







CC Kawasaki Energy Park



What is Renewable Energy?

Field of Thermal Heat Utilization

- Solar Thermal Utilization
- Utilizing Snow and Ice as an Energy Source
- Biomass Heat Utilization
- Outilizing Temperature Difference as an Energy Source
- eothermal Utilization

ield of Power Generation

- Small-Scale Hydro Power Solar Power
- Wind Power
- ●Biomass Energy
- Geothermal power generation

Fuel Utilization

Biomass Fuel Production





Energy that utilizes the elements, such as sunlight, wind power and geothermal heat. That's renewable energy. The impact of renewable energy on the global environment is small, and it is expected to bring significant changes to the energy situation in Japan.

Such power as solar energy and small/medium scale hydroelectric energy can be generated in every region of Japan, and this originality and ingenuity can also lead to the vitalization of the region. One such example is the next-generation Energy Park.

Prominent Types of Renewable Energy and their Special Characteristics

Solar Power



This is a system that uses solar cells to convert sunlight into electrical power. Although one of the challenges of such a system is that the power output will

Small-Scale Hydro Power Biomass Energy



vears, mid- and small-scale forms



Wind Power



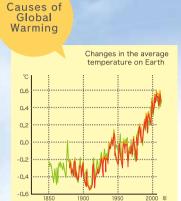
are expected to be installed in the upcoming years.

Geothermal Utilization Solar Thermal Utilization





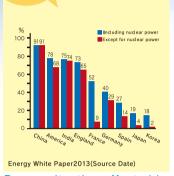
Global Warming and the Need for Renewable Energy



Fossil fuel is one of the causes of global warming.

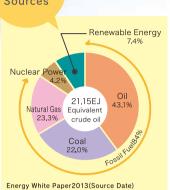
IPCC Fifth AssessmentReport(Source Date)





Energy situation affected by





The need for safe and

Solutions through Renewable Energy

Stop Burning Fossil Fuels

Stable Supply of Energy

Energy Resources Available Within Japan

CCKAWASAKI ENERGY PARK

An Industrial Tourism City + Renewable Energy Supply Facilities

The aim of the next-generation Energy Park is to contribute to the improvement of energy policies through deepening the understanding, across all levels of civic society, from the young to the old, regarding Japan's energy issues, with a focus on new energy resources. The Energy Park in Kawasaki, by linking two features of Kawasaki—an industrial tourism city and an environmental city—together, has become an energy park where citizens are able to easily gain hands-on experiences while also playing.



Night view of the coastal industrial area



The aim of the next-generation **Energy Park MAP**



Ukishima Solar Power Plan



KAWASAKI ENERGY PARK WALKER

Let's Take a Walk through 'Kawasaki Energy Park'!!

CC Kawasaki Energy Park, which was certified as a Next-Generation Energy Park by the Ministry of Economy, Trade and Industry, is a place with a focus on renewable energy supply facilities, where you can enjoy learning about Kawasaki's environmental initiatives and technologies through hands-on experiences. Additionally, it is also one of the leading energy parks that allow visitors to tour energy supply facilities along with Japan's historical and cultural centers. Here is a sightseeing map with recommendations of must-see sites!



Kawasaki Mega Solar Power Plant

Jkishima Incineration Plant,509-1,Ukishima-cho,Kawasaki-ku,Kawasaki-sh





A joint venture between the City of Kawasaki and the Tokyo Electric Power Company, this is the pionner Mega Solar Power Plant built in Japan. When the two regions of Ukishima and Ohgishima are combined, up to 20,000kW of power can be generated, using approximately ten thousand solar panels. If you participate in the guided tour offered by the nearby Kawasaki Eco Gurashi Mirai-kan (Kawasaki EcoLife Museum for the Future), you will be able to experience, up close, the power of the Ukishima Solar Power Plant

There are Many Inere are war,
World, S Bests,
and Large Scale
Facilities Here!

Kawasaki Eco Gurashi Miraikan Jkishima Incineration Plant,509-1,Ukishima-cho,Kawasaki-ku,Kawasaki-shi



An interactive facility based on the concept of learning about the environment through watching, listening and interacting. Guided tours (by appointment) to observe the Mega Solar Plant are also offered.



TEPCO Kawasaki Thermal Power Station 5-1,Chidori-cho,Kawasaki-ku,Kawasaki-shi



The plant is an environmentally superior power station that has introduced combined cycle power generation. It has achieved the highest level of 59% thermal efficiency in the world, reducing CO2 emissions by approximately 25% when compared with traditional power generation systems.



Kawasaki Steam Net

-1,Chidori-cho,Kawasaki-ku,Kawasaki-shi



The Steam Net has been contributing to CO2 reductions by supplying steam from the Kawasaki Thermal Power Station MACC (more advanced combined cycle) to ten nearby enterprises.



Kawasaki Clean Power Station 4-1, Mizue-cho, Kawasaki-ku, Kawasaki-shi TEL: 03-3282-7054





A plant with high-efficiency gas engines that use environmentally friendly natural gas as their fuel. In addition to supplying power to customers, a portion of its supply also goes towards nearby facilities.



ELIIY Power Co., Ltd. Kawasaki Office 4-7 Mizue-cho Kawasaki-ku Kawasaki-shi

Energy Ogishima Wind Power Station I-2 Oqishima Kawasaki-ku Kawasaki-shi





The corporation produces power storage type, large-scale lithium-ion battery cells, which are relied upon for peak shaving, emergency power





A wind power station that has become a symbol of the coastal area, with a blade that measures as long as 40m. You won't be able to view the plant from up close, but you can see it from Higashi Ogishima West Park and Kawasaki Marien.

Kawasaki

Kawasaki ward

Halloween page14

> **Ogishima** ower Station go to page9

Kawasaki Biomass Station

12-6,Ogimachi,Kawasaki-ku,Kawasaki-shi

65 34

Kawasaki Eco Gurashi Miraikan go to page 7.8

Ukishima Power Station page9

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natural



water







A CO₂ free power station that uses materials such as scrap wood from construction sites and pruned branches, which have been turned into wooden chips, as its biomass fuel. The plant has established resource recycling through local production for local consumption.

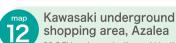
With a power generation magnitude of 33,000 kW, it is the largest woody biomass burning power plant in Japan. The reduction in CO2 emissions is equivalent to the amount emitted by approximately 22, 000 average households.





An advanced sewage treatment facility with a focus on the three environmental measures of environmental improvement, energy utilization, and resource recycling. The west-line advanced treatment facility, which has a small

hydroelectric generator, has been in service since June 2011. The facility is promoting visualization, through installing such features as multilingual panels, speaker guides and an experiential learning room with images and models.





26-2,Ekimaehonn-cho,Kawasaki-ku,Kawasaki-shi



The facility has adopted the Clathrate Hydrate Slurry Thermal Energy Storage Air-Conditioning System, a technique selected for the Low- CO2 Kawasaki Pilot Brand. The Slurry is a latent heat storage material capable of storing more than two times the

cold energy than that of chilled water under the same temperature



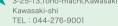




Kawasaki Natural Gas Station offers a combined cycle power generation system that combines natural gas-base gas turbine and steam turbine, realizes a significant increase in thermal efficiency compared to traditional type, which contributes to CO₂ emission reduction. It has fewer breakdowns due to troubles (100% operating ratio in 2012) and safe

and stable power generation continues

Life Science & Environment research center (Kawasaki Environment Research Institute)











The Life Science & Environment Research Center (LiSE) is a building which utilizes solar power generation of 70kW, a solar heating system as well as geothermal heat, and has achieved CASBEE Kawasaki's highest S rank The Kawasaki Environment

Research Institute was established in February 2013 within the Center, and carries out synthetic research related to the environment, in partnership with external research institutions such as the United Nations Environmental Program (UNEP), the National Institute for Environmental Studies and universities, as well as enterprises in Kawasaki which have superior environmental technologies.







Power is being generated from transparent solar panels installed in the taxi shelters. Power generation efficiency has been improved by sandwiching panels-with the potential to generate power from both sides—in between the glass on

the rooftop side. The quantity of electricity generated is displayed alongside temperature and humidity on the monitors installed in the



KAWASAKI ENERGY PARK WALKER



Saginuma Power Station & Egasaki Power Station





Kawasaki Frontale Asao Club House go to page12

asao ward

tama ward Museum page14 Solid Waste Disposal Center Okamoto Tarc go to page11 page14

21

takatsu ward

miyamae ward Saginumama Power Station page10

Ohisama Project

go to page12

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TOSHIBA cience museul page12

page10

St. Marianna University School of Medicine Energy Center St.Marianna University School of MedicineEnergy Center, 2-16-1,Sugao,Miyamae-ku,Kawasaki-shi TEL: 044-977-8111

> The center is achieving significant energy savings by generating power with large-scale gas cogeneration systems while also effectively using

nakahara ward

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natural

wind

biomas Geothermal

water

saiwai ward Power Station go to









exhaust heat.



Egasaki) 6,Egasakicho,Turumi-ku,Yokohama-shi

(Saginuma) 3-1-1,Tsutihashi,Miyamae-ku,Kawasaki-shi TEL: 044-866-0335



A micro hydroelectric power station which makes the most of Kawasaki City's geographical shape and generates power from idle drops. It is the first joint venture in Japan by a local government and a private



Minamigawara Children's Cultural Center 74-2,Miyako-cho,Saiwai-ku,Kawasaki-shi

Tokyu Toyoko Line's

Motosumiyoshi Station

1-36-1.Kizuki.Nakahara-ku.Kawasaki-shi



The center is a facility that has adopted a geothermal air-conditioning system which uses steel pipe piles. Joint research on the system is being conducted in partnership with JFE Welded Pipe Manufacturing Co., Ltd., JFE Steel Corporation and the City of Kawasaki.

140kW solar panels are installed on

the roof of the platform and

concourse. Efforts have also been

invested into the recycling of

rainwater and planting of trees,

making it an eco-friendly over-track



Nakahara Ward Office -245,Kosugi-cho,Nakahara-ku,Kawasaki-shi TEL: 044-744-3149











The Nakahara Showcase—an observation tour of the facilities installed in the ward office building. such as solar power equipment, LED lighting, wind power & solar power equipment (hybrid power generation), and green curtains—is

held, with the goal of promoting usage and raising awareness of renewable energy within the community.

International Center, Joint



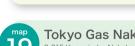
Community Ohisama Project





With such support as donations from city residents and businesses, as well as grants from the Green Power Fund, a citizen-initiated power station was established. The power generated from the rooftop solar power facility is being used at the center.





for heating but also for cooling.

Tokyo Gas Nakahara Building ?-215,Kosugi-cho,Nakahara-ku,Kawasaki-shi TEL: 044-211-7212



ECO

Heat gathered by the vacuum tube type solar thermal collector installed on the rooftop goes through a gas absorption water cooler/warmer machine that responds to solar cooling, and is returned as hot or cold energy, which is being used not only



NEC Tamagawa Renaissance City 1753,Shimonumabe,Nakahara-ku,Kawasaki-shi





With the introduction of the newest energy saving equipment and the application of information communication technology (ICT), the center achieved a 60% reduction in CO₂ emissions compared to traditional offices. Efforts are also

being put into such initiatives as the visualization of energy usage rates in order to improve energy saving awareness of employees.



Asao Ward Office -5-1,Manpukuji,Asao-ku,Kawasaki-shi

Takatsu Ward Office

TEL: 044-861-3131

TEL: 044-965-5116

environmental issues.



5kW solar power generation facilities are installed on the rooftop, and the generated electricity is used to power the ward office building. In addition, the ward is raising public awareness of solar power generation facilities in cooperation with the citizens.

In non-emergency times, a grid-

connected system is adopted for the

solar power generator system with

battery functions (lithium-ion battery), which is used in

combination with the power from the

ward building. In times of emergency,

this can be used as the ward office's emergency power supply. As well,

the Takatsu Ward Office building itself has been made into an

environmental exhibition hall (Eco city hall). Efforts are currently

underway to make it a place where visitors can learn about



Ozenji Munisipal Solid Waste Disposal Center

1285,Ozenji,Asao-ku,Kawasaki-shi TEL: 044-966-6135



A facility that incinerates household waste. At the same time, the steam generated from the heat of the incinerator can be used to produce up to 7,500kW of electricity. The steam is also utilized at the nearby Yonetty Ozenji's heated pool and other facilities.



The main facility of CC Kawasaki Energy Park Hands-On Learning of Japan's State of the Art Energy Facilities

Kawasaki Eco Gurashi Mirai-kan



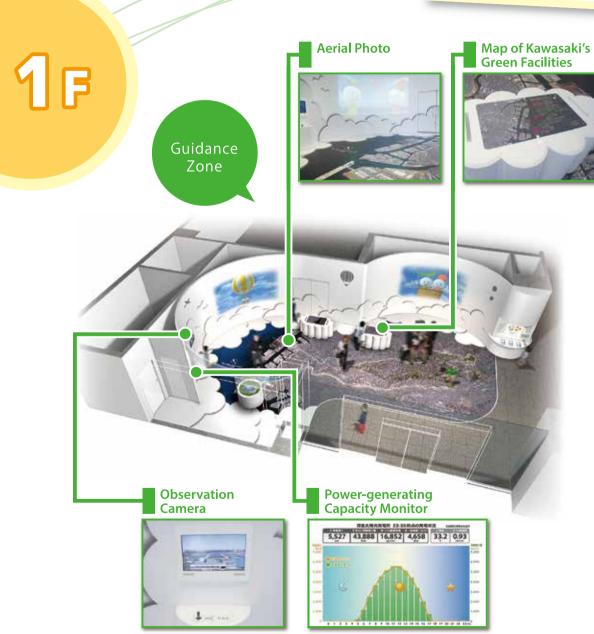
If Monday is a national holiday, the day after will be closed inatead.

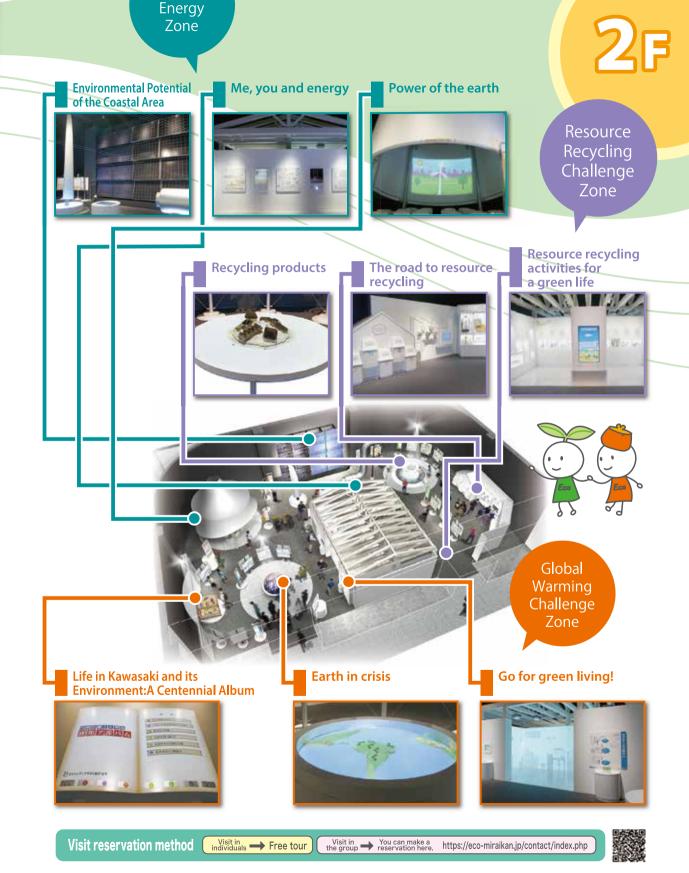
Year-end through New Year : 3 from December 29 to January ※For equipment inspection, you might want to temporary closing.

T E L 044-223-8869 URL

http://eco-miraikan.jp/index.html







Renewable



"Kawasaki Mega Solar Power Plant", has a maximum generation capacity of 20,000kW!!

CC Kawasaki Energy Park

In recent years, attention towards renewable energy has been growing, but did you know that there are large-scale Mega Solar Power Plants located in the coastal areas of Ukishima and Ogishima in Kawasaki City? The Mega Solars boast Japan's highest level power output of 20.000kW, and have also been investing effort into raising public awareness as a pioneer in large scale solar power plants.







The Ukishima Solar Power Plant and the Ogishima Solar Power Plant began their operation on August 10th and December 19th of 2011, respectively. They began as a collaborative project with Tokyo Electric Power Company, where Kawasaki City has been responsible for raising public awareness and providing the land area (Ukishima) for the power plants. The Ukishima Solar Power Plant has been accommodating tours from the public through the adiacent PR facility. Kawasaki Eco Gurashi Mirai-kan (Kawasaki EcoLife Museum for the Future).







A Compact Power Generator System that makes Effective use of the Hydraulic Power of Water and Sewerage Systems

CC Kawasaki Energy Park

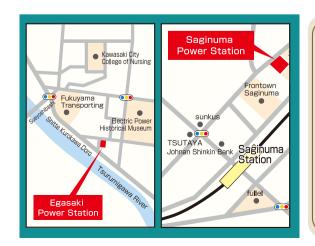
Micro power generation utilized by the Egasaki Power Station and Saginuma Power Station is a small-scale power generation system that makes effective use of the hydraulic power and excess pressure of waterworks as the renewable energy source. By converting hydraulic energy into lean clean energy, reductions in CO₂ (carbon dioxide) have been achieved and contributions to the prevention of global warming have been made.







This micro hydro power project is the first such collaborative in Japan between a local government and private businesses. The Waterworks Bureau is providing the hydro energy and the private enterprise is managing the plants' operation. The Egasaki Power Station and the Saginuma Power Station began operation in FY2004 and FY2006, respectively.



「Power Generation Systems that have Taken Advantage of Land Features」

Kawasaki's water supply system distributes water mainly through natural flow, by taking advantage of elevation differences in the terrain. The micro power generator makes effective use of the energy of flowing water that falls naturally from the filtration plant to the distribution reservoir. Power is generated when water is supplied through the water pipes. Its special features include the ability to generate a stable amount of power throughout the year and taking up little installation space when compared with solar power plants. As well, the top region of the Saginuma distribution reservoir, where the Saginuma Power Station is located, is home to Kawasaki Frontale's Futsal Court and Saginuma Contact Park, which are being utilized by many members of the public.

Water Supply Operation Center, Waterworks Bureau, City of Kawasaki

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An Incineration Plant Supporting Livelihood that Leads into a Next-Generation Recycle Park

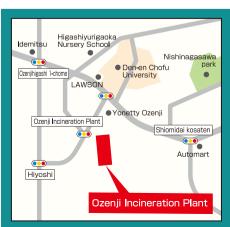
CC Kawasaki Enerou Park

The Ozenji Incineration Plant treats waste from the northern part of the city. With the aging of the facility, it was rebuilt in 2012. At the vacant lot, a recycling processing facility for cans, jars and plastic bottles etc. and a plaza building that can be used by the public are scheduled to be built. Additionally, on the southern part of the site, there will be a Health and Recreation Area.





The Ozenji Incineration Plant has set a self-regulating exhaust gas emission value that is greatly lower than the standard value as a measure against pollution, and the Plant has the capacity of clearing that value. As well, a high-efficiency power generator that effectively utilizes the heat from the exhaust gas has also been installed, covering all the cost of power used in the facility and making a profit by selling the surplus power.



Making the Utmost Use of the Residual Heat from Waste Incineration: At the Ozenji Incineration Plant, we make effective use of residual heat from waste incineration. High temperature exhaust gas is produced during waste incineration, but by directing this exhaust gas to a boiler to create steam, the pressure of the steam can be used to turn a turbine power generator. The steam, in addition to being used in the laundry facilities within the center to wash employee uniforms, is also supplied to the adjacent Yonetti Ozenji to heat the pool Mitsutoshi Hara, Assistant Manager, Ozenji Incineration Environmental Facilities Department, Environmental Protectio Bureau, City of Kawasaki

Installing a Joint Community Power Facility

Kawasaki International Center

The International Center is a facility that improves the global cultural understanding of city citizens and contributes to the development of international friendships through such events as cultural exchanges, Japanese classes for foreign residents, and multicultural events. A solar power facility was installed as a joint community power facility project with the initiative of the city citizens without subsidy from the City. It is a symbol for advancing Kawasaki City's introduction of renewable energy and at the same time, is also a powerful message to the Center's many international visitors from the Kawasaki citizens working on measures against global warming.







Kurihira station

Use of "Solar thermal energy" in Kawasaki Frontale!

Citizen collaborative project Kawasaki Flontale' s Asao clubhouse is equipped with apparatus that are making use of the solar thermal energy

Kawasaki Frontale is carrying out the energy-saving activities thoroughly. For example, in the game in which Kawasaki Frontale sponsored, they are using reusable dishes with the meal to sell. In 2011, thanks to the collaboration with this team and a civil group named "Kawasaki Citizen collaborative solar project", a solar water heater was installed at their clubhouse.

After training, players usually take a shower and a bath with warm water heated by the solar thermal energy. It is a good opportunity to understand the benefits of solar thermal energy.

Let's cheer Kawasaki Frontale through the ecological activity!







The collection of the most cutting-edge technology

On 31st January 2014 **Toshiba Science Museum Renewal Open**

Toshiba Science Museum located formerly in Komukai area was reopened on the second floor of the Lazona Kawasaki Toshiba Building (Smart Community Center), which is in front of JR Kawasaki Station, and Toshiba's latest products and technology are displayed in it.

You can learn while having fun, not only the technology of power generation, but also the various techniques and methods related to the smart

Using rotational motion and chemical reactions, you can actually experience power generation for yourself.





7-1-2 Masugata, Tama-ku Kawasaki

TEL: 044-922-4731

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