Japan and other spaces for organic human interaction.

Furthermore, TEP TX Entrepreneur Partners encourage economic growth of Kashiwa by fostering and supporting entrepreneurs and venture businesses.

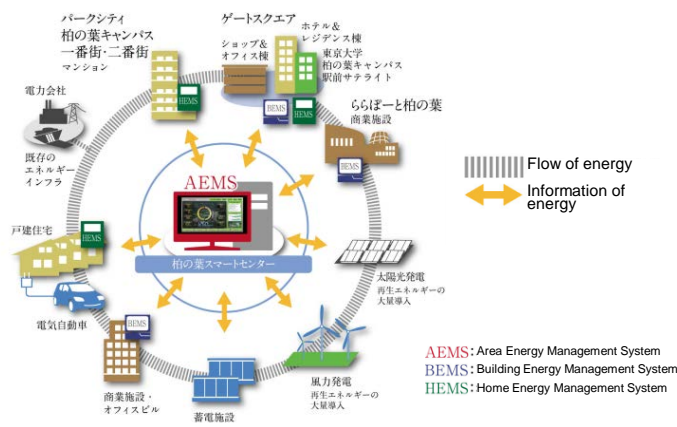


Largest-class Co-working space in Japan (170 seats)

Building an Emergency Smart Energy System (Environmental Efforts)

After the Great East Japan Earthquake, Kashiwa City also experienced an energy shortage, and a planned outage was implemented. As a response to the outage, the city developed various kinds of power generators, including photovoltaic generation, storage cells, and a self-operated power grid in the region, and built a structure that interchanges power within the district.

This energy management is conducted intensively at Kashiwanoha Smart Center, providing residents with security and safety by working for energy and CO₂ saving through peak cutting of power in normal times and transmission to infrastructures including elevators or groundwater pumps in high-rise condominiums in times of emergency such as disasters and outages.



Flow of energy
Information of energy

AEMS: Area Energy Management System
BEMS: Building Energy Management System
HEMS: Home Energy Management System



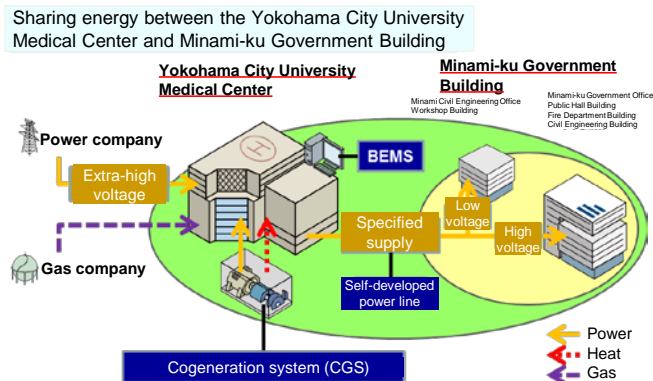
Over the past 150 years, Yokohama City had grown to become Japan’s largest municipality with a population of about 3.7 million. Yokohama City is a city that is unprecedented worldwide as the city had overcome various problems such as earthquake disaster, war damage, population explosion, response to environmental pollution associated with economic growth, etc. The history of Yokohama is exactly the history of sustainable urban development.

Today, Yokohama is facing great challenges, such as rapid aging of the population, energy problems associated with the Great East Japan Earthquake, etc. Under these circumstances, the city has been selected as “FutureCity” by the national government, balancing environmental measures and economic growth, and has been making its best efforts for urban development that further increases citizens’ happiness. The city will keep developing a prosperous city that is filled with and well-balanced Yokohama’s own characteristics and attractiveness.

Yokohama Smart City Project

The Yokohama Smart City Project (YSCP) was selected as a Next Generation Energy Infrastructure and Social System Demonstration Area by the Ministry of Economy, Trade and Industry in 2010. Yokohama City has been collaborating with 34 electronics manufacturers and other companies in various projects to optimize energy demand and supply, such as the introduction and verification of HEMS, solar panels (photovoltaics, or PV) and electric vehicles (EV). (HEMS - 4,200 units; PV - 37MW; EV - 2,300 units)

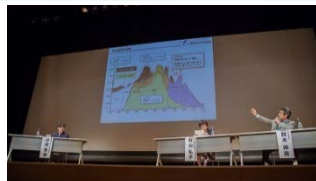
The city established the Yokohama Smart Business Association in 2015 in order to prepare for the practical application of the technologies verified through the YSCP. As a part of such efforts, the city installed a cogeneration system in the Yokohama City University Medical Center, which is established adjacent to the Minami-ku Government Building, to share energy. The city is also cooperating with the private sector in promoting the Virtual Power Plant (VPP) Development Project, for the integrated remote control of multiple batteries.



A Project for Sustainable Residential Zone Models

Aiming to build a model sustainable residential area with consideration for super-aging and the environment by introducing the vitality of the private sector, the city is promoting a project in four model districts in the city (areas to the north of Tama Plaza Station, around Yokodai, along the Sotetsu Izumino Line and around Tokaichiba-cho).

In one of the model districts, the area around Tokaichiba-cho, “town development for residents, companies, government and others using city land” will be carried out as a model case to resolve social challenges in residential suburbs based on the proposals by private companies solicited under six concepts including supply of a diversity of homes (such as residences with elderly care), energy conservation and carbon reduction. The results will be spread throughout the city.



Next-generation Suburbs Development Forum



Utilization of local resources (e.g. Izumino Marché)



CC Lab (Community Challenge Lab)



Map of the surrounding area of Tokaichiba-cho, Midori-ku

Cooperation with Other Cities at Home and Abroad and International Organizations

Yokohama City is providing information on advanced initiatives and knowhow of town development both domestically and globally, while advancing cooperation with companies and local governments at home and abroad.

In the energy management field, the city has concluded a cooperation agreement concerning smart cities with Fuji City, Shizuoka Prefecture. In addition, it also provides support to the local governments in the Tohoku region affected by the Great East Japan Earthquake (Aizuwakamatsu City in Fukushima Prefecture, and Ishinomaki City and Yamamoto Town in Miyagi Prefecture).

The city is also working to further improve its efforts and make international contributions through support for the development of a climate change master plan in Bangkok (Thailand), participation in international networks such as C40, sharing its advanced knowledge at the meetings of Our Cities, Our Climate held by the US Department of State and Bloomberg Philanthropies, and other initiatives.



Our Cities, Our Climate (October 2015)



Toyama City: A special place with a good view of Mount Tate



The Tateyama Mountain Range seen from the urban area

Toyama City is a major urban area with a population of about 420,000, has diversified landscapes from Toyama Bay to Tateyama mountain range in the Northern Alps, and is rich in nature blessed with water and greens.

With its flat ground, high road-maintenance rate, and strong aspirations of residents to own detached houses, the urban area rapidly expanded to the suburbs, which in turn caused the weakening of the central urban area. Also, with the excessive dependence on automobile traffic, public transportation has significantly declined.

In order to address the above issues as well as rapid aging and falling birth rates, the city has set its basic policy to develop a compact city centering on public transportation, with a view to realizing an elderly-friendly, low-carbon, sustainable city by promoting the use of public transportation and relocation to the urban area.

Formation of LRT Network

Toward the realization of the development of a compact city centering on public transportation, the city has made such efforts as the conversion of JR Toyamako Line into LRT, development of a belt line for trains in the city, and inclusion of Toyama Station in the route of the newly started Hokuriku Shinkansen. For the future, the city intends to form an LRT network with a total length of 25.3 km by connecting north and south-bound street cars under the elevated tracks of Toyama Station and expanding train lines in the city to the Toyama Chihou Tetsudou's Kamidaki Line in accordance with the opening of the Hokuriku Shinkansen.

These efforts resulted in creating the effects of multifaceted regional vitalization, such as a significant increase in the number of users, reduction of greenhouse gas emissions, creation of outing opportunities for senior citizens, increase in housing starts along railroad lines, increase in the number of visitors at tourist facilities along railroad lines, etc.



Figure of future LRT network



Train's belt line in the city (Centrum)

The Sixth Industry of Perilla with the Use of Heat from Ushidake Onsen

The city intends to create new specialty products under the theme of the environment and health by upgrading a plant factory with complete artificial light that uses heat from Ushidake Onsen (hot spring), photovoltaic power, etc. in order to conduct the nation's first hydroponic cultivation of perillas in mountainous areas that suffer from depopulation and population aging. The city will also expand the production of perilla seeds and oil based on open cultivation using a large, abandoned cultivated area in the city, to establish a unified process of production, processing, distribution, and sale of perilla leaves, seeds and oil.

Also, the city intends to become a city with health and longevity such as the employment of local senior citizens at the plant factory to create motivation in their life, using perillas that contain effective ingredients in the food services at hospitals and schools in the city, etc.



Ushidake Onsen plant factory

Creation of a City with Health and Exchanges

In order to realize the development of a compact city in which senior citizens can securely and safely walk around and live, the city will create a pedestrian network by upgrading pedestrian roads in the central city, promote the improvement in senior citizen's outing and exchange opportunities, as well as the guidance on attracting Toyama version of a day service facility and build a city with health and exchanges useful for senior citizens' health promotion.

By developing a mechanism that uses walking support tools that are useful for senior citizens' health maintenance and enhancement, the city will realize the living that senior citizens can spend healthy and independent life and aims at controlling social security spending such as medical charges, care insurance benefits, etc.



Images of the pedestrian network



Kitakyushu City is an industrial city that led our country's industrial modernization, which started from the operation of the state-owned Yahata Steel Works in 1901. Meanwhile, the city has a history where economic development caused serious pollution problems. In the wake of the civic movement, companies and the government worked together and overcame the pollution problems. Then technology and human resources concerned with the environment had been accumulated, and the city has been actively making efforts for global environmental cooperation using its experience and technology of overcoming pollution problems and has been honored several times by international organizations.

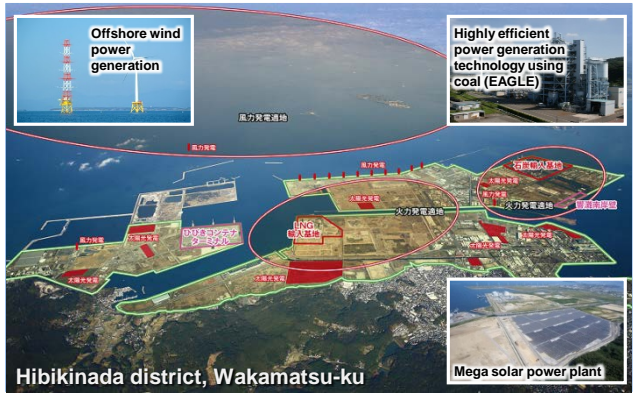
Currently, while utilizing the citizen power, which is the most valuable asset Kitakyushu City has, the city has been promoting various efforts that aim to become an Environmental Capital of the World and secure compatibility between the environment and the economy.

Kitakyushu City Regional Energy Hubs Development Project

After the Great East Japan Earthquake, Kitakyushu City has been promoting political measures that no other local government in Japan has ever attempted; that is, the development of regional energy hubs that support the regional growth and establishment of the most advanced city model utilizing these hubs.

In December 2015, the city, local companies and financial institutions jointly established a regional energy company, Kitakyushu Power Co., Ltd.

Moreover, the city was selected as a model area for offshore wind power generation in March 2015. In April 2016, the city held the Seminar on Offshore Wind Power Generation by Local Governments and the PPS Symposium for Local Governments in Japan, in commemoration of the G7 Kitakyushu Energy Ministerial Meeting.



Jono Zero Carbon Advanced City Development Project

The Jono district, which is mainly comprised of the unutilized national land in the north side of JR Jono Station in Kokurakita-ku, aims to develop a zero-carbon, family- and elderly-friendly city where residents are connected with each other and people from all generations can permanently live together. The Jono district has been promoting the development of residential areas with a view to achieving a "zero carbon" society (where CO₂ emissions are contained to the minimum level and the theoretical emissions amount becomes zero), by introducing various low-carbon technologies and measures in a comprehensive manner, such as promoting the installation of eco-friendly houses and energy production and energy saving facilities, optimizing energy use through energy management, and encouraging use of public transportation.

In March 2016, a "Machibiraki" opening ceremony was held. The Jono district will continue to promote participatory city development through town management.



Japan-China Joint Project for Air Pollution and Energy Saving Measures

Kitakyushu City cooperates with five cities in China, namely, Shanghai, Tianjin, Wuhan, Tangshan and Handan, in analyzing air pollution sources and environmental monitoring in China by dispatching experts, accepting trainees' groups and conducting joint research projects.

In fiscal 2015, dispatch of experts to the five cities was conducted 16 times, and trainees' groups from four cities were accepted six times.

For the future, the city intends to continue the dispatch of experts and acceptance of trainees' groups based on the past results and progress in each city, while promoting joint research and model projects.

Improvement of air pollution (such as PM2.5, etc.)

Kitakyushu City cooperates with the following cities in China: Shanghai, Tianjin, Wuhan, Tangshan and Handan.

Kitakyushu City is the only city that cooperates with multiple cities simultaneously!

Cooperation with five cities



Ofunato City
Goishi Seaside

Sumita Town
(Top) Taneyamagahara
(Bottom) Rokando

Rikuzentakata City
A Miracle Lone Pine

Ofunato City, Rikuzentakata City, and Sumita Town are located in the southern maritime area of Iwate Prefecture and have constituted a common cultural and economic zone for a long time. Ofunato City is a port city with Ofunato Port, one of the nation's major ports. Rikuzentakata City is a scenic seaside city symbolized by the white sand and green pines of Takatamatsubara. Sumita Town has developed as a forestry town that built a cyclical timber supply system that includes all the steps from raw wood procurement to wood processing.

Ofunato City and Rikuzentakata City face the Pacific Ocean and experienced disaster on an unprecedented scale in the Great East Japan Earthquake. However, these cities intend to develop into "Future Cities" that are sources of pride due to playing leading roles in creative restoration from the disaster while synergistically creating additional value in the three aspects of environment, society, and economy through the promotion of numerous projects.

Efforts on Environment

Building of the local production for local consumption type of energy-oriented society

With the goal of substituting about 30% of the consumed power of the entire Kesen region with renewable energy, the region intends to provide a stable power supply and realize a society where people can live safely and with peace of mind by building renewable energy power generation plants, including mega solar power plants, as well as a decentralized energy system.

Also, the region is working on a feasibility study of a power generation and heat supply system utilizing various biomass resources, including sewage sludge and food processing residue in cooperation with the government, industry and academia, while also promoting the installation of solar power generation and storage systems at public facilities that serve as bases in case of disasters.



Goyozan Photovoltaic Power Generation Plant
(generating capacity: 18MW)

Response to Super Aging

Development of a low-carbon compact city

The region concentrates urban functions in the disaster-affected central city area to regenerate the area as a center for publicizing the charms of the region and as a community center. The region also intends to promote the revitalization of the cities and make life more convenient for residents, while promoting the introduction of renewable energy.

Creation of an advanced cooperation model of medical care, welfare, and nursing care

With leading role being played by the Mirai Kanae Corporation formed by the authorities and organizations of two cities and one town, the region is conducting efforts toward building and operating a cross-city regional medical and nursing care information network system named "Mirai Kane Net" and enhancing the care ability of regional residents.



Orientation regarding the Mirai Kane Net for residents

Industrial Promotion

Introduction of advanced technologies to industrial fields

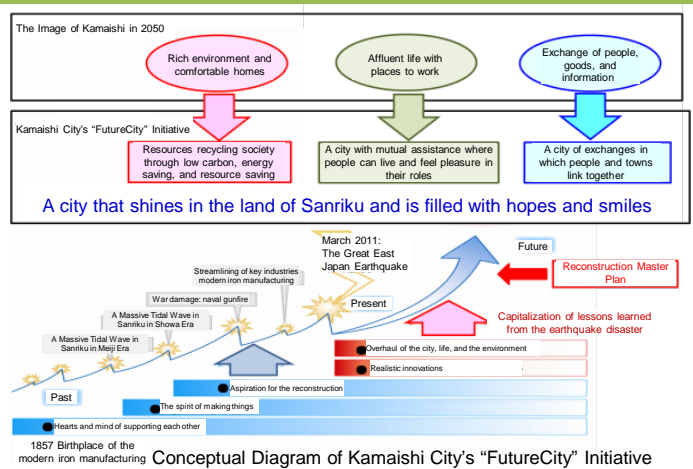
In order to promote agriculture and fisheries utilizing advanced technologies and knowhow, the region makes efforts to improve the competitiveness of local industries by designing a system of an advanced plant factory in which renewable energy is used and introducing an ICT system into agriculture, etc.

Development of Kesen's wooden restoration housing estate model that coexists with nature

In anticipation of increased housing demand in line with restoration from the disaster, the region is making efforts to build and disseminate a production system for wooden houses with solar power generation and storage facilities that utilize the region's rich local forest resources and have characteristics such as high insulation and airtight qualities.



Kesen's wooden restoration housing estate model house



As the birthplace of modern iron manufacturing, Kamaishi City led the nation in accomplishing the industrial revolution and is a front runner in Japan, which has had to face a super-matured society earlier than other cities. The city faced a fateful crisis due to the Great East Japan Earthquake, but by using local resources, its creative ability, rich nature, and various exchanges, the city has been working on developing a new city that goes beyond earthquake disaster reconstruction.

The city sets the (1) Kamaishi version of a Smart Community that improves citizens' lives and develops industry, (2) that offers one-stop services from healthcare to nursing care through cooperation, and (3) that creates a field museum incorporating rugby, World Heritage, and memories of the earthquake disaster as a core of the "FutureCity" plan. The plan is Kamaishi's new challenge to try to exert its own presence nationwide.

Efforts of a Smart Community

The city recognized the vulnerability of its energy environment at the time of disaster in the region through the experience of the Great East Japan Earthquake, so it clearly stated the Promotion of the Creative Energy Measures in its reconstruction plan and will make efforts toward developing the Kamaishi version of a Smart Community in which various energy resources are used.

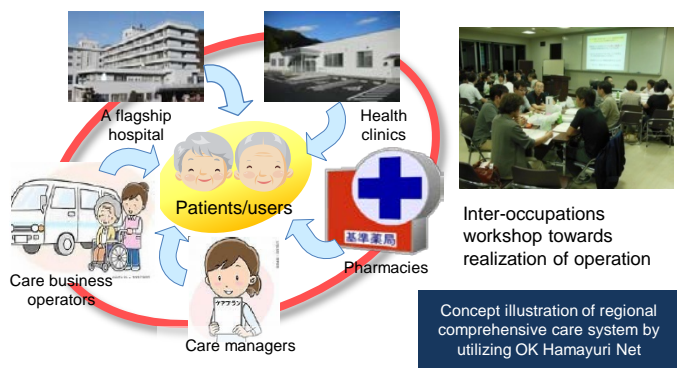
In April 2015, Kamaishi City led other areas affected by the earthquake by completing restoration public housing equipped with facilities to secure power during emergencies including solar water heaters, solar panels, and chargers/feeders for electric vehicles. In addition, the city is promoting renewable energy industrial clusters, community energy management, and other initiatives for energy independence, safety and security.



Efforts aimed at Building a Regional Comprehensive Care System

As a countermeasure for a super-aging population, the city intends to build a framework where people can comprehensively receive services ranging from health to nursing care in the local areas, such as the prevention of adult diseases, which is a further concern due to the life in temporary homes, the cooperation of medical care and nursing care in homes in order to use the medical resources more effectively, etc.

The city started operation of "Kamaishi and Otsuchi Medical Information Network" (commonly known as "OK Hamayuri Net"), which can share patients' medical- and care-related information with relevant organizations, in fiscal 2013, and continues to work on building a regional comprehensive care system that supports citizens lives in cooperation with various people including the government, doctors, pharmacists, nurses, and care managers.



World Heritage Registration and the Holding of the Rugby World Cup in Kamaishi

The city has worked to host the Rugby World Cup and have the remnants of Hashino furnace listed as a world heritage site in order to enhance the value of Kamaishi Field Museum.

- Efforts for Listing of Iron Town Kamaishi as a World Heritage Site
- In July 2015, the "Sites of Japan's Meiji Industrial Revolution" including "Remnants of Hashino Furnace" were registered as UNESCO World Heritage Sites.
- Attempt of Rugby Town Kamaishi to Host the World Cup
- In March 2015, the city was chosen as one of the cities to host the Rugby World Cup in Japan. The city will work to improve the environment including facilities and transportation infrastructure.





Iwanuma City is located in the central part of Miyagi Prefecture, 18 km south of Sendai City, stretches about 13 km from east to west and about 10 km from north to south, and the total area is 60.45 km². A plain spreads from the hilly area in the western part to the Pacific Ocean coastline in the eastern part and Abukuma River runs into the city limit in the southern part from the east and goes to the Pacific Ocean.

The city was enormously affected by the Great East Japan Earthquake on March 11, 2011, and is working on rehabilitation and reconstruction activities with a sense of speed. The FutureCity plan of Iwanuma City has the theme of "reconstruction of a people- and eco-friendly community in which people want to keep living" to realize a disaster reconstruction plan with reconstruction of love and hope as the reconstruction vision at the earliest possible date.

Formation of an Eco Compact City

The city aims to develop a compact city, maintaining existing communities by collective relocation of six disaster-affected communities into one place, and also introduces a photovoltaic power generation system with a storage cell into public housing for disaster victims that will be developed within the district.

In January 2014, the Exploratory Committee on City Development at Tamauranishi District was set up for the development of the relocation destination. In July 2015 when most residents completed relocation, residents held an opening event. Now, the city promotes initiatives to build a new community, create opportunities to find motivation in life, address the aging population and other challenges with a focus on human aspects.



Creation of Sennen Kibou No Oka

Sennen Kibou No Oka (Hills of One-Thousand-Year Hope) is a plan to build 15 hills that will provide places for temporary evacuation together with raised paths connecting them in order to protect the lives of people who fail to escape. The hills will also dampen the force of a tsunami and will be used as a memorial park and strongholds of disaster prevention education to tell the story of the disaster to people inside and outside Japan, as well as future generations even one thousand years from now by preserving the foundations of the damaged buildings and the surrounding areas as remains.

As of now, nine hills have been completed by utilizing donations from all over the country, reconstruction subsidies, etc.



Building an Energy Management System of Natural Energy

The city is developing base facilities for natural energy supply by utilizing disaster-affected farmland where the drainage function declined due to land sinking and salt damage caused by the earthquake and tsunami. The aim is to support the farmland owners who are disaster victims.

Specifically, the city makes efforts to attract mega-solar power businesses in developing an energy-self-sufficient city that can supply power to various places in the city in times of emergency, while utilizing the full amount purchase system in normal times.

Electric power of about 28.3MW (equivalent to the annual power consumption of approx. 8,000 households) generated in the site of about 44ha is among the largest in the afflicted area. The facility started power generation in April 2015.





Located in a part of Matsushima, which is included in the Three Views of Japan, Okumatsushima boasts many scenic spots, such as Sagakei, one of the Three Best Gorges in Japan, and a splendid 360 degrees panorama covering Matsushima Bay and Sagakei from the top of Otakamori (also known as Sokan), which is counted as one of the Four Best Views in the Matsushima area.

The Blue Impulse that has come home to the Matsushima Base of Japan Air Self-Defense Force after two years have passed since the Great East Japan Earthquake attracts many fans from across the country with its acrobatic training flights and skywriting.

The regional specialties include seaweed, oyster, rice, chijimi spinach and tomatoes. Noodles made with seaweed are sold as a new product under the name of "Higashi-matsushima Nori Udon," which is also popular.

[Environment] Japan's First Local Production Local Consumption Model: Higashi-matsushima City Smart Disaster Prevention Eco-friendly Town

Higashi-matsushima City Smart Disaster Prevention Eco-friendly Town aims to contribute to the prevention of global warming by establishing microgrids with self-established electric lines and consuming locally produced solar power within the area, which would bring about emissions reduction of 246 tons of CO₂ per year.

In pursuit of the development of an eco-friendly and disaster resilient city, said power supply system has achieved a capacity to supply power for three days not only to residences but also to hospitals and public facilities in the surrounding area in case of disasters.

Moreover, part of electricity generated within the area is sold to the companies within the city, who will then sell it to the public facilities and other companies in the city at a reasonable price. The proceeds are used for social welfare and solutions for the city's challenges, creating a cycle of energy, capital and proceeds within the area and revitalizing the whole region.



Higashi-matsushima City Smart Disaster Prevention Eco-friendly Town

[Solution for the Super-aging Society] Higashi-matsushima Type Regional Residence "Tsunagaru Yeah!"

This project proposes a new lifestyle that addresses the environmental issues, super-aging society and regional issues for Higashi-matsushima City, with an eye to develop a city where everyone wants to live in and everyone is vigorous.

The "Tsunagaru Yeah!", a house well suited to Higashi-matsushima City, which aims to make possible safe and secure living utilizing its climate conditions and environmental features, provides a solution for regional issues recognized by the residents of Matsushima City, such as disaster prevention, medical institutions and systems, aging population, energy saving and natural energy. This Higashi-matsushima type residence model offers an opportunity to experience life with mutual support and help in collective housing comprised of two houses connected to each other.



Higashi-matsushima type regional residence "Tsunagaru Yeah!": The common space (middle in the picture) connects the residence for elderly people (left) and the residence for young people (right).

[Disaster Prevention] Disaster Prevention and Recovery Efforts through International Exchange

Since the Great East Japan Earthquake, Higashi-matsushima City and the Japan International Cooperation Agency (JICA) have cooperated in strategic efforts to promote regional revitalization and recovery from disasters through international exchange, such as diffusing insights and lessons regarding disaster recovery process both domestically and internationally and also sharing them with the countries that have been greatly affected by disasters, including Banda Aceh, Indonesia (the 2004 Indian Ocean Earthquake and Tsunami) and the Leyte Island, Leyte State, the Philippines (the 2013 Typhoon Yolanda).

The international exchange activities have expanded beyond the boundary of administrative sector to a civic level, contributing to the mutual recovery from earthquakes, disaster prevention and economic revitalization of the communities.



OJT trainees from Indonesia



Minamisoma City is located in the northern part of the Fukushima Hamadori Region surrounded by the rich nature of mountains, ocean, and rivers as its east side faces the Pacific Ocean and the Abukuma Mountains in the western part.

On top of the great damage to the coast area and other parts of the city caused by the Great East Japan Earthquake, the nuclear disaster that followed the earthquake even threatened the continuation of the city for a while.

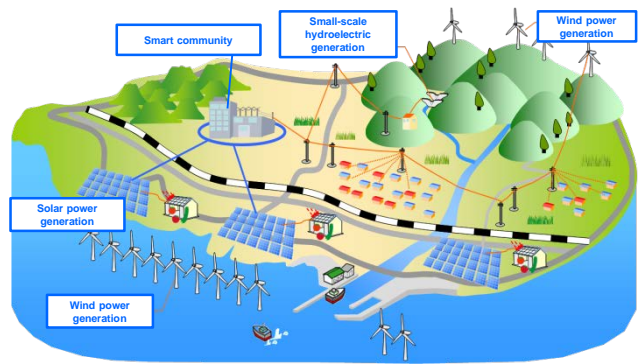
In order to recover the safe and secure city along with the citizens as soon as possible and pass the town on to the next generation, the city aims to turn this challenging situation after the significant earthquake into an opportunity to grow with a hope to create a city that the children who will grow up in it can be proud of.

A City with a Renewable Energy Circulation System

The city aims to produce renewable energy power equivalent to or more than the consumption in the city by maximizing the production and use of solar and wind power and other renewable energy in the tsunami-affected areas and mountainous areas and promoting local consumption of the produced energy.

In order to enhance energy production, saving and storage by introducing renewable energy to households, the city has been working on the promotion of solar power generation facilities, HEMS and batteries.

Furthermore, to promote understanding for and penetration of renewable energy and energy saving efforts, the city also holds workshops to deepen understanding of renewable energy through fun programs to allow residents to learn about, produce and use renewable energy.



Schematic image of local consumption of locally produced renewable energy

Generation-Circulating City where Everyone can Easily Live

Using disaster prevention collective relocation areas and disaster public residences as the model areas, the city aims to introduce a solar power generation system and HEMS to each residence to create a community that utilizes renewable energy and power in an optimized manner, while improving the living environment and creating new communities.

The Ogawa-cho model area (a disaster prevention collective relocation area) addresses [1] energy (installation of solar power generation systems and HEMS), [2] living environment (creating a living environment rich with greenery), and [3] regional community (participation in the activities of the administrative district).

The Omachi model Area (disaster public residence) has installed solar power generation systems, HEMS and batteries to secure necessary power sources to ensure the safety of residents in event of disasters, while also making efforts to save energy throughout the whole building.



Smart community model project (Ogawa-cho model area)

Creation of Cyclical Local Industries with EDEN Plan as a Core

In order to restore agriculture that has been greatly affected by the tsunami and nuclear disaster and to foster and secure the next generation of farmers, the city is developing and renting plant factories for the affected farmers, aiming to revive and restore affected areas using plant factories.

The Minami-soma Solar Agri-park Project addresses the revitalization of agriculture and regional industries and year-round employment by promoting complex management that covers the production, processing and sale of agricultural products from the plant factories and the energy supply in an integrated manner.

It also conducts workshops and exchange programs to support the education of the local children and foster human resources of the next generation who will lead the revitalization.



Minamisoma Solar Agri-Park



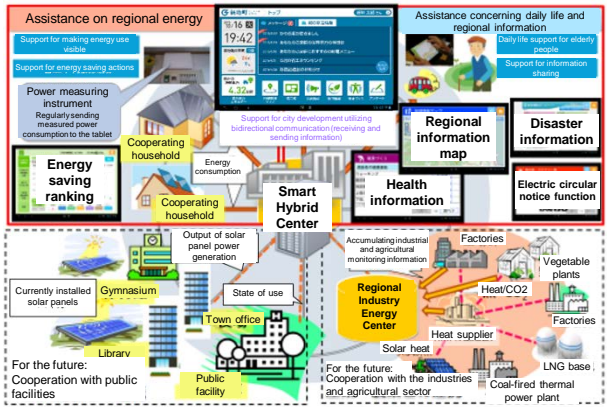
Shinchi Town formulated the First Shinchi Town Restoration Plan in 2012 for recovery and restoration from the Great East Japan Earthquake and subsequently developed the Second Shinchi Town Restoration Plan in 2015 to further promote restoration with the new vision for the restoration of Shinchi Town based on such topics as the "community and connection" and "employment and livelihood." The town will promote restoration based on the following three basic viewpoints: (1) the town that prioritizes the people's lives and livelihoods, (2) the town that nurtures human bonds, and (3) the town with an ocean that coexists with nature. The outline of the measures in the Fifth Shinchi Town General Basic Plan for the Later Term formulated in March 2016 set an object to develop a safe and secure town in harmony with nature the and environment. By introducing renewable energy, promoting local consumption of locally produced energy and utilizing regional energy with an eye to bringing about a "FutureCity," the town aims to achieve a sustainable and environmentally-friendly city life where restoration from disaster, the environment and economy harmonize with each other.

Building of a Smart Hybrid Network of Various Decentralized and Self-sufficient Energy Supplies

The town is developing a regional information communication network to address environmental issues and the aging population and promoting a social demonstration project to establish a disaster recovery model that enhances the environmental and social values.

In fiscal 2013, the town carried out the Smart Hybrid Town Development Project that aims to increase environmental, economic and social value for the creation of a "FutureCity" and developed the Shinchi Kurashi Assistant Tablet, using a grant for model projects concerning falling birth rates, the aging population and environmental issues provided by the Ministry of Internal Affairs and Communications and the Cabinet Office.

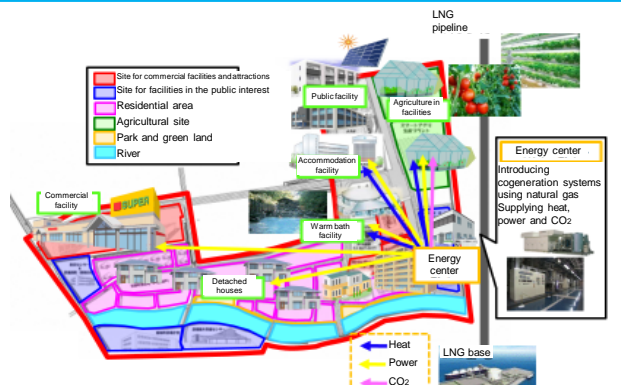
Through the establishment of bidirectional information network infrastructures regarding regional energy and aging communities and promotion of information sharing between regions, the town promotes energy saving actions in cooperation with other regions and supports the restoration of daily life by such means as providing support for elderly people.



Schematic image of the Smart Hybrid Town

City Development around the Shinchi Station and Regional Energy Project

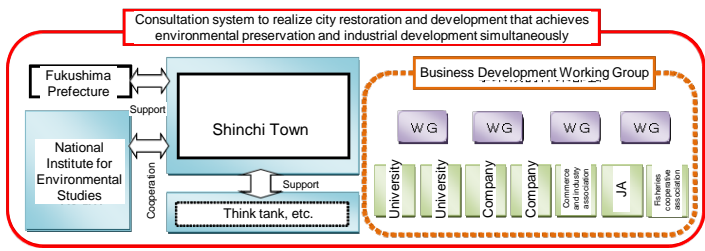
The town is conducting the Restoration and Development Project for the Urban Areas around the Shinchi Station in an area of about 24 ha around JR Shinchi Station, which was washed away by the tsunami caused by the Great East Japan Earthquake. Amid the increasing chances for use of natural gas in the region since the Soma Port LNG Project, the town is deliberating on concrete measures to conduct city development around the station and a regional energy project in an integrated manner in order to realize the town's goal of restoration and city development while maintaining the harmony of environment and industries. The town intends to start a project for a distributed autonomous regional energy system that will draw gas from a bypass of the natural gas pipelines that will be installed in the east side of the areas surrounding the station and supply heat and power to the facilities around the station using cogeneration systems, while supplying CO₂ to agricultural production facilities using trigeneration systems.



Schematic image of the City Development around the Shinchi Station and Regional Energy Project

Shinchi Town City Restoration and Development to Achieve Environmental Preservation and Industrial Development Simultaneously

From the viewpoint of achieving environmentally friendly city life and industrial development, the town has created a platform for information sharing regarding environment-related industries by forming a cooperative network between the industry, academic and government sectors, while also conducting surveys on the use of regional energy and discussions on its commercialization, as well as research studies with a view to the realization of sustainable, environmentally friendly city. At the same time, the town aims to develop a city that achieves environmental preservation and industrial development simultaneously and serves as a pillar for the town's restoration and regional revitalization in the future by promoting the accumulation of energy-related industries in cooperation with the Innovation Coast Scheme.



System of the City Restoration and Development Council

Shinchi Town "FutureCity" Promotion Office (Shinchi Town Planning and Restoration Division)
Email: kanko@shinchi-town.jp URL: <http://www.shinchi-town.jp>

Future vision for the "FutureCity" plan
"Yappari Shinchi ga line (Shinchi is our best home)" –a town with a future and hope for environment and daily living-



Located roughly in the center of the Tokachi Plain in eastern Hokkaido, Obihiro is a city with a population of about 170,000.

Tokachi, with its large scale dry-field, dairy and livestock farming, is a food supply base worthy of representing Japan as symbolized by its high food self-sufficiency rate of 1,249%. Situated in the center of the region, Obihiro has been playing the role of a center of agriculture and other industries and urban functions. The natural environment as typified by clear air, pure water, and lush greenery is an important foundation to support this key industry.

The city aims to become “rural eco-model city Obihiro” in which an urban city, farming village, and nature coexist by effectively utilizing local characteristics and taking care of natural environment.

Cultivation and Utilization of Obihiro no Mori

Obihiro no Mori (Obihiro Forest) is an urban park developed under the concept of “restore forests in the fields they were cleared from over the next 100 years,” which is about 550m wide and 11km long, with an area of 406.5ha.

Enveloping the entire city in a green network by creating a forest at the southwestern part of the city to connect riparian forests along the Tokachi River and the Satsunai River, Obihiro no Mori plays a role of preventing the disordered expansion of housing areas into the city outskirts, and separating urban areas from rural ones.

Since 1975, forest restoration including planting and fostering trees has advanced with the active participation of a large number of citizens. Now Obihiro no Mori is utilized as a place for nature observation and environmental education with grown trees forming a forest landscape.



Obihiro no Mori

Use of Abundant Biomass

Tokachi has various types of biomass including wood biomass, agricultural residue, livestock excrement and food waste. There have been initiatives to use livestock excrement for energy or compost, use forest residue for fuel, and produce and use bioethanol and biodiesel fuels (BDF).

In June 2013, 19 municipalities in the Tokachi region were designated as biomass industry cities. Tokachi aims to establish a sustainable regional economy and form a unique and attractive local community by multi-stage use of the region's biomass in the whole Tokachi region and developing industrial measures by combining efforts in food, agriculture, and forestry.



Food Production Center Representing Japan

Model Project to Reuse Waste Edible Oil from Homes

With an eye toward waste reduction, effective use of biomass, and heightening the environmental consciousness among citizens, the city has been conducting the Model Project to Reuse Waste Edible Oil from Homes since 2008 in which waste edible oil from general households is collected, refined to BDF, and reused.

Obihiro City, NPOs that collect oil, and supermarkets, etc., where the oil is collected, concluded an agreement, and they are making efforts for their roles while cooperating with each other and citizens.

The collected amount of reuse waste edible oil from homes in fiscal 2015 was 69,300 L, and refined BDF has been used for fuel for private buses, delivery trucks for supermarkets, official cars, etc.



BDF mixed 18t large trailer



Chiyoda City is the center of politics and economy, where advanced corporate functions are gathered. On the other hand, the ward has a rich natural environment including the Imperial Palace. While the number of residents is about 59,000, the population reaches 820,000 during the day, an increase of about 14 times.

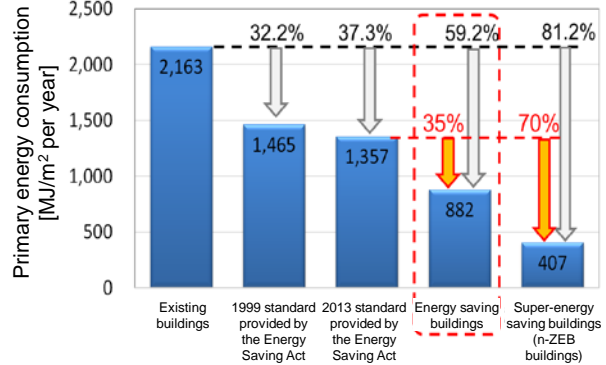
Currently, CO₂ emissions from business operations mainly from offices accounts for about 3/4 of total CO₂ emissions in the ward. As active economic activities and upgrading of corporate functions are expected in the future, the emissions in the ward will keep increasing if no measures are taken.

In order to promote global warming countermeasures while conspiring for the coexistence of the economy and nature, Chiyoda City established the Chiyoda City Global Warming Countermeasure Ordinance in 2008. The ward has been making pioneering efforts towards low-carbon society together with the ward residents and business operators.

Prior Environmental Consultation System –Reducing Carbon Emissions from New Buildings–

In order to reduce carbon emissions from newly constructed buildings in the ward, Chiyoda City has carried out the Buildings Environmental Plan System that requires the submission of a plan describing the state of efforts regarding environmental matters no later than 21 days before the commencement of work. To enhance the effectiveness of this system, the ward will introduce the Prior Environmental Consultation System in October 2016.

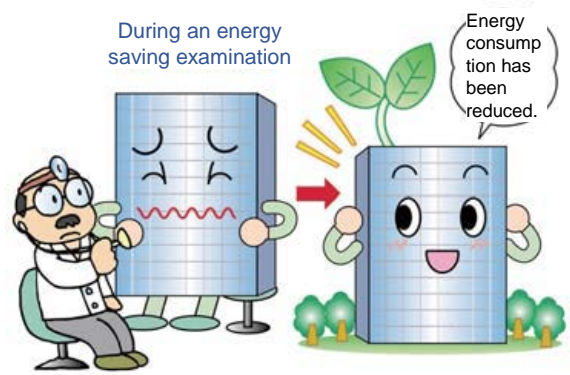
This system aims to reduce primary energy consumption by 35% from the standard value provided by the Energy Saving Act by having a prior consultation regarding energy saving measures between the ward and companies. Moreover, the ward will also establish the Low-carbon Building Grant Program to provide an incentive for achieving the goal. The program will provide a grant of up to 10 million yen to the buildings whose total floor area is 300-500m².



Green Stock Strategy –Reducing Carbon Emissions from Existing Buildings–

To reduce its carbon emissions, the ward has to make efforts to reduce CO₂ emissions from the industrial sector, which accounts for three-fourths of the ward’s CO₂ emissions. Against this background, Chiyoda City has been conducting the Green Stock Strategy for about 4,700 commercial buildings in the ward and mansions in which 80% of the residents are living.

The Green Stock Strategy promotes energy saving measures (or “greening”) of the enormous number of existing buildings (“stocks”) in the ward. It encourages the buildings to inspect the current status, receive energy saving examinations and promote energy saving measures such as operational improvement and facility upgrade based on the results. The ward also carries out the Grant Program for Energy Saving Renovation, which supports the renovation of facilities by covering a part of the renovation expenses with the grant.



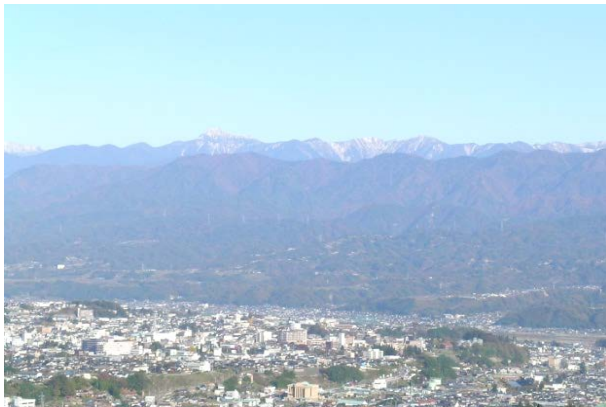
Global Warming-conscious Action Plan System –Promotion of Global Warming Countermeasure Actions by Daytime Residents -

The Global warming-conscious action plan system is a system in which each business in the ward annually reports its implementation status and plan for its global warming-conscious actions including “environmental activities,” “environmental education,” and “regional contribution” to the ward. The ward aims to encourage business operators to take global warming-conscious actions and will diffuse excellent activities by publishing efforts submitted and commending excellent efforts. The ward designates businesses with 300 or more employees in the ward as mandatory submitters (specified businesses) and businesses with less than 300 employees as voluntary submitters, and commended 4 businesses chosen from 249 businesses in fiscal 2015.



Best practice by a company (harvesting rice cultivated on a roof)

This system promotes global warming countermeasures not only by energy saving of physical things including buildings and equipment, but also for abstract things as development of people who can conduct environment-conscious actions.



Since the city was given city status in 1937, Iida City, which is located in the southern part of Nagano Prefecture, has repeated municipal mergers of the former Iida Town, which used to be a castle town, and surrounding farming and mountain villages. The people in the city live in a harmonious combination of mountains, villages, and towns, and the city has fostered traditional culture in its long history.

In the Master Plan in the Second Half of the 5th Master Concept, the city has set promotion of a low-carbon society as one of its priority policies and as part of its strategic community development in the 21st century focusing on the future image of the region where Linear Chuo Shinkansen to be opened 15 years later, the city has been promoting various efforts as the Eco-Model City.

Sustainable Community Development Starting from Energy Autonomy based on “Community Environmental Rights”

The city enacted Ordinances Relevant to the Development of a Sustainable Community through Introduction of Renewable Energy in Iida City, and recognizes that energy from renewable resources are the shared possession of citizens and guarantees community environmental rights so that citizens can use such energy preferentially for the development of their community. The city constructed and operates a system to support citizens exercising community environmental rights through guidance and advice based on the technical knowledge of the “Screening Committee for Introduction of Renewable Energy in Iida City” up to the stage of commercialization as “community business to utilize renewable energy” and ensure smooth fundraising in the market while providing for initial costs for establishing a business through a fund based on an ordinance.



Creation of Community-led Renewable Energy Businesses Utilizing an Ordinance

The Screening Committee for Introduction of Renewable Energy in Iida City was established based on an ordinance. Consisting of eleven members including experts in environmental economics, environmental finance and legal affairs, consultants in renewable energy and urban development, and experts of local financial institutions and distribution systems, the committee has conducted screening to create community businesses that utilize renewable energy.

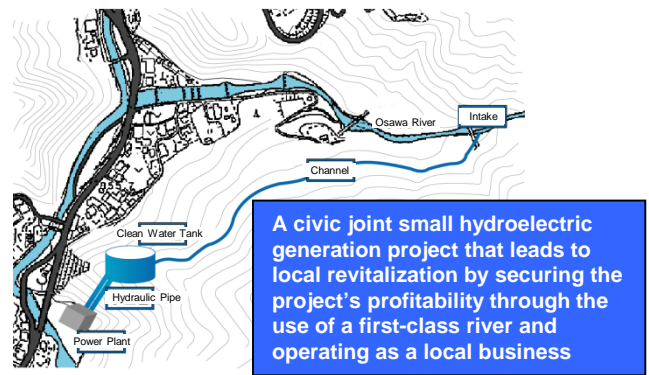
Two cases were approved as ordinance-certified issues as local resident-centered businesses, and a few more cases are under screening. Profits generated from these businesses plan to be reinvested in public affairs activities in their own regions.



Promotion of Community-led Small Hydroelectric Generation Projects toward Energy Autonomy (Environmental Initiative)

Using the Osawa River in the Kamimura Region, Iida City, as a model, an operating body established by local residents is promoting an initiative to create a small hydroelectric generation business that reinvests revenue from sales of electric power in finding solutions to problems in the community toward autonomy in energy.

In this fiscal year, workshops were held to develop discussions at the committee organized by local residents into deliberation on the entire region; activity plan, simulation of the project's profitability and a financial plan were developed based on the advice and guidance of the screening committee, to promote consensus formation toward establishment of a resident-led operating body centered on territorial groups certified under the Local Government Act.





[Toyota City shot from above] Lower part: Paddles and the Toyota Stadium that awaits the 2019 Rugby World Cup Upper part: The urban area and Yasaku River

Toyota City is a core city with the population of about 420,000 located in the north end of the central part of Aichi Prefecture. Although it is an industrial city that has developed with the automobile industry, its core industry, it also has characteristics of farming and mountain villages, with 70% of the city area covered by forests. Since it was chosen as the first "FutureCity" in the Tokai region in January 2009, the city has been working on various projects toward a low-carbon society, mainly making efforts in the following five fields: civilian life, transportation, industry, forestry and urban area. From 2010, the city has been making efforts to build smart communities, such as the demonstration of next generation energy and social systems conducted with the local companies and organizations.

[Target for the reduction of greenhouse gas emissions (Compared to 1990)]

30% reduction by 2030 and 50% reduction by 2050

Triple Set of Subsidy, Eco Point and Tax Breaks (People's Livelihoods)

Toyota City has a system to register families that take environmentally friendly actions as "Eco Families." This system supports environmentally friendly actions through various means, such as issuing Toyota Eco Points that can be exchanged for Eco Gift Coupons, etc. in appreciation of the environmentally friendly actions by the Eco Families (Eco Point System) and providing subsidies to support active introduction of the latest environmental technologies, as well as by introducing the country's first Smart House Tax Credit.

[Toyota Eco Family Support Subsidy]

Next-generation vehicles, PHV, EV, FCV, micro EV, battery facilities, external power supply facilities, etc. [Toyota Environmental Tax Credit] Smart House Tax Credit (first in Japan), Renewable energy power facility tax credit (first in Japan), EV Tax Credit (first in Aichi Prefecture)



[A smart house connected with vehicles at Ecoful Town] A house with a solar power generation system, battery and HEMS and next-generation vehicles (left: PHV right: EV)

Building of a Low-Carbon Transportation System (Transportation)

In addition to the subsidies that support the purchase of next-generation cars, the city has developed 50 power stations at 39 public facilities for power charge during travel and introduced the country's first micro EV sharing system under the name of "Ha.mo." (49 bases, approximately 2500 members)

The city uses two battery vehicles as its public cars. Fuel cell busses (FC busses) are also used for the Kikan bus lines that operate every day.

Moreover, the city also makes comprehensive efforts that utilize the strength of Toyota City, the city of cars, to achieve not only convenience and ecological friendliness but also resilience from disasters, such as a demonstration experiment concerning the use of FC busses in disasters (external power supply) and installing battery systems that use waste batteries from Prius at the disaster prevention bases.



Left top: Ha.mo rental station



Right bottom: A battery system utilizing waste batteries of PHVs at Ecoful Town

Upgrading of Toyota Ecoful Town, a Model Zone of the Low-Carbon Society (City Center)

Since Toyota City opened Toyota Ecoful Town, a model zone of the vigorous low-carbon society the city aspires to become, a total of about 180,000 people from about 100 countries and regions around the world have visited there.

Toyota Ecoful Town is a popular facility where people can experience future technologies, such as a hydrogen station that was built at an early time in Japan (an on-site type station that generates hydrogen using the city gas), smart houses suited for life in various areas including urban areas, mountainous areas and intermountain areas, and various types of next generation mobility devices.

With Ecoful Town as a base, the city intends to popularize environmental technology in the conversion of lifestyle and urban development.



[Things to see at Ecoful Town]

Left: Pavilion and a personal mobility "Winglet"; Middle top: Plant factory; Middle bottom: A hydrogen station and fuel cell bus; Right top: Micro EV; Right bottom: A smart house

Joint project with Starbucks Coffee Japan, Ltd.
YES, WE DO KYOTO! Project Kick off workshop



(Photo: Natsumi Igasa)

Kyoto City is a modern metropolis with a population of 1.47 million and at the same time a city that has been nurtured by 1200 years of history. It has beautiful natural scenery and a peaceful urban landscape, and is a traditional city where inherited and polished traditional cultures still exist, which is rare worldwide. The city is also an international cultural and tourist city that was chosen as the most attractive city by Travel + Leisure magazine for two successive years. Over 50 million tourists visit annually.

Furthermore, it is also the City that Creates the Future with its progressive spirit and creative mind to constantly challenging new things while maintaining its tradition.

By taking advantage of its characteristics and the 3rd Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3), which was held in December, 1997, Kyoto City, as the birthplace of Kyoto Protocol, has promoted advanced countermeasures for global warming with the cooperation of the citizens, business operators, and government.

The "Kyoto, a Fun City to Walk Strategy" Which Prioritizes People and Public Transportation

The city aspires to become a "fun city to walk" that achieves the low-carbon society with a priority on people and public transportation by creating a virtuous cycle of increased use of public transportation by residents and tourists, enhanced convenience and reduced traffic jams in tourist spots and urban areas, moving away from being a society that excessively depends on cars.

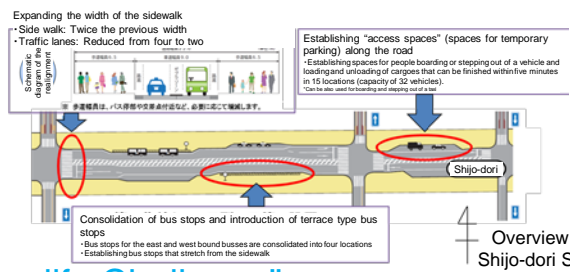
To this end, the city will promote the securing of pedestrian spaces and the prioritization of public transportation in such streets as Shijo-dori and Higashioji-dori, shift to a lifestyle that values a fun lifestyle through mobility management and realignment, and enhancement of existing public transportation means.



Shijo-dori (before realignment)



Shijo-dori (after realignment)



Overview of the Shijo-dori Sidewalk Expansion Project

Environmental Education Program "Children Eco-life Challenge"

The city started the "Children Eco-life Challenge Promotion Project," in which children who bear the future review a lifestyle by utilizing the "Children version household environmental accounting booklet" with family members to learn about and practice eco-life in cooperation with the Board of Education, volunteers, and NPOs in fiscal 2005. It has run the project at all municipal elementary schools since fiscal 2010.

The initiative is spreading to other regions in Japan and abroad. For example, since 2013, the Iskandar Regional Development Authority in Malaysia has been implementing an educational program modeled on "Eco-Challe" in cooperation with Kyoto City. This model were expanded to a total of 233 schools in the region in 2015. In the Malaysian program, a competition to select excellent schools is held every year. The program will be implemented and expanded to all 198 schools in the region in 2015.



Pre-learning that explains global warming in an easy-to-understand manner

Measures based on the Kyoto City Ordinance on Global Warming Countermeasures

Obligations of the large buildings* *2000 m² or more

- Use of wood materials produced in the region
- Installation of facilities that use renewable energy
- Assessment based on the CASBEE Kyoto (Comprehensive Assessment System for Built Environment Efficiency), publication of the results, and indication of the results at the construction site, etc.
- Greening of buildings and premises

Obligations for entities with a great amount of emissions

- Submission and evaluation of the Facilities Emissions Reduction Plan and Report
- Introduction of an environmental management system
- Securing a certain percentage of eco-friendly cars among newly purchased cars

*Entities with a large amount of greenhouse gas emissions, for example, energy use of more than 1,500 kL in crude oil equivalent

A building given an award by the **Miyako Environmental Care Award System**, which gives a prize to environmentally friendly buildings that match the city of Kyoto



NHK Shinkyoto Housou Kaikan



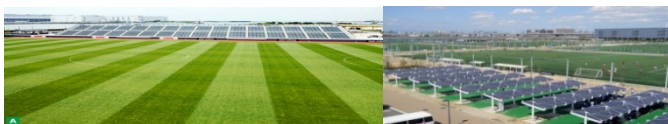
Kyoto Yaoichi Honkan



Sakai Photovoltaic Generation (10 MW)

Sakai City is promoting initiatives to realize Cool City Sakai, a low-carbon city in which a Comfortable Life and Bustle of the City are sustained.

As Sakai has long been referred to as “everything starts in Sakai,” the city has the characteristics of constantly challenging and creating new things. The city inherits such characteristics and promotes efforts as a pioneering low-carbon city in which the environment and industries will be balanced and developed together.



J-GREEN Sakai (Japan's biggest photovoltaic generation for a sports facility including soccer)

A Project to Create Harumidai Eco-Model Town

The city will realize a Net Zero Energy Town in the entire urban area by realizing the Net Zero Energy House (ZEH) in houses in all of the 65 plots.[Characteristics of the Project]

- With the introduction of photovoltaic power systems, residential lithium-ion cells, lithium HEMS, etc. to all the houses, the city will realize ZEH.
- With the use of photovoltaic power systems and large lithium-ion cells to be installed in the meeting places, etc., the city will realize self-sufficient in the electricity used in the communal areas (LED street lights, etc.).
- The city will develop a disaster-resistant city with a power feeding system [V2H] for meeting places in which EVs are used for car-sharing, lay electric lines underground, etc.



EVs shared at meeting places

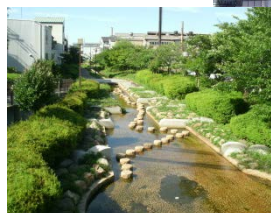


Picture of the current state

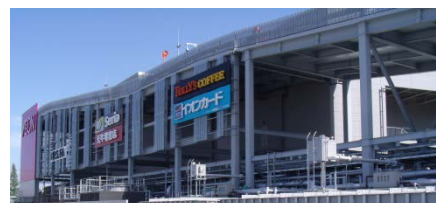
Project for the Compound Use of Recycled Sewage Water

The city has been engaged in a project for the compound use of recycled sewage water, which utilizes water treated by a sewage plant (“recycled sewage water”) as heat and water sources at AEONMALL Sakaiteppocho.

About 1500 m³ per day of recycled sewage water is sent to the shopping mall from the Sanbo Sewage Plant, which stands about 2.3km away. Since the temperature of recycled sewage water is about 15°C in winter and 25°C in summer, the gap in the temperature of the water and the temperature of outdoor air can be used as a heat source. The recycled water is used as a heat source to supply hot water in the facility and then is reused as a heat source for air conditioners. The city expects such use will reduce 3.5% of annual energy consumption and 7.5 tons of CO₂ emissions. After being used as a heat source, the recycled sewage water is used as flush water for toilets in the facility and as a water source of the Seseragi Water Channel in the Uchikawa Green Area.



Seseragi Water Channel, Uchikawa Green Area



The system for using heat source at AEONMALL Sakaiteppocho

Management of a Community Cycle System

Community Cycle is a low-carbon transportation system which uses eco-friendly bicycles that do not produce greenhouse gases.

Currently, the city allocates 690 shared bicycles (640 bicycles and 50 power-assisted bicycles) at 8 Cycle Ports (exclusive parking spaces) in the city. By shifting from the use of cars and reducing CO₂ emissions, this system contributes to the development of an environmentally friendly city. In order to achieve the shift to public transportation and bicycles, the city will continue to promote the use of the system by such means as increasing the number of shared bicycles.

- Lend and return can be made at any Cycle Port.

- In case of fixed-term use, you can take the bicycle home.
 - User-friendly low charges and no maintenance of the bicycle needed
- (300 yen per day and 2,000 yen per month)



Cycle Port Plot Plan



Top picture: South Exit of Sakai-Higashi Station (Rack type: 24-hour use)
Bottom picture: In front of Sakai-Higashi Station (Gate type)

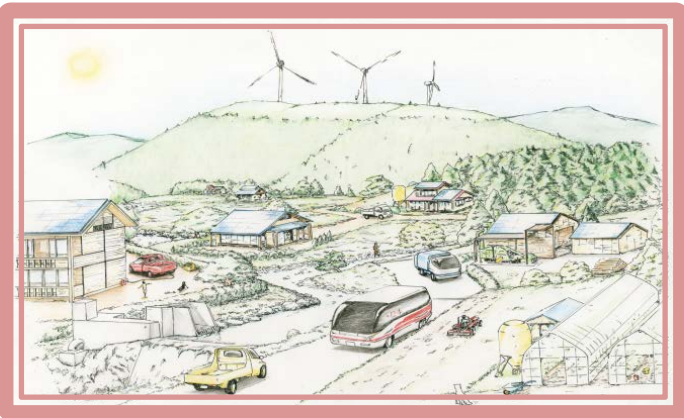


Figure of the Low-Carbon Rural Society

With the philosophy of coexistence with and circulation of the environment (nature) as its fundamental principle, Yusuhara Town has promoted the policies and measures that value the environment, education, and health.

In accord with this principle the town has set the theme of principle, the Development of a Low-Carbon City in Collaboration with Members of the Community where Green Resources Circulate and which Treats Living Creatures Kindly and has been designated as an Eco-Model City.

The town has set the energy independence as its major goal in the Eco-Model City's goal.

To achieve the goal, the town will keep valuing the Philosophy of Coexistence and Circulation, accelerate its various activities using the local resources and build the Low-Carbon Rural Society.

Developing a Low-carbon Town (CO₂ absorption and emissions reduction)

For multilateral use of the forest resources, which accounts for about 91% of the town area, the town is working on the "woody biomass regional cyclical model." For this purpose the town operates a pellet factory to promote the use of pellets in the town and the utilization of unused materials with the aim of preserving the aquatic environment of the Shimanto River basin and increasing CO₂ sinks.

Shikoku Karst region on the backbone mountains of Shikoku is one of the three major karsts in Japan and known also for having one of the best wind conditions in Japan. Its wind power generation project started operation 17 years ago, taking advantage of the favorable wind conditions. The town plans to construct more wind farms to ensure a volume of electricity sales equivalent to the total power consumption amount in the town so that it can achieve its CO₂ reduction goal.

Woody biomass regional cyclical model project



Shikoku Karst Wind Farm



A Project to Educate People and Create a Structure

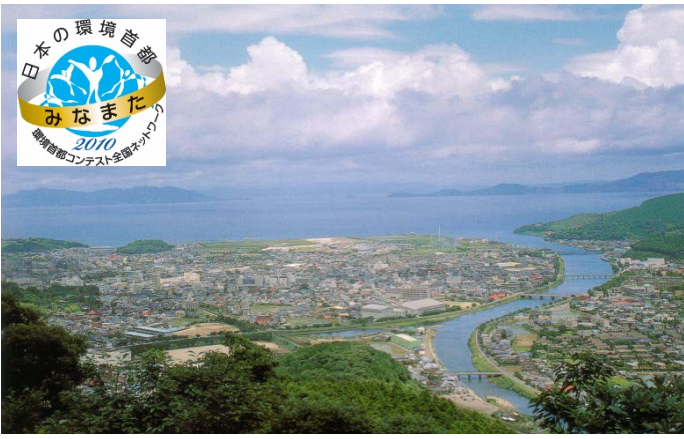
The Designation of Yusuhara as an Eco Model City is deeply related to the fact that the town has inherited the philosophy of coexistence and circulation that values the relationship with nature from our predecessors. We believe that carrying on the good way of thinking handed down for generations among the people in Yusuhara is essential in realizing the development of a low-carbon city that treats living creatures kindly. This year, too, adults and children in the town will try to light up the community by making lighting devices using natural energy while learning through the experience.



Various Initiatives to Reproduce Energy

Promoting Environmental Education





Based on the experience and lessons of the Minamata disease, Minamata City made the Eco-Model City Declaration in 1992 for the first time in Japan and has made efforts for the development of the Eco-Model City with cooperation from citizens. Such efforts were positively evaluated and the city was certified as an environmental model city to lead the national initiative to develop the low-carbon society in 2008.

Moreover, the city received the title of Environmental Capital of Japan from an environmental NGO in March, 2011.

The city aims to bring about a sustainable city with harmony between the environment and economy by promoting low-carbon measures in four areas, namely, "practice of environmentally friendly life," "development of highly environmentally conscious industry", "development of an environmental conservation-type city in harmony with nature," and "development of a city with opportunities to learn about environment."

To Achieve a Sustainable Regional Society

In order to achieve a sustainable regional society, Minamata City has been cooperating with households, schools, business entities, etc., in global warming countermeasures, such as meticulous waste sorting and recycling, utilizing its original environmental ISO (for households, schools, kindergartens and nursery schools, and eco-friendly shops, etc.).

In order to further reduce greenhouse gasses (i.e., to reduce carbons), the city is making efforts to reduce carbons from households by providing subsidies for the utilization of materials produced in the city and purchase of environmentally friendly housing equipment and devices. The amount of subsidy is doubled when the work is conducted by a company in the city, which also contributes to the revitalization of the local companies.



Waste sorting and recycling



Environmental ISO for schools



Environmental ISO for households



Promotion of carbon reduction in the household sector

Development of an Environmentally-Sound City that Coexists with Nature

Minamata City is a city rich in water and nature from the headstream (mountain) to the mouth of a river (ocean) within the city area.

The city is making efforts to protect, regenerate and restore its natural environment including oceans, mountains and rivers, which form the base of an ecosystem, and working on the development of the water-origin forest and forests of sea algae along with promoting the conclusion of regional environmental agreements in order to continue to protect them into the future.

The city also has been proposing and disseminating a way of life through traditional eco-friendly wooden houses (Eco-House) that are built using local resources and are suitable for the local climate and natural features. The city will also improve urban infrastructure including a diverse transportation system consisting of public transportation, bicycles and other means of local transportation.



Community bus service



Development of the Water-origin Forest



Bicycle sharing scheme



Eco-House

Development of a City of Environmental Education

In order to make sure the cost related to Minamata disease is not wasted and to be sure that disastrous environmental pollution like Minamata disease will not happen again, the city has been making efforts to develop a city of environmental education to spread the experience and knowledge.

Efforts of the whole community to develop an Eco-Model City, residents' way of life developed based on the experience of Minamata disease, local lifestyle including occupation and industry creation all acts as learning materials. The city is expanding its efforts to develop an Eco-Model City focusing on mutual learning and awareness fostered through interchange between residents and participants in initiatives such as the Minamata Environmental College in which people stay in Minamata for a short period of time, Mura Marugoto Seikatsu Hakubutsukan which simulates the life in the village in a museum, and the accepting of trainees from overseas.



A storyteller giving a lecture at Minamata Disease Municipal Museum



Minamata Environmental College



Mura Marugoto Seikatsu Hakubutsukan



Visiting eco-town

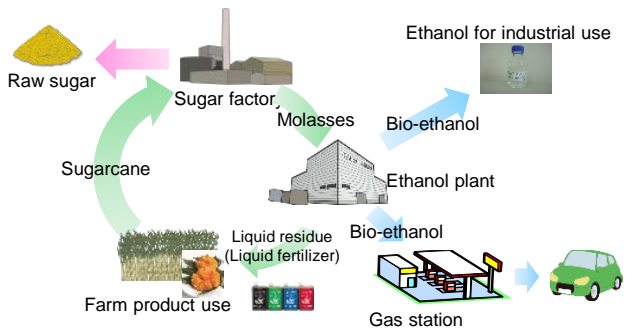


On Miyakojima Island, located furthest from the main island of Okinawa Prefecture, the city is dependent on other regions for food and energy resources and underground water for everyday life. Therefore, it is an important issue to revitalize the local community by taking measures for resource recycling and environment conservation. In an effort to make best use of local resources, the city has long been making various efforts, including renewable energy system stabilization, energy management by users, demonstration projects such as biofuel utilization and implementing measures for disseminating EVs. The city aims to develop “a prosperous island where people can live permanently” by developing an island model to combine a low carbon society with regional revitalization and establishing the “Eco-Island Miyakojima Island” brand, while making a system for the citizens to work in union.

Miyakojima Bio-ethanol Project

In Miyakojima City on a remote island, CO₂ emissions from transport are high due to the high car ownership rate and undeveloped public transportation systems. To that end, the city will take measures for transportation by using gasoline blended with ethanol made from the residue (molasses) from the process of forming crude sugar from sugarcane, a major crop of the island.

Also, the city will contribute to high-value added sugarcane and creation of a recycling society by the cascade use of sugarcane, such as returning such ethanol to soil in the form of liquid fertilizer.

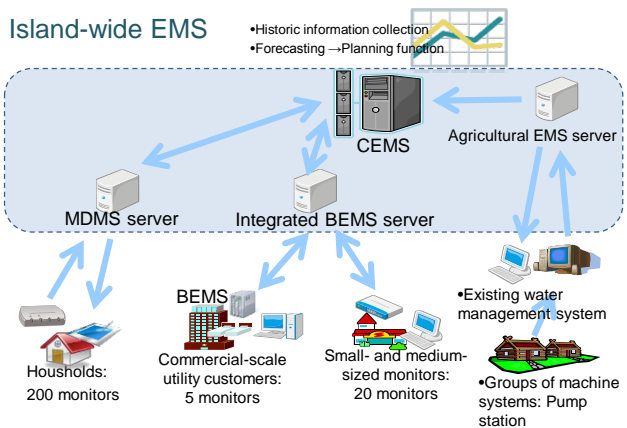


OCreation of recycling-oriented low carbon social systems with sugarcane
OVitalization of the main industry of the island by creating high-value added sugarcane

Island-wide EMS Demonstration Project in Miyakojima City

Aimed at utilizing renewable energies on the island, including solar and wind power generation, most effectively, the city will develop a total energy management system through the electricity visualization and adjustable demand control by uncovering the electrical demand situation as well as by developing a business model which can be managed by the local government into the future, in an effort to revitalize the local economy and create employment.

With the theme of “Live (sumau) Smart on the Island (suma),” it is nicknamed “Suma-Eco Project” by the citizens.



- CEMS: Community Energy Management System
- BEMS: Building Energy Management System
- MDMS: Meter Data Management System

Tour Around Eco Island Miyakojima

Eco Island Miyakojima PR Hall (known as Eco Park Miyako) was built as the base facility for a tour of ecology-related facilities scattered on the island to learn about new energy and the initiative of Eco Island Miyakojima by actually experiencing and feeling things. The tour is expected to contribute to raising the awareness of citizens and promoting tourism.

Visitors can tour the facilities after learning about the island, background of the initiative, outline of each facility and other information at Eco Park Miyako.



Miyakojima City Mascot Miya



Despite the fact that Niigata City is the biggest city on the Japan Sea side of the main island, the city has been successful in achieving local production for local consumption with a food-sufficiency rate of 63% for about 810,000 citizens.

Our agricultural culture based on the paddy rice farming that started from reclamation of lagoons by our predecessors not only has provided abundant food but has also nurtured a rich ecosystem with a wide variety of plants and animals.

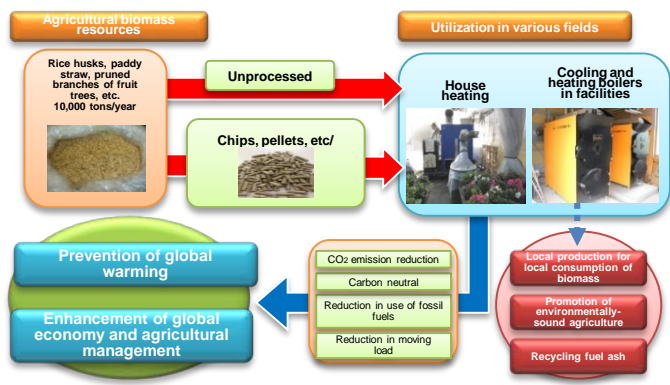
The city will cooperate with surrounding rural areas to evolve into a city where diverse values circulate in relation to people, food culture and energy, and create unique values for the individualization of towns toward a prosperous future. It will also provide the world with an example of a city where urban and rural elements coexist in co-prosperity under the slogan of preservation of the rural environment and low-carbonization of agriculture.

Promotion of Utilization of Agricultural Biomass

For the city, the rural environment is a source for everything, including industry, unified traditions, culture, and regions, places of employment and activity, and energy.

As an effort to preserve and sustainably use this rural environment as well as contribute to low carbonization, the city promotes utilization of abundant biomass in the rural environment.

The city will implement measures including CO₂ reduction, promotion of environmentally-sound agriculture, and local production for local consumption of biomass resources by using branches, leaves and rice husks generated in the city as alternatives to fossil fuels.



Utilization of Agricultural Biomass resources

Securing, Maintenance and Strengthening of Transportation Means in Daily Life

In order to ensure the shift to low carbon transportation by increasing convenience through improving the coverage and flexibility of buses and reducing the share of automobiles, the city is promoting development and initiatives for improving its public transportation environment with three principles: “to enhance access to the city center,” “to ensure, maintain and enhance transportation for community life,” and “to facilitate travel in the inner-city areas.”

As a means to achieve these principles, the city introduced a new bus system in September 2015, introducing a BRT system and realigning the bus lines across the whole city. Through such initiatives, many of the bus lines in the urban areas that were previously overlapping have been integrated and streamlined. The city aims to build a sustainable public transportation network by allocating the surplus capacity produced through said optimization to the expansion and enhancement of the bus lines in suburban areas.



Promotion of Smart Wellness City

While focusing attention on the importance of “walking,” which is a daily physical activity, the city works toward the development of a smart wellness city, in which everybody can live healthy and happy lives in collaboration with health promotion measures and city development measures.

From the standpoint of health promotion, the city promotes the change of behavior of people who are less interested in health by holding symposiums on the importance of walking in everyday life, etc. and walking events, as well as providing the Niigata Future Points to initiatives related to health and the environment.

In addition, from the standpoint of city development, the city promotes measures from both the infrastructure and 'soft' sides including the maintenance and enhancement of public transportation, creation of pedestrian-priority road space in which pedestrians can walk in security and safety through the use of rising bollards, and the development of an environment for bicycle use.



Conceptual diagram of the smart wellness city



City center and Mount Tsukuba

Tsukuba City is a Special City situated about 50km to the northeast of Tokyo and about 40km to the northwest of Narita International Airport.

The city has been the center of international research and development and about one third of the public research institutions of Japan and many private research institutions are located there. Designated as the Tsukuba International Strategic Zone and chosen as a venue for the G7 Science and Technology Ministers' Meeting, the city is expected to develop further in the future.

This is a rural city fusing nature and city where the rich nature represented by Mount Tsukuba spreads out while a new urban development is progressing along the Tsukuba Express Line opened in 2005.

Tsukuba Environmental Style "SMILe" - Combine Wisdom and Technology to Create a Town of Smiles

There are a lot of construction activities accompanying development along the Tsukuba Express Line in the city and dependency on passenger cars is high.

In order to reduce CO₂ emissions in the city, it is necessary to prioritize low carbonization through urban development initiatives relating to construction activities and transport of people.

The city will work on low-carbonization through a comprehensive approach utilizing researchers' knowledge and technology, environmental education to children, the wisdom of the public, and the implementation of urban development, so that we can create a town that makes everyone smile.



Community Eco-life & Mobility Traffic

Community Eco-life: The city promotes LCCM houses, zero-emission houses, etc. for the low-carbonization of construction activities. In the environmental model zone, we are promoting "visualization" of energy use across the zone.

Mobility Traffic: In order to lower its high dependency on automobiles (1.68 cars per household in 2006) the city will create a town where people can move safely and comfortably through promotion of the use of public transportation (railways and buses,) diversification of low-carbon means of transportation (ex. EV, ultra-compact EV, FCV, bicycles) and environmental arrangement.



Introduction of micro mobility



Considering a new low-carbon transportation system (LRT and BRT)



A mobile hydrogen station

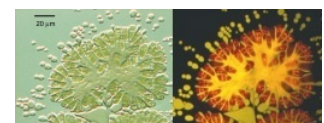
Leading Edge Technology & Environmental Education

Leading Edge Technology: the city will use research results of research institutions for the reduction of CO₂ emissions. The city will also support and lead reduction measures for the entire city by developing eco-businesses through demonstration experiments in the city while at the same time returning the knowledge, technology, resources, etc. of Tsukuba to local communities.

Environmental education: The city will concentrate its efforts on environmental education for children who will lead the next generation as well as initiatives to establish environmental activities and an environmentally friendly lifestyle in cooperation with the Tsukuba Eco Style Supporters and other entities. Through these efforts, the city will implement measures to improve the knowledge, mentality and lifestyle of the people.



A piece of work for the Green Curtain Contest submitted by the Tsukuba Eco Style Supporters



Algae biomass



Environmental education for children (Tsukuba Style Course)



About 60% of Mitake Town, in south-central Gifu Prefecture, is mountainous and it is known for its secondary forest "satoyama," which is a natural habitat for rare animals.

In this town, promoting improvements and conservation of the forests as a carbon dioxide sink are considered to play important roles in creating a low carbon society.

The town creates a system where residents and businesses can take the initiative to reduce CO₂ emissions by controlling discharges of burnable wastes and other wastes, while at the same time utilizing it effectively as recyclable resources so that it can promote recycling-oriented town building. Furthermore, the town practices human development by providing ecological education at elementary and junior high schools as well as in communities. The town makes maximum use of the resources available to it and reduces carbon emissions by solving problems one by one for the revitalization of local communities.

Promotion of Sustainable Forest Management Model based on the Entrusted Forest Management System

As a sustainable forest management model, the city promotes effective use of forest resources by entrusting forest management to a private company (the Kamo Forest Cooperatives) based on the "Entrusted Forest Management System" in order to grow a healthy and productive forest in a well-planned manner as well as by increasing the CO₂ absorption function of forests and effectively utilizing wood which would have been disposed of.

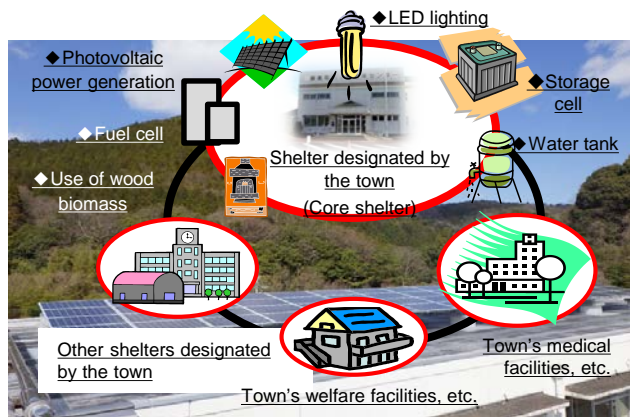
With the management of forests run by the private business, the town can consolidate forest management including adjacent private forests and so the transformation to multi-layered forests (forests of mixed age and height) will be promoted. Such forests not only increase the CO₂ absorption volume greatly but also improve the function of soil and water conservation.



Introduction of Renewable Energy System at Public Facilities

Due to the lignite (low-quality coal) mining in Mitake Town in the old days, abandoned mines are widely spread around the town underneath the plains. It is anticipated that when a large earthquake occurs, it will wreak enormous damage on the town, such as large-scale ground subsidence, which may cause the disruption of energy supply infrastructures.

Accordingly, the town aims to achieve both "Disaster Preparedness" and "Low Carbon Society Development" by promoting the establishment of "self-reliant shelters" in designated shelters in a town which can generate energy for a certain time during the energy supply disruptions caused by a natural disaster. This will be achieved with a combination of renewable energy (photovoltaic power generation, etc.), innovative energy (fuel/storage cells, etc.), energy saving (LED lighting, etc.) and disaster preparedness technology (water tanks, etc.).



Promotion of Human Resources Development and Interaction with Other Environmental Model Cities

In order to establish the town's initiatives to absorb and reduce CO₂ as a sustainable system and expand it to the entire town, human resources development is an indispensable element.

Elementary and junior high schools in the town are promoting continuous environmental education based on the Guidelines for Education on Transportation and Environment for Mitake Town, while also concluding collaborative agreements with high schools in and outside of the town and promoting cooperation and collaboration in the environmental conservation field.

As for environmental education for children and exchange with other Eco-Model Cities, the town started a mutual exchange program with Shimokawa Town, Hokkaido Prefecture in fiscal 2015, under which junior high school students from Mitake Town are dispatched to Shimokawa Town for a "forest workshop" and children from Shimokawa Town visit Mitake Town.



Junior high school students from the town are dispatched to Shimokawa Town, Hokkaido Prefecture



Industry concentrated in this compact city is a great advantage of Amagasaki City that has flourished as an important point in transportation.

Though the area of the city is large, and small- and medium-sized companies with leading-edge technologies are located in its coastal industrial zone, the old town including shopping streets remains in its inland area, and natural forests, rural landscape and quiet residential areas spread to the north. There are apartment buildings and commercial facilities around the station.

In the past, the city experienced serious air and water pollution, but the problems were overcome by the efforts of its citizens, industries and the city government. With high environmental awareness and the private industry-academy-government partnership that has been developed in the process, the city aims to create "Eco Future City Amagasaki"

Green New Deal of Amagasaki

Through development of and support to environment-related industries with the aim of further stimulating environment-related demand contributing to environmental preservation and strengthening the capability to supply technology, products and services to meet demand, the Green New Deal of Amagasaki is aimed at creation of a virtuous cycle of supply and demand with focus on the environment, and coexistence of the environment with industry.

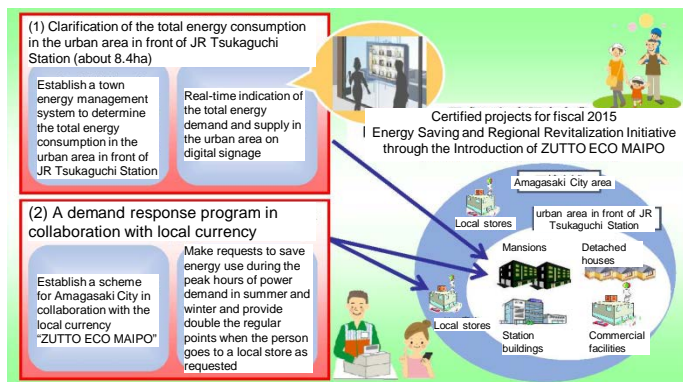


Conceptual diagram of the Green New Deal of Amagasaki

Promotion of the Amagasaki Smart Community

The city gives a certification as the Amagasaki Smart Community to the towns that introduces HEMS for a certain percentage of newly developed houses and takes AEMS initiatives utilizing the HEMS while also having a system to utilize such initiatives for the revitalization of the local economy.

The Energy Saving and Regional Revitalization Initiative through the Introduction of ZUTTO ECO MAIPO, which received the first certification in fiscal 2015, addresses the clarification of energy consumption in the urban area (ZUTTOCITY, located in front of JR Tsukaguchi Station (1,271 households after the completion of construction work)) using digital signage, while also conducting a demand response program in collaboration with the ZUTTO ECO MAIPO, a local currency that can be used not only in the urban area but also in all of other parts in Amagasaki City.



Amagasaki Smart Community Promotion Project (certified project for fiscal 2015)

Amagasaki Open College of the Environment

Amagasaki Open College of the Environment is a place for meeting people who love Amagasaki and consider the environment, and creating opportunities to put into practice.

It engages in educational activities on the environment as a base for environmental study and activities in the city.

The activities are led by the Implementation Committee for NPO Amagasaki Open College of the Environment consisting of citizens, business operators, schools, and the city government.



Space for activities and approx. 2,000 books relating to the environment



Eco educational tour



Kobe City is the center of a wide-area network, where sea, air and land transportation means are concentrated, such as the Kobe Port, an international trade port, in the coast area, Kobe Airport, an accessible airport close to the urban area, and also bullet trains, JR lines and private railroads. Kobe City is also known as one of the biggest tourist spots and it attracts many domestic and international tourists with its exotic streetscape, Arima Onsen (famous hot spring), sake breweries in Nadagogo and food such as Kobe beef and confections. The city has a wide range of attractions ranging from the busy urban areas and bay areas that embrace logistics and advanced technologies to the residential areas in hilly areas and rural areas rich with abundant nature.

The city is also active in promoting various projects to enhance the city's attractions and vitality in order to become a city chosen by people, such as the Kobe Medical Care Industrial City Project, redevelopment of Sannomiya, which is the center of the city, Design City Kobe Project and a project to develop technologies for hydrogen energy utilization.

Promotion of a Project on the Development of Advanced Technologies for Hydrogen Energy Utilization

The city cooperates with local companies in actively promoting forward-looking initiatives to lead the new age, such as the establishment of a hydrogen supply chain and development of hydrogen energy systems.

The city is now developing facilities in the Kobe Port for the introduction of a hydrogen supply system under which hydrogen is liquefied and stored using unused energy overseas and transported by sea to be unloaded and supplied in Japan.

In addition, the city is also working on the installation of power/heat supply systems in public facilities under cooperation with academia as a part of the development of an energy utilization system with fewer environmental burdens (cogeneration systems that use natural gas and hydrogen as fuel).



Photo: HySTRA

The world's first liquefied hydrogen carrying vessel

Development of Hydrogen Stations

In order to promote the development of hydrogen stations, the city provides subsidies to private companies that develop hydrogen stations in Kobe City.

In order to promote the diffusion and understanding of hydrogen energy, the city established the Kobe Renewable Energy Hydrogen Station, a facility with prominent environmental capacity that achieves a CO₂ free energy cycle by electrolyzing water with power generated from renewable energy (solar and wind power) and thereby producing hydrogen, in July 2016 in the Kobe Kankyo Miraikan, a facility for environmental education in Kobe City.

In addition, the city promotes the introduction of FCV by providing subsidies to companies in the city to cover a part of the expenses for the purchase of next-generation cars including FCV.



Kobe Renewable Energy Hydrogen Station

Promotion of the Use of Woody Biomass

In order to maintain the global warming prevention function of the forest resources including those of the Rokko Mountains and Tanjo Mountains as absorbers of greenhouse gasses for the future, it is necessary to conduct proper maintenance including thinning and trimming of forests in harvesting periods.

To this end, the city will cooperate with companies in educational activities on forest conservation in mountainous and forested areas. The city is also working on the establishment of sustainable regional economic and energy cycles to utilize unused materials produced in the course of forest maintenance as regional energy sources.



Forest of Mount Rokko



Located on the northeastern end of Okayama Prefecture and at the southern base of the Chugoku Range, Nishiawakura Village is a village with population of a little over 1,500. In August 2004, the village withdrew from a merger negotiation with neighboring districts based on the result of referendum. Since then, the village has been searching for a way for its survival through regional vitalization based on forests that make up most of the village.

In 2009 the "100 Year Forest" project was initiated in a partnership between villagers, the village office and the forest cooperative.

The village aims to create a beautiful "high-quality countryside" through the expansion of small hydroelectric generation using water resources nurtured in its rich forests, development of a community that is 100% self-sufficient in primary energy supply using renewable energy from forest biomass, and simultaneous pursuit of preservation and utilization of forests that make up 95% of the village area.

Absorption of Greenhouse Gas through "100 Year Forest Project"

The village will continue the 100 Year Forest Project through forest preservation, adding value to timber of the village and promotion of interchange including experience-based tours in partnership with the villagers, the village office and the forest cooperative.

In this project, 3,000ha out of 3,580ha of private forests in the village are subject to preservation. Their growth will be ensured through continued forest management focused on thinning for stable absorption of carbon dioxide.

In line with the expansion of management area of the forest, the city will introduce advanced forestry machineries (subsidy system was established in fiscal 2015) and conduct aviation laser measurement for advanced forest management in order to determine the amount of resources.

Opportunities of carbon offset will be expanded through certification by Foreststock.



Build a Low-carbon Model Community Based on Renewable Energy

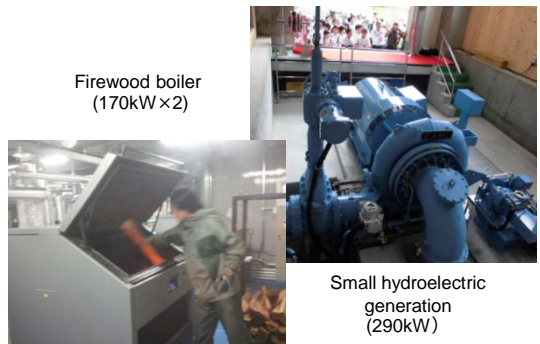
- Actively introduce small hydroelectric generation, wood biomass and photovoltaic generation

As Hydroelectric generation taking advantage of the rich water resources and topographic features of the Chugoku Range is the leading project of the village, the village replaced Nishiawakura Power Generation (290kW) in July 2014. Utilization of the resources of the forests that make up 95% of the village is the mission of mountainous areas. The village started introducing firewood boilers to three hot spring facilities in fiscal 2014. All other hot spring facilities will be updated to firewood boilers by fiscal 2016. Moreover, a regional heat supply system using woody biomass will be developed in fiscal 2019 in line with the development of the main facilities of the village.

The village has been actively promoting the introduction of photovoltaic power generation to residences and public facilities. In fiscal 2013, the city also introduced a power plant operated with the participation of residents.

- Develop a lifestyle suitable to a low-carbon society

Villagers will set up a new panel to study new lifestyles and build a low-carbon model community.



Firewood boiler (170kW×2)

Small hydroelectric generation (290kW)

Exchange with Cities and Support for Start-ups with the Theme of "High-quality Countryside"

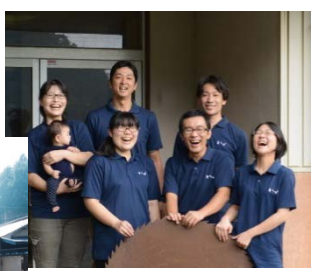
The village will work on community development that can get across the concept of a low-carbon society model in a hilly mountainous area of Japan to the broad public.

Using carbon offsets centered on the existing Foreststock certification system, the village will expand its partnership with local governments and companies toward creation of a low-carbon society.

The village will develop sightseeing itineraries suitable for a low-carbon society for tourists and observers visiting the village.

More than 10 new businesses have been started by young people who support the 100 Year Forest Project since fiscal 2012. The village started a local venture school to foster human resources to start a new business in Nishiawakura in fiscal 2015, with an eye to the securing of human resources and further expansion of employment.

Local venture
Sonraku Energy, Inc.



Wood Craft Center Youbi



Matsuyama City is in the Matsuyama Plain in the central part of Ehime Prefecture to the north of Shikoku. Thanks to the Seto Island Sea's warm climate with little rain, the city has over 2000 daylight hours per year on average—much more than the national average. This is why the city has strived to use solar energy from early on as the best suited energy for the region. In addition, transportation hubs, including an airport, ports, interchanges and stations, are within a 10km radius from the city center, where a tram running in a loop around the urban area, public facilities, tourism resources and other city functions are also concentrated. Furthermore, the amount of waste per person per day has been the smallest for nine consecutive years among cities with a population over 0.5 million. Utilizing these regional characteristic, the city will work to realize a low-carbon society under the slogan of "Proud Eco-Model City Matsuyama."

Promotion of the Matsuyama Sunshine Project

Since January 2008, the city has been promoting the Matsuyama Sunshine Project aimed at "de-global warming" and "industry creation" using renewable energy with a focus on solar energy. The city has been granting subsidies to photovoltaic generation systems since fiscal 2000. The number of photovoltaic generation systems installed with the city's subsidies reached 11,394 as of the end of fiscal 2015. This is the best record among core cities. In August 2015, the city will start a subsidy program for installation of a home battery system to further spread the use of clean energy.

In March 2015, the city introduced a digestion gas power generator to a purification center for effective utilization of energy in the community.

Matsuyama City Central Purification Center
Digestion gas power generator



Viewing a photovoltaic system installed on the rooftop of an elementary school

Promoting Smart Community

The city will work to realize smart communities in Matsuyama by carrying out feasibility studies and verification projects step by step in the covered area. The city will work on the Matsuyama Smart City Promotion Project firstly in the Nakajima area based on the study on supplementation of limited resources of Matsuyama and development of the regional revitalization plan, which was conducted in fiscal 2014. The city will promote the publication of energy consumption and efficient energy use by introducing energy management systems and solar power generation remote monitoring systems to the city-owned facilities and utilize the data and know-how gained from such initiatives in diffusing and expanding the project across the city.

By showcasing the facilities as educational and visitation spots, the city will promote the revitalization of Nakajima by increasing the number of people who interact with the area.

Nakajima area



Nakajima Branch Office which is scheduled to introduce BEMS

Environmental Education and Industry-academia-private-public Cooperation

The city is carrying out an "eco-leader dispatching program," "experience-based eco bus tour" and other projects using two environmental education facilities in the city so that citizens—including children, who will play active roles in the future—can expand their knowledge of the environment.

In fiscal 2014, the city established the Promotion Council of Eco Model City Matsuyama to promote action plans in industry-academic-public-private cooperation. The council is vigorously carrying out such activities as the preparation of recommendations and research study on particular themes.



Matsuyama Re Sairaikan



Matsuyama City Environmental Education Center

Promotion Council of Eco Model City Matsuyama





Niseko Town is a small resort town with a population of 4,890 that attracts about 1.6 million visitors from all over the world every year. The town is blessed with nature, and 25% of the town is designated as national or quasi-national parks covering Niseko mountain ranges and Mt. Youtei, and there are hot spring resorts with hotels and unique resort inns offering excellent accommodations.

The town's basic industries are agriculture and tourism and it has been taking positive measures for the environment and scenic reservations based on the concept that preserving beautiful views and abundant nature will form foundations for the key industries.

The town administration has established the principle ordinance for town-building before the rest of the country and has been promoting it with the two main principles, "information-sharing" and "resident participation," having a basic philosophy of "build a town you can feel proud of living here."

Energy Saving and Renewable Energy in the Tourism Sector

About half of the CO₂ emissions from Niseko Town is attributed to the tourism industry. In order to reduce CO₂ emissions from the tourism sector, the town is promoting energy saving measures for tourism facilities, such as hotels and ski resorts, and the introduction of hot spring energy using waste water from hot springs in the facilities. In fiscal 2015, the town conducted a survey on the introduction of energy saving facilities of 11 major tourism companies. The town plans to introduce energy saving facilities, such as systems to utilize waste water from hot springs and LED lights.

In order to communicate the town's environmental initiatives to domestic and international tourists, the town is also preparing for a joint environmental program with the Niseko Resort Tourist Association Co., Ltd. In addition, the town is considering introducing a new special-purpose tax as a means for tourists who enjoy the nature of Niseko to support the town's environmental conservation activities.



A hot spring facility that has applied for the subsidy for hot spring waste water utilization system in fiscal 2016

Grass-roots Efforts at Households

Personal efforts and regional efforts are the key to CO₂ reduction. The town will promote educational activities that are fun and intriguing, such as study sessions on energy-saving houses and educational activities on upgrading refrigerators so that each resident in the town can reflect on their everyday lives and actively think and take actions.

As educational approaches are also very important and effective in promoting such energy saving efforts, the town will also address environmental education and human resources development by upgrading all elementary, junior high and high schools and international schools into eco-friendly schools.

The high volume of CO₂ emissions from the transportation sector is another feature of Niseko Town. The town intends to address carbon reduction from transportation by such means as increasing the number of the on demand busses from the two busses that started operation in October 2012, streamlining them and shifting to clean vehicles.



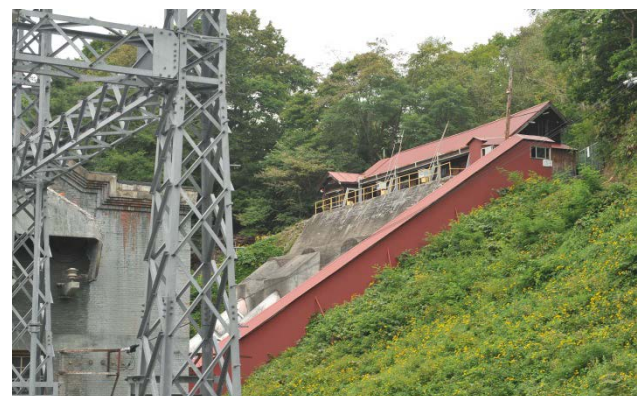
"NIKOTTO BUS," an on demand bus that operates in the city

Energy Conversion

Niseko Town has three hydroelectric power stations with a total electricity production exceeding the total power consumption of the town by using the water from Shiribetsu River. From April 2016, 10 public facilities that use a high volume of electricity have been purchasing power from a PPS whose energy base is hydroelectric power stations, etc. in the town.

As for geothermal power, the national government conducted a survey on geothermal resources in fiscal 2015 using helicopters. From fiscal 2016, private companies plan to start research on geothermal resources with a view to starting geothermal power generation businesses.

The town will encourage private companies to circulate capital within the region by converting fossil fuels purchased from outside of the region into renewable energy that can be used as regional resources, while also preparing for the establishment of a regional energy supply organization.



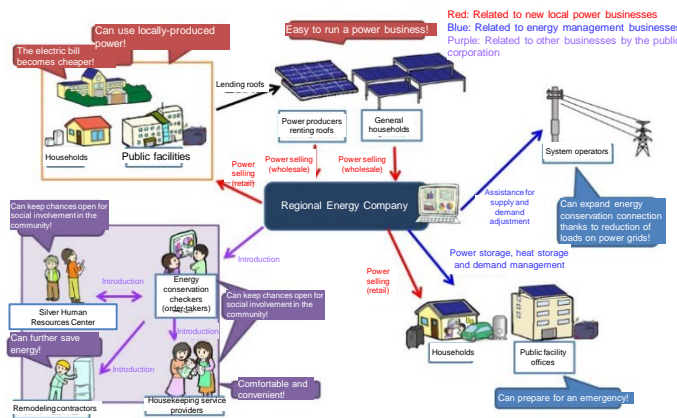
Hydroelectric power station operated by a private company in the town (started in 1921)



Ikoma City having an area of 53km² square meters is located northwest edge of Nara Prefecture, with the population of approx. 120,000 and is a residential town adjacent to Osaka and Kyoto Prefectures. It has been developed as a high-quality residential town with low-rise houses and apartments, and showed one of the highest rates of population increase from the mid-1970's to mid-1980's. Having easy access to central Osaka (about 20 minutes by train), the population has still been increasing slightly and a suitable environment to settle down has been developed thanks to the commercial presence developed around the main stations with good locations and traffic conditions. Also, abundant nature like the Ikoma mountains can be seen from the home environment and such wonderful natural settings are the charm and asset to the city, adding value to the residential town.

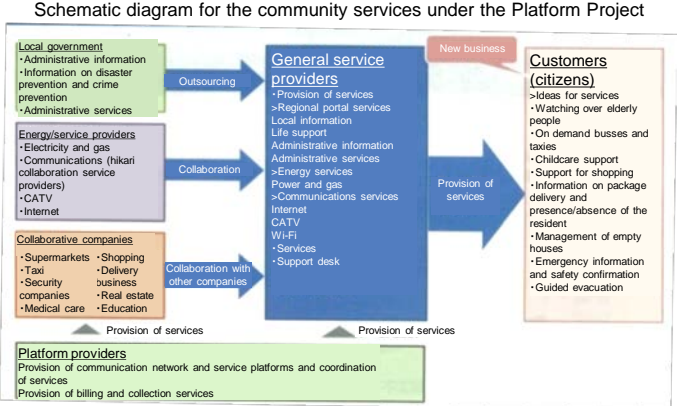
Considering the Establishment of a New Power and Regional Energy Company

A regional public corporation financed by the city, citizens and business operators plans to sell power purchased in the city and surrounding area to citizens and businesses in the city, while at the same time providing not only a demand response program for users, ESCO and other services for energy conservation but also additional services using energy data, including watching over the elderly, preventive care, shopping support, parenting support for younger citizens and information provision (on the city government, community activities, disaster information, evacuation guides, etc.) The project is expected to provide a new spark to the local economy by creating jobs in the city and promoting local production and local consumption of energy.



Development of Community Services Using ICT

The town aims to reduce CO₂ emissions from the civilian sector by promoting the introduction of EMS (energy management systems) in households and business facilities. The town also intends to achieve further CO₂ reduction by managing energy supply and demand for the entire area of the region using EMS. Moreover, the town will address diversification of the community services and establishment of communities to meet the specific needs of various groups, such as families with a children, young people, elderly people and senior citizens by utilizing the regional IT networks to be developed for the optimized energy use as a platform for community services including transportation, medical care and education.



Educating the Citizens on Resources Recycling & Energy Self-sufficiency

The city examines the policy for reforming citizen's consciousness on regional resource recycling and promotion of using environmentally-friendly energy through the educational activities carried out by the "Eco-net Ikoma," the Committee for Basic Environmental Plan consisting of citizens, businesses and administration, and through the efforts being made by "Citizen's Energy Ikoma," which runs the prefecture's first wholly citizen-funded power plant for the citizens, while offering an opportunity of environmental education for the citizens in order to look for talented people and develop human resources. At the same time, the city will look for appropriate people and educate them to support environmental activities while working in partnership with NPO's in order to provide educational programs for the citizens to foster the diffusion of renewable energy.





Oguni Town is located roughly in the center of Kyushu, in the northern end of Kumamoto Prefecture, outside the Aso Crater, along the upper Chikugo River, bordering Oita Prefecture to the north, east and west, with Minami Oguni Town to the south. This is an agricultural and forestry area covering 137km² square meters, about 78% of which is mountainous. It is a cold district at a height between 300 and 800 meters, where it is relatively cool in summer but very cold and sometimes covered with snow in winter.

The average yearly temperature is 13°C, with high annual precipitation of 2,500mm, which provides conditions suitable for growing Oguni Sugi (Japanese cedar), in combination with the nature of the soil.

Also, the area is situated in the Aso Volcanic Zone, with hot-spring health resorts such as Tsuetate and Waita hot springs. Particularly in Waita hot spring, bursts of steam can be seen everywhere in the village and the entire area is covered by steam, which indicates that the area is blessed with abundant resources.

Development of Regional Energy Generation Model

The Wood Station Project started in March 2015 with the copy of “earn your evening drinks with a pickup truck and chainsaw.” The forest owners and volunteers ship the waste wood materials and woods thinned from the forest to the Wood Station, in exchange of which the shippers receive regional currency “Mori Ken” (forest coupon). This coupon can be used at the member stores in the town. This of course can cover the costs for their evening drinks. Collected materials are used as fuels for woody (firewood) biomass boilers installed in hot spring facilities in the town in February 2016. The use of heavy oil has been reduced to one-fourteenth after the introduction of the boilers (April 2016) compared with the consumption before the introduction (April 2015).

When the Kumamoto Earthquake hit in 2016, the town opened the hot springs heated with reserved firewood for free, which was appreciated by many evacuees.



↑Wood Station Project

↓Woody (firewood) biomass boiler



Development of Low Carbon Agriculture and Forestry Reactivation Model

Each household in the hot spring resort areas with abundant geothermal resources has a drying shed using geothermal heat. Since this drying shed is heated only with steam heat, it can be used for the drying of various things including vegetables and laundry. Utilizing the mechanism of the shed, the town has developed geothermal wood drying facilities. These facilities have a good reputation for their environmental impact and efficiency as they can finish the drying in about a week without requiring the use of fossil fuels. Not only that, they also maintain the original color and gloss of woods and enhance the woods' aroma.

The wood drying facility using geothermal steam can be found only in this area. The 14 facilities developed under cooperation between the town government, forestry association and timber mills are now operating almost every day.



Geothermal lumber drying facility

Development of Emissions Reduction by the Community Model

In an effort to reduce CO₂ emissions from transport, the town will promote the use of shared-taxis and the spread of EVs. Specifically, it will introduce EVs for official vehicles and shared-taxis as appropriate for awareness-raising and build a user-friendly transport system with a reservation-based traffic control system using ICT technology in order to increase the number of public transport users.

Also, it will establish a system to measure CO₂ emissions from electricity, gas and fuel village by village, taking advantage of community activities in intermountain region. Based on the measurement, it will run a contest in CO₂ emissions reduction to boost the activities.

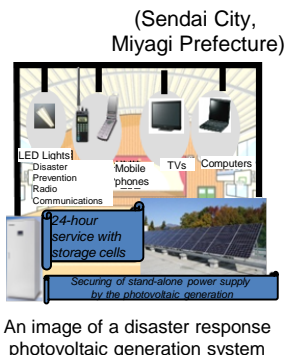


Fit EV (public vehicle)

Municipalities

Development of a Low-Carbon and Disaster-Resistant City

Based on experience of the Great East Japan Earthquake, the city has been making efforts to develop a low-carbon and disaster-resistant city by installing disaster-response photovoltaic generation systems in which renewable energy and storage cells are combined, at evacuation centers, and providing subsidies to cover the expenses of the small solar power generation and battery kit that can be installed in a balcony and on a desk.



(Sendai City, Miyagi Prefecture)
An image of a disaster response photovoltaic generation system

Nurturing Forests and Carrying Lives: Town at the Source of the Tonegawa River

With sublime nature including the Joshinetsu-kogen Highland National Park, "the Town at the Source of the Tonegawa River" has an important role in supplying water to 29 million people in the Tokyo metropolitan area.

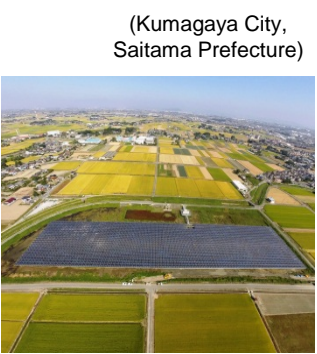
The town has a rural culture nurtured by blessings of nature and the history of the old highway, and it is promoting town development with nature and human society in harmony. Its efforts include activities toward designation as a UNESCO Eco Park (Biosphere Reserves).



(Minakami Town, Gunma Prefecture)
Tanigawadake / Ichinokurasawa

Atsusa Harebare Kumagaya-Ryu! Project

With the temperature in the city reaching 40.9 °C in 2007, the highest temperature in Japan at the time, the city launched "Atsusa Harebare Kumagaya-Ryu!" (Refreshing Hotness, Kumagaya Style) and has been implementing "Environment-friendly Heat Island Countermeasures," including the promotion of renewable energy introduction, the "Cool Share" (gathering large groups of people together to share a cool space) initiative and smart town development in order to mitigate global warming, promote health, and revitalize the community.



(Kumagaya City, Saitama Prefecture)
Installation of a mega solar power plant in city-owned land

The Foggy City The City of Sunlight

Our city is known as Foggy City but is a city suitable for photovoltaic generation as it has less snowfall in Hokkaido and fine weather, and the climate in the city is microthermal. In order to take advantage of this local resource, the city has been promoting the housing subsidy system (604 cases and 2,561 kW by fiscal 2015) and the installation of solar panels in elementary schools, a child's hall, an arena, etc.

(Kushiro City, Hokkaido)



Solar panels installed at Kohan Elementary School: 10 kW

Implementation of the Environmental Education Program

Due to various factors including the shrinking natural environment and intrusion of foreign species, biodiversity is also threatened in Tokai Village. In response to this situation, the village has been fostering human resources able to appreciate the gift of nature by utilizing the Environmental Education Program developed based on the Tokai Village Biodiversity Area Strategy and providing educational education as a part of the classes at elementary schools in the village.

(Tokai Village, Ibaraki Prefecture)



Field work

Use of Solar Energy

As Saitama Prefecture's daylight hours are longer than the national average, it potentially has abundant solar energy. In order to utilize solar energy, the city has been giving grants when photovoltaic power systems (since fiscal 1997) and/or solar heating devices are installed (since fiscal 2009). About 18,291 kW of the photovoltaic power systems and 156 solar heating devices were installed by fiscal 2015.

(Kawagoe City, Saitama Prefecture)



Low-Carbon City Kawaguchi

The "Eco Life Day" initiative started in Kawaguchi City and has now spread throughout Japan. The city will work on energy saving with an environmental consciousness enhanced through Eco Life Day toward a low-carbon city emitting less greenhouse gas.

(Kawaguchi City, Saitama Prefecture)

Eco Life Day check sheet

Projects by Other Members

Installing Photovoltaic Systems in Town Halls

Photovoltaic systems are installed in town halls in cooperation with the neighborhood associations. Generated power is sold using the total-amount buyback program to recover the installation cost, while paying 10% of the profit to the neighborhood associations as rent for the roofs.

During power interruption caused by a large-scale disaster, etc., the system will be used by the community as an emergency power source.

(Toda City, Saitama Prefecture)



Photovoltaic generation system

Micro Hydroelectric Power Generation in a Water-rich City

Koto Ward has 18 rivers extensively running across the ward. This system uses the height difference of about 1m in the river that runs under the water gate bridge where a waterwheel is established.

This cross-flow waterwheel outputs up to 1kW of electricity, which is used for the display on the monitor and lighting. It also serves as a spot for environmental education on renewable energy and a symbolic tourism spot.

(Koto Ward, Tokyo)



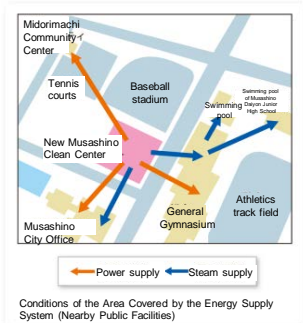
A hydroelectric power generator and a monitor in the shape of a water drop

Toward Smart City Musashino

Musashino city aims to practice local production and local consumption in existing urban districts. The city will promote energy generation and conservation by installing solar panels in public facilities and granting subsidies for the installation of solar panels, HEMS, cogeneration, etc. in homes.

The city is also developing an energy supply system across buildings/facilities using waste heat from its waste incineration facilities that are to be rebuilt.

(Musashino City, Tokyo)



Demonstration Project on the Circulation of Woody Biomass Resources

Yamanashi city conducts a demonstration project on the circulation of woody biomass resources on a trial basis, utilizing woods pruned when transplanting peach trees and grape vine as firewood to be used by wood stove users.

It aims not only to promote the use of heat from woody biomass energy, but also to prevent air pollution and reduce burdens on farmers.

(Yamanashi City, Yamanashi Prefecture)



Collected pruned woods

Introducing Green Curtains at All Elementary and Junior High Schools in the City

With the cooperation of the Nagareyama Goya Curtain Promotion Council, the city has been making efforts to expand the use of “green curtains.”

In 2016, the city distributed goya seedlings and seeds to 118 residents’ associations and 96 public facilities. All elementary and junior high schools in the city are provided with goya seedlings and are working to create green curtains in integrated study classes.

(Nagareyama City, Chiba Prefecture)



Seminar on how to cultivate goya at an elementary school

Itabashi Ward Environmental Education Handbook

In order to promote environmental education, Itabashi Ward is developing its original environmental education program.

In order to make it easy to use for instructors with little knowledge and experience in environmental education, the handbook includes information on how to proceed with the program and allocation of time as well as tools to use and worksheets.

This handbook is usable for a wide range of people from infants to adults.

(Itabashi Ward, Tokyo)



Front page of the Itabashi Ward Environmental Education Handbook

Nagaoka City’s Project to Produce Biogas from Garbage

The city will ferment and decompose garbage using microorganisms and effectively utilize the biogas produced in large amounts during the disposal process (methane gas).

The Garbage Biogas Generation Center intends to build a low-carbon society and promote renewable energy use, and it has gone into full-scale operation since July 2013.

New energy will be produced from the garbage.

(Nagaoka City, Niigata Prefecture)



Garbage Biogas Generation Center

Promotion of Smart City Gifu

Gifu City strives for the realization of an energy saving city, Smart City Gifu, taking advantage of renewable energy to the maximum extent.

In order to promote the development of a low-carbon city, the city provides a subsidy for the installation of earth heat pump systems and makes efforts to promote the use of and raise awareness on renewable energy, including abundant and quality underground water.

(Gifu City, Gifu Prefecture)



Gifu Media Cosmos that actively utilizes geothermal heat and solar light

Projects by Other Members

To Build a Smart City

Ogaki City takes measures for new energy development and energy saving based on the Ogaki City New Energy Vision.

This vision sets the future objective for the city's energy policies as becoming a water city utilizing the gift of water and greenery by 2050.

(Ogaki City, Gifu Prefecture)



Conceptual diagram for the future city

Takayama Energy Strategy

Takayama City aims to be "the No.1 city in Japan for the use of natural energy" where every citizen can enjoy rich and accessible nature and feel affluent in living using natural energy.

(Takayama City, Gifu Prefecture)



Picture from the Kids' University Takayama under the Takayama Energy Strategy

Solar Power Generation Business by Roof Rental

In order to promote the introduction of solar power generation systems in the city's facilities, the city has been working on the "roof rental" project to rent the roofs of 314 facilities including elementary and junior high schools and libraries (about 16 MW) to private companies.

As of the end of March 2016, 220 facilities have started to produce electricity (11,768kW).

(Nagoya City, Aichi Prefecture)



Solar power generation facility (installed on the roof of an elementary school)

Enhancement of the Use of Clean Energy and Accessibility of Electric Vehicles

The city has been working on the enhancement of the accessibility of electric vehicles (EV) for tourists and residents by developing charging stations for EV in seven public spaces, including stations and roadside facilities. The city makes efforts to provide various services in the region using clean energy, such as installing solar power generation systems, batteries and disaster response kits together at three facilities among the seven facilities, so that they can be used for disaster prevention measures.

(Kyotango City, Kyoto Prefecture)



Kyotanba Town: Creation of the Forest Culture

Kyotanba Town sends "Kyotanba Nukumorino Isu" (chair) as a gift to newborn babies in the town.

All production processes of this chair from logging and lumbering to processing and assembly are done by the people of Kyotanba City using Japanese cypress produced in the town.

The town has also established the Wooden Educational Space that utilizes wood materials produced in the town and provides opportunities for children to learn and play with picture books and wooden toys while feeling the warmth of the woods.

(Kyotanba Town, Kyoto Prefecture)



Kyotanba Nukumorino Isu



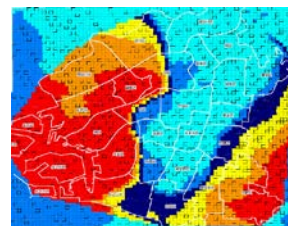
Wooden Educational Space

Promotion of the Use of Geothermal Heat

Osaka City has an abundant aquifer in the shallow underground layer. The city promotes the use of geothermal heat, taking advantage of the feature of the area that business facilities with high heat demand are concentrated above ground.

From fiscal 2015, the city started to map the potential for the introduction of geothermal heat and cooperated with the academic sector in technology development and demonstrative projects for a large-scale system to utilize geothermal heat.

(Osaka City, Osaka Prefecture)



Example of the geothermal heat introduction potential map

A City where People are Connected, Grow Up, and Live

Suita City has the best access to transportation and a residential environment with rich green areas, and is a city filled with attractive environment.

The city will realize the Environmentally Innovative City through the efforts for development of an environmental city, the countermeasures for the heat island phenomenon, the Smart Mobility Management, and the partnership-based shifting of the life style.

(Suita City, Osaka Prefecture)

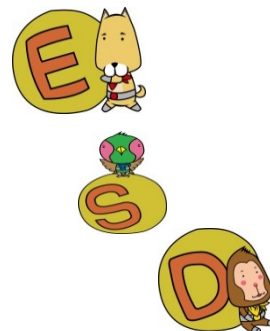


Environmentally Innovative City

Promotion of the Okayama ESD Project

As a key partner of the UNESCO, Okayama City aspires to be a city where human resources to lead the development of the environment in everyday life and diverse leaders will develop a sustainable society with fewer environmental burdens by taking actions that give consideration to the environment and future generations under the spirit of self-help, mutual help and public help and pass down the abundant lifestyle made possible by living in harmony with a diverse natural environment to future generations.

(Okayama City, Okayama Prefecture)



Eco City Takamatsu Promotion Project

The Tobu Sewage Plant has been using digestion gas for air conditioners and to heat digester chambers. The digestion gas is also used to generate power while simultaneously heating digester chambers to enhance the efficiency of fermentation. Produced electricity is sold and the proceedings are used for the maintenance and management of sewage projects.

Start of power generation: February 2016
 Power generation facilities: 25kW x 20 units 500kW
 Expected annual output: About 1.61 million kWh

(Takamatsu City, Kagawa Prefecture)



Biomass power generation facility

Hydrogen Leader City Project

Fukuoka City is working on a project to produce CO₂-free hydrogen from biogas emitted in the process of treating fermented sludge at the Central Wastewater Treatment Plant and use the hydrogen for fuel-cell vehicles (FCV) in industry-academia-government collaboration. This is the first such attempt in the world. (Hydrogen station opened in March 31, 2015.)

(Fukuoka City, Fukuoka Prefecture)

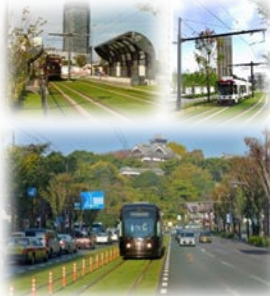


Sewage biogas hydrogen station

Development of a Low-Carbon City Using Water, Greens, and Sunlight

By using its rich water and greens called the city with the most abundant subsurface water in Japan and the forest city, the city is promoting the mitigation of the urban climate by conserving subsurface water and greening the street car track fields under the wide-range cooperation in order to realize a low-carbon Kumamoto City by popularizing and promoting renewable energy such as the use of solar energy, its area characteristics, sewage sludge biomass, and small-scale hydropower generation.

(Kumamoto City, Kumamoto Prefecture)

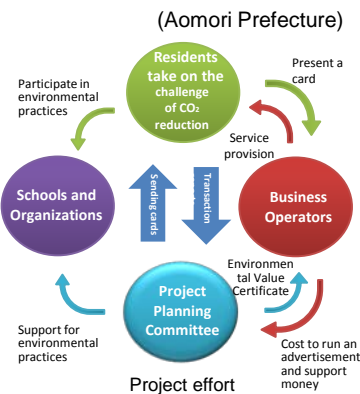


City Trams in Kumamoto City

Aomori Eco No Wa (Circle) Smile Project

Aomori Prefecture has promoted "Aomori Eco No Wa Smile Project" as a movement of the residents of the prefecture that promotes environmental conservation in the whole prefecture since fiscal 2012.

Residents, business operators, schools and organizations that registered to participate in this project make pro-environmental efforts, including energy saving and waste reduction in cooperation with each other.



Solar Power Generation Project through Roof Rental

Kochi City started solar power generation through the rental of the roofs of public facilities in February 2016.

The city rented the roof of the Wholesale Building in the Kochi City Wholesale Market whose output capacity is 960 kW.

A private company installed solar panels and will sell electricity using the FIT system, and the city will receive income from rental fees for roofs and fixed asset tax.

(Kochi City, Kochi Prefecture)



Solar power generation through roof rental in the Kochi City Wholesale Market

Nagasaki Sustainer Project

The city has been working on the fostering of human resources who will lead the development of a sustainable region by utilizing the Nagasaki Eco Life Fund, which connects the two projects of Nagasaki Eco Life, which aims to promote environmental actions participated in by all citizens, and Nagasaki Solar Network Project, which promotes the utilization of renewable energy toward the shift to safer and cleaner energy, and by using the fund for the activities participated in by many citizens and children who will lead the future.

(Nagasaki City, Nagasaki Prefecture)

Connection and expansion of the eco-life cycle!



Base for environmental activities led by the citizens

Prefectures

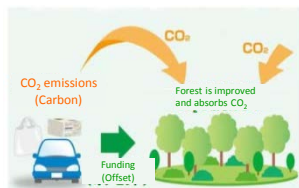
Popularization of Niigata Prefecture Carbon Offset System

As global warming mitigating measures, Niigata Prefecture has been promoting Niigata Prefecture Carbon Offset System using an economic mechanism.

The prefecture certifies the amount of CO₂ absorption through the forest improvement and issue the offset credit.

This credit is used for various carbon offsetting efforts by companies nationwide, and the fund is used for forest improvement.

(Niigata Prefecture)



Promotion of International Environmental Cooperation

Toyama Prefecture has been working on environmental conservation activities in cooperation with the local governments in the northeast Asian region, including activities to support the UN's Northwest Pacific Action Plan and environmental experience and exchange projects for young people. Following the G7 Toyama Environmental Ministers' Meeting, the prefecture adopted the 2016 Toyama Declaration at the Northeast Asia Environmental Experts' Meeting in May 2016. The prefecture plans to conduct studies on climate change, biodiversity and wastes in the ocean.

(Toyama Prefecture)



Northeast Asia Environmental Experts' Meeting

Environmental Education Festival

Shizuoka Prefecture holds the Environmental Education Festival from January to February every year to conduct environmental seminars across the prefecture as a part of the activities under the Environmental Education Network under which various entities work together while utilizing their own features.

The prefecture intends to build momentum toward environmental education for residents and companies in the prefecture and establish environmental education that is anchored steadily in the region.

(Shizuoka Prefecture)



Font cover of the public relations magazine for the festival

Popularization of "Eco-life in Kumamoto Way"

Kumamoto Prefecture is working to spread "Eco-life in Kumamoto Way," which is a low-carbon lifestyle taking advantage of the climate, natural features and temperament of the people of Kumamoto.

For its promotion, the prefecture developed "Bear's Eco Study Notebook" in which Kumamon Bear plays the role of a teacher. The awareness-raising pamphlets are distributed to elementary-school students and used in outreach study sessions held across the prefecture.

(Kumamoto Prefecture)



Front cover of "Bear's Eco Study Notebook"

Promotion of the Use of Hydrogen Energy

Gifu Prefecture aims to build an energy system for the storage, transportation and supply of hydrogen produced and consumed locally in order for the stable and efficient use of renewable energy.

In March 2016, the prefecture installed two mobile hydrogen stations in the prefecture to promote the use of hydrogen application technologies in the transportation sector.

(Gifu Prefecture)



Mobile hydrogen station

Implementation of Special Plan for Summer Vacation "Summer Vacation: Touching the Earth"

Saga Prefecture holds the annual event "Summer Vacation: Touching the Earth," which can teach people about environmental problems centered on global warming and countermeasures for them.

The display of one of only 20 digital globes in the world provides a fun, practical way to learn about global warming by looking at and touching the globe.

The prefecture also implements various displays and experience courses regarding the environment.

(Saga Prefecture)



Promotion of development of a CO2-free Yakushima Island

Focusing attention on the regional feature that all electric power is supplied by hydroelectric generation in Yakushima, an island designated as a World Natural Heritage site, Kagoshima Prefecture is promoting an advanced community development where CO2 emissions are substantially restrained.

In addition to the promotion of the introduction of electric vehicles, the prefecture will raise public awareness using a collection of case examples of global warming countermeasures in cooperation with residents.

(Kagoshima Prefecture)

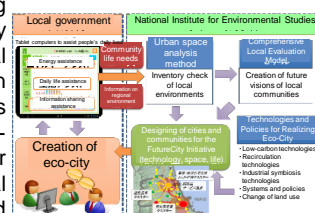


An electric vehicle and a fast-charging facility on the island

Proposing Scientific Methods to Realize Eco City

The institute supports town development and business design with the economy and the environment in harmony by providing regional models and a smart city system which are developed for local communities and cities based on comprehensive assessment models used for the development of low-carbon scenarios in Japan and other Asian countries. We also help local governments in reviewing plans and making presentations targeted at Asian countries and international conferences, for example.

(National Institute for Environmental Studies)



Outline of the Eco Town Development Support System

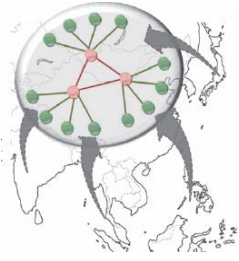
Relevant Government Agencies, etc.

Projects by Other Members

Policy Research on the Sustainable Development of the Cities

IGES is engaged in the studies concerning a low-carbon, resilient and sustainable development of the cities, including such activities as the diffusion and expansion of the best practices in urban environmental policies and support for the development of low-carbon cities, as well as human resources development project for the policymakers from various cities in Asia. In addition, IGES cooperates with local governments and relevant agencies in the operation of the network to promote collaboration between the cities and the improvement of its functions.

(Institute for Global Environmental Strategies)



Enhancement of collaborative relationship between the Asian cities and promotion of the transfer of low-carbon measures

ICLEI: A Council for Local Governments that Pursue Sustainability

ICLEI is an international network comprising of more than 1,500 local governments around the world that pursue sustainable society.

We promote the participation of Japanese local governments in international initiatives and communicate and share leading practices in urban areas internationally and domestically. We support active initiatives of the cities by promoting international collaboration between the cities

(ICLEI Japan)



ICLEI World Congress 2015

Realize a City that Uses Heat Intelligently —Pay more attention to heat!

For the promotion of the extended use of energy, we promote the importance of the smart use of heat in order to spread and facilitate the extended use of heat. In addition, we are also working on the BCP of cities after a great earthquake disaster, smart city, energy system reform including electricity and gas, utilization of hydrogen with an eye to the city development toward the 2020 Tokyo Olympics and afterward, and other initiatives.

(Japan District Heating & Cooling Association)



Seminar on Urban Environmental Technologies in fiscal 2015

Excellent Supporting Role of Eco Living —Life with an Awning

An awning (movable sunshade) that creates coexistence with nature and an energy-saving space can control sunlight and produce a comfortable outdoor living, leading to a comfortable indoor environment. Furthermore, it realizes high energy-saving effects that reduce cooling load. The company supports the realization of life with an awning that is regarded as a necessity for an environmentally-friendly house.

(JAPAN AWNING ASSOCIATION)



Urban Oasis Certification to Connect the Green Areas in Cities and Residents

The Urban Oasis Certification System, which is one of the SEGES series that gives certification related to greening, evaluates and certifies private green areas including rooftop gardens and open ground areas based on three criteria and enhances their values by building a network of their initiatives. This certification system has attracted attention as a new way to support the management, utilization and public relations of green areas by private companies.

(Organization for Landscape Urban Green Infrastructure)



Urban Oasis Certification Label

Development of CASBEE City

CASBEE (Comprehensive Assessment for Built Environmental Efficiency) City is a system that comprehensively evaluates the environmental performance of cities from the viewpoints of environment, society, and economy. The evaluation covers the aspects of the quality of the environment of the whole city and the greenhouse gas emissions associated with the urban activities. CASBEE enables objective assessment of the future effects of local governments' environmental measures. The international version to evaluate overseas cities is now under development.

(Institute for Building Environment and Energy Conservation)



CASBEE: Evaluation results for a city

Development of a Website to Communicate Information on Urban Infrastructure Technologies, etc.

The Urban Infrastructure and Technology Promotion Council for which IFUD serves as the secretariat is working on the development of a website to communicate information on outstanding urban infrastructure technologies of Japanese private companies both internationally and domestically under cooperation between the administrative and private sectors. A major section titled "the realization of highly efficient energy society with reduced burdens" will introduce initiatives to reduce environmental burdens, such as smart city initiatives and smart energy networks. (To be published in August 2016)

(Institute for Future Urban Development)



Top page (plan)

Private Organizations

Fukushima Symbolic Project for Restoration in a 20km Radius from the Nuclear Power Plant

We have built mega solar power plants under the project that was adopted for the subsidy to support the introduction of renewable energy power generation facilities by the Ministry of Economy, Trade and Industry (project to promote the combined model of agriculture and energy) and the first certified project for Kawauchi Village Restoration and Development Plan.

Furthermore, we will contribute to the enrichment of the lives of the people who have come back to the village and acceleration of evacuees' return to the village through the Kaeru Kawauchi Restoration Support Bus Project that utilizes a part of the proceedings from the sale of electricity (about 100 million yen for 20 years).

(ENERGIA Inc.)

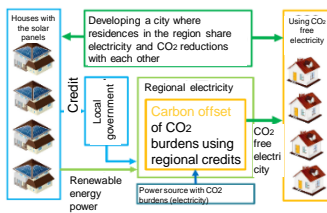


Opened in February 2016/07/28
Kaeu Kawauchi
Mega Solar Power Plant

Toward a Society that Shares Electricity and CO2 within the Region

In cooperation with the local governments and power companies, we have been working on the development of a system for local production and consumption of electricity and CO₂, under which residences and business entities share renewable energy power and CO₂ reduction values (J-Credit) within the region. We will promote energy saving activities based on the spirit of contribution to the regional community through the sharing of electricity and CO₂ reduction values between the citizens and their neighborhoods.

(CARBON FREE CONSULTING CORPORATION)



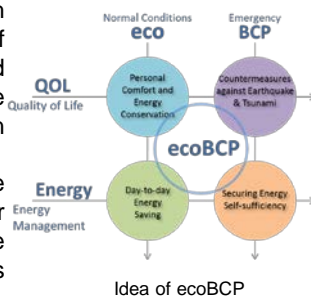
Scheme for local production and consumption of electricity and CO₂

Development of a Human-friendly and Resilient City

Shimizu Corporation develops facilities and cities from the perspective of "ecoBCP," which combines both the functions of eco in normal conditions and business continuity and life continuity plans in times of an emergency.

While building "FutureCities," the company also supports your business at all stages of urban life by providing various services related to energy.

(Shimizu Corporation)



Idea of ecoBCP

From Smart City to "Urban ZEB"

The development of smart cities differs from region to region, but Taisei Corporation has advantages in energy control in whole areas and in making individual constituent buildings to zero net energy, and considers them as a field in which the company can make a contribution.

In addition to DR control technology established in the demonstration by the Ministry of Economy, Trade and Industry, "Urban ZEB" was constructed this year. Taisei takes approaches to smart cities utilizing regional resources from both "individual" and "whole" sides.

(Taisei Corporation)

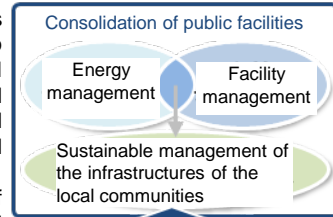


Reinforcement of the Public Infrastructure through the Consolidation of Public Facilities

NTT Facilities will contribute to the management of local governments through the consolidation of public facilities utilizing our services tailored to each region, such as regional new electricity projects centered on energy management and facility management and management of public facilities.

We support the development of a disaster resilient and sustainable city that is friendly to both humans and the environment with our technologies based on abundant experience.

(NTT FACILITIES, INC.)



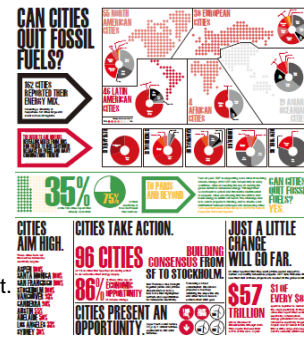
Support with abundant experience

- Installing solar power generation system in 1,345 locations
- Centralized management of 16,200 facilities

International Cooperation and Information Disclosure

CDP is an international non-profit organization based in London that provides local governments and companies with an information disclosure program for greenhouse gas and natural capital. With the principle of "You can't manage what you don't measure," CDP contributes to global warming countermeasures and natural capital management by local governments and companies through information disclosure support.

(CDP)

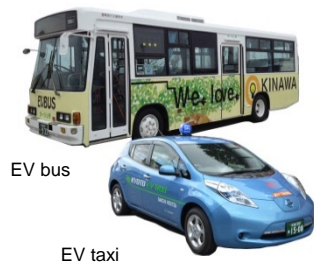


Consider the Environment of Tomorrow from Wanting to Help Every Day

Daiichi Koutsu Sangyo group introduced EV taxies and HV taxies nationwide to protect the future environment in daily services. In addition, the group cooperated in the demonstration experiment of EV buses using a bus line in Okinawa Prefecture.

The group will actively work for the creation of a comfortable future environment in the future.

(DAIICHI KOUTSU SANGYO Co., Ltd.)



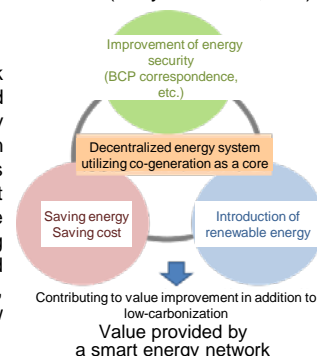
EV bus

EV taxi

Building of a Smart Energy Network

By utilizing information and telecommunications technology, Tokyo Gas has been working on the building, popularization, and promotion of Smart Energy Network (SMAENE), which optimally and extensively uses heat and Electricity between buildings and between communities. The company has already carried out city development utilizing a smart energy network in the Tokyo metropolitan area, including Isogo, Shinjuku and Tamachi, and plans to spread the project to Toyosu, which expects the opening of the new market this year.

(Tokyo Gas Co., Ltd.)

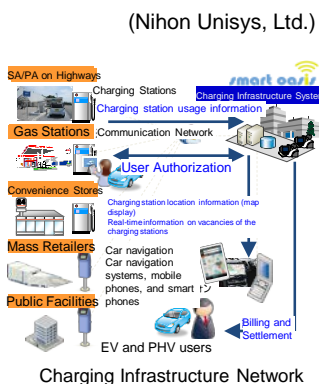


Projects by Other Members

Building of a Charging Infrastructure Network for EVs and PHVs

Upgrading of the charging infrastructure is essential for the popularization of electric vehicles (EVs) and plug-in hybrid vehicles (PHVs).

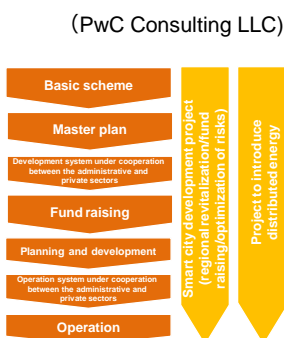
By utilizing ICT Nihon Unisys provides charging station user authorization, as well as billing and settlement services and has been working on the building of charging infrastructure, which is highly convenient for EV and PHV users.



Support for Smart City Development at an International Level

PwC Consulting supports smart city development by the national and local governments, companies and citizens at an international level utilizing its global network with 208,000 members from 157 countries.

In particular, we are making efforts in smart city development to realize regional revitalization through the introduction of distributed energy taking advantage of the liberalization of electricity and gas*.



*Example: PwC Consulting concluded a basic cooperative agreement with Urasoe City concerning smart city development in October 2015 and is now working on the development as the city's partner.

Elementary School Students together with Their Families Think about Environmental Problems—Eco Diary with Illustrations

We hold a competition of “Eco Diary with Illustrations” for elementary school students in Yokohama City. By keeping a diary, children develop environmental awareness and start to learn about environmental problems together with their family and participate in environmental activities.

The number of participants exceeded 160,000 in 16 years. Since fiscal 2012, we have been cooperating with Yokohama City in the publication of “FutureCity” and holding “FutureCity” and Eco Diary with Illustrations” exhibition.

(Yokohama City Resource Recycling Business Cooperative)



Environmental Picture Diary Award 2015

Toward the Realization of a Society in which Local Regions and Cities both become Affluent

Pacific Consultants Co., Ltd. is supporting efforts rooted in the community toward the building of sustainable local regions and urban regions in three aspects of environment (energy, etc.), society (aging, etc.) and economy (local revitalization, etc.).

The company has been providing consistent total support from policies to business, including support for the development of policies and plans related to low carbon and energy, support for commercialization, and support for business execution.

(Pacific Consultants Co., Ltd.)

* The coordinator of the working group for management of energy and regions by local public authorities, Promotion Council for the “FutureCity” Initiative (Since Fiscal 2014)



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An image of developing a low-carbon society

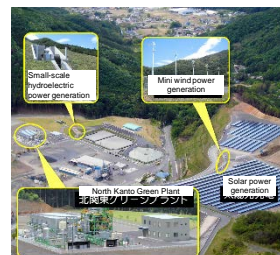
North Kanto Smart Green Park

We are working on the technological verification and research and development of an AEMS (Advanced Energy Management System) for the purpose of efficient administration and management of renewable energy.

The facility features the automated operation through the application of AI, distribution of electricity within the region, early detection of and response to abnormality and malfunction and power supply system for disasters.

We are working on this carbon reduction project as an international project with the Ministry of the Environment and other entities.

(Finetec Co.,Ltd.)

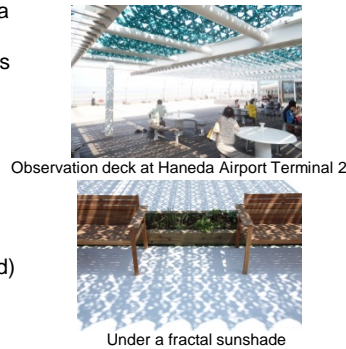


North Kanto Smart Green Park

Cool Cities by Learning from Nature—Fractal Sunshade

A 3D sunshade made of cloth that creates shade like leafy shade and a comfortable breeze. When installed in a building, the sunshade produces an energy-saving effect. Its 3D structure makes the sunshade safe and secure and resistant to strong wind. Komorebi (sunshine filtering through foliage), which appeals to human sensitivity, won the Good Design Gold Award (Minister of Economy, Trade and Industry Award) and other awards in Japan and abroad as a next-generation sunshade.

(LOSFE)



Under a fractal sunshade