

SAGA Energy Tourism

General Pamphlet (Location Guides)

Saga's Energy Tourism



History of Energy ①

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Japanese History and Energy

Here's a general overview of energy and Japanese history.

- Japan used natural forms of energy like solar power in its natural form in the Paleolithic and Jomon Periods. When rice cultivation developed in the Yayoi Period, people began harnessing natural energy for efficiency.
- Civil engineering was done with mainly manpower in the Heian Period, while techniques for producing energy using horses and cows were used in agriculture.
- In the Sengoku Period, more people began participating in a market economy. Renewable forms of energy like lumber burning, hydropower, and windpower (sailboat propulsion) were used.
- Energy consumption increased during the Edo Period, and forests and rice fields were unable to keep up with regeneration. Energy resources were at their brink. Forestry was banned and large-scale tree planting was enacted, introducing forest management to Japan.
- From the end of the Edo period, new energy technologies such as steam power and electricity began to spread, and factories were built all over the country. Energy here was initially provided by hydraulic power, but gradually shifted to steam, which in turn led to the use of coal as a fossil fuel.

This is when the use of electricity and oil we know well today as energy sources began.

Energy History to Present Day

Here's a general overview of energy in modern-day Japan.

- Around 1868-1900, after the Meiji Restoration, the use of coal began in earnest, replacing the previous use of wood coal, and domestic oil development began.
- Japan became involved in two World Wars between 1900 and 1950, during which large-scale power plants and factories relying on electricity expanded the electricity market.
- From around 1960, postwar reconstruction led to the growth of the electricity market to support rapid economic growth and increased demand for oil.
- After experiencing two oil crises in the 1970s and 1980s, which triggered the establishment of the Agency for Natural Resources and Energy, the government encouraged ① the promotion of energy conservation, ② expansion of oil reserves, and ③ the introduction of natural gas and nuclear power in order to break away from sole dependence on oil.
- In the 1990s, the liberalization of electricity and gas began gradually. Around the same time, there was growing attention to environmental values like low carbon emissions and the introduction of renewable energy due to the Kyoto Protocol. Efforts toward liberalizing electricity and addressing global warming started in response to these two challenges.
- Then came the Great East Japan Earthquake and the TEPCO's Fukushima Daiichi Nuclear Power Plant accident in 2011, when we faced the biggest supply crisis and reaffirmed the importance of safety in addition to the 3Es (stable energy supply, improved economic efficiency, and environmental compatibility).

Energy forms changed throughout history, adapting to each period's demands.

Saga Energy Tourism offers education about energy use through a wide range of places where you can learn about energy in facilities that use energy that you are familiar with and understand, such as electricity and oil, to places where you can learn about energy use in the Jomon period, such as the Yoshinogari Ruins, to facilities that study cutting-edge marine energy.

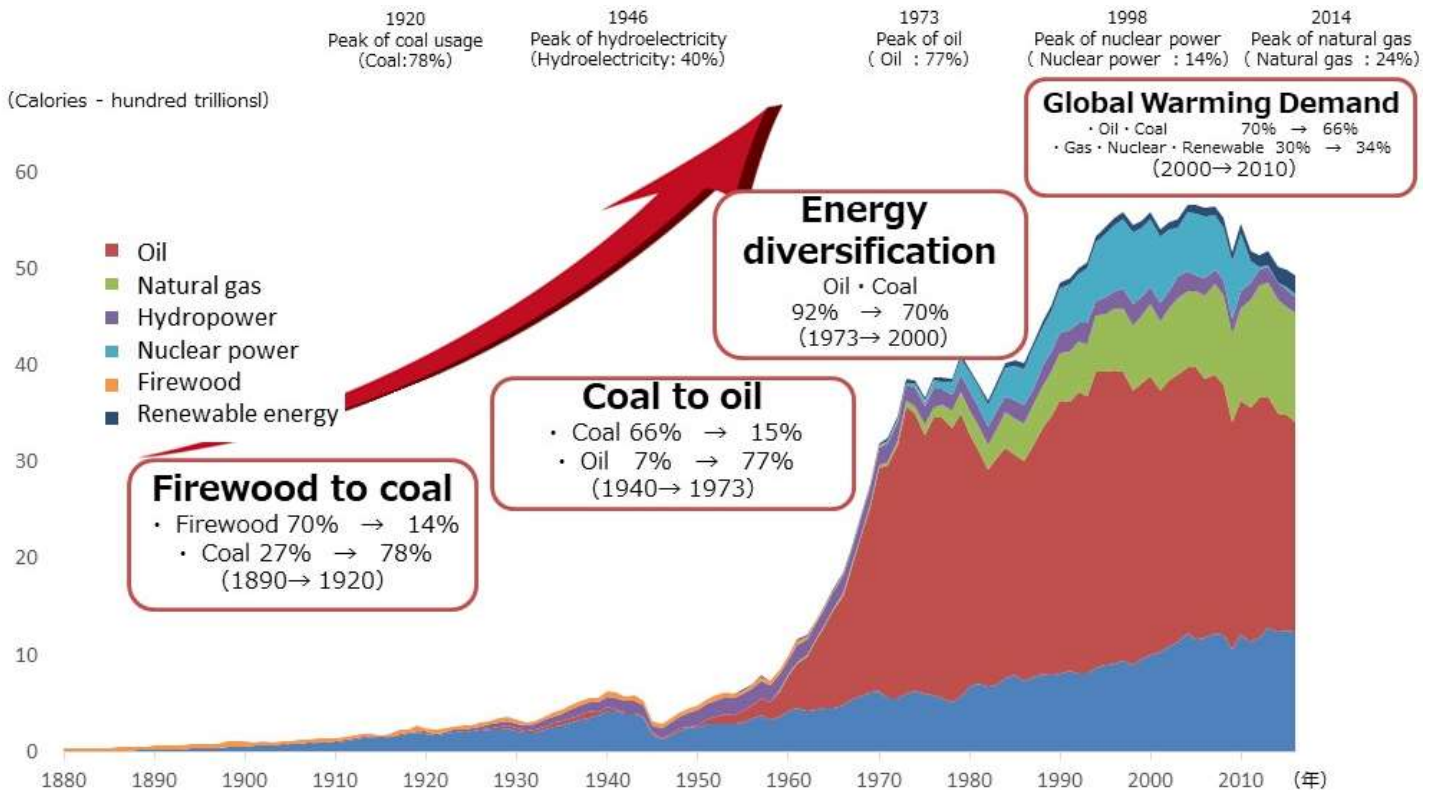
Reference: Official website of the Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry



History of Energy ②

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Learn about the history and changing demands of energy.



Source: Agency for Natural Resources and Energy from materials provided by the Institute of Energy Economics, Japan

Spot List



Yoshinogari
Historical Park
(Kanzaki City/
Yoshinogari Town)



Niji no Matsubara Pine
Grove
(Karatsu City)



Former Nakao Residence
(Whaling Museum)
(Karatsu City)



Former Takatori
Residence
(Karatsu City)



Coal Mine Ruins
(Karatsu City, etc.)



Saga University Institute
of Ocean Energy
Imari Satellite
(Imari City)



Greenhouses using
geothermal heating
(Karatsu City)



Yoshinogari Mega Solar
Power Plant
Teru Teru no Mori
(Kanzaki City)



Matsuguma
Micro-Hydroelectric
Power Plant
(Yoshinogari Town)



Minato
Wind Power Plant
(Karatsu City)



Genkaicho
Next Generation
Energy Park: Asupia
(Genkai Town)



Saga University Institute
of Ocean Energy
Ureshino Satellite
(Ureshino City)

SAGA Energy Tourism

Related Facilities & Stops



Karatsu / Genkai Area

- 01 Coal Mine Ruins
(Former Kishima Coal Mines Otsuru Mining Station 2nd Entrance)
- 02 Hamanoura Rice Terrance
- 03 Genkaicho Next Generation Energy Park Asupia
- 04 Genkai Energy Park
- 05 Nagoya Castle Ruins
- 06 Former Nakao Residence
(Whaling Museum)
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Saga Area

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Yoshinogari Area

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Fukuoka
Prefecture

Fukuoka Airport

Fukuoka urban
Expressway

Kyushu
Expressway

Nagasaki
Expressway

Saga Airport

01

Coal Mine Ruins

(Former Kishima Coal Mines Otsuru Mining Station 2nd Entrance)



The Karatsu coal fields thrived from the late Edo period through the Meiji, Taisho, and Showa eras. Located in the rural area of Karatsu-shi, Hizzen-machi, the remnants of the coal mine, known as the former Kishima Coal Mines Otsuru Mining Station 2nd Entrance, consist of concrete-made pithead and tunnels constructed for coal transportation. Closed in 1957, with most related facilities now gone, it stands today as a structure preserving a part of the former coal mining facilities, reminding us of its past glory.

Learning Points



Saga Prefecture was Japan's leading coal producer from the end of the Tokugawa shogunate to the early Meiji Period.



At the beginning of the Taisho Period, the Kishima Mine of Takatori Mining Co. (Kishima Coal Mine Company) was the largest coal mine in the prefecture.



This former Kishima Coal Mines Otsuru Mining Station 2nd Entrance became a Nationally Registered Tangible Cultural Property in 2004.

Energy Tourism Perks

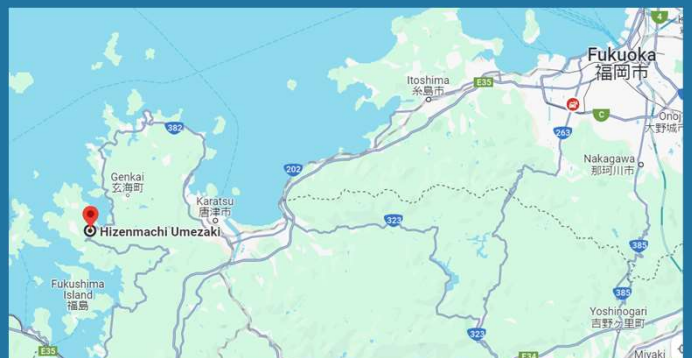
Perk

Just imagine the heyday of coal... ①

This is a coal mine site located in the middle of rice paddies in Karatsu-shi, Hizzen-machi. This is not a typical sightseeing spot, but standing in front of the mine site and listening to the stories of that time, one can glimpse the weight of history, the environment of the workers in those days, the changes in industry and energy, and the development and decline of the region.

► Coal Mine Ruins DATA

| | |
|------------|---|
| Address | Saga-ken, Karatsu-shi, Hizzen-machi Umezaki 263 |
| Hours | Weekdays 10:00-17:00 |
| Closed | Sat., Sun., public holidays • New Year's Holidays |
| Price | No charge |
| Capacity | ~30 people/session *please inquire about groups over 20 people |
| Parking | None *please do not block the road if you park on the roadside |
| Directions | 30 min. drive from JR Karatsu Station |
| Duration | 30 min. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



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Genkaicho Next-Generation Energy Park: Asupia



The name "Asupia" is a combination of the words "Earth" and "Utopia," aiming to create a facility where people can experience and learn about Earth's energy, leading to the ideals and dreams of the next generation. Here, visitors can think about energy for the next generation through a variety of play and activities. Nearby is the Genkai Energy Park, a theme park with energy-themed attractions from Kyushu.

Learning Points



Learn while having fun!

Experience energy through exhibitions and programs that will enhance your understanding of the environment. The photo depicts an original water gun that allows you to experience hydropower in a fun way.



Experience future transportation!

Visitors can familiarize themselves with next-generation energy by riding in a fuel-cell-powered car and touring a hydrogen generation system. The road train that runs through the park is equipped with solar panels on its roof to charge its battery while it runs.

Energy Tourism Perks

Perk

Experience-based learning available!

We recommend visiting Asupia after learning about the history of energy in the Karatsu and Genkai areas.

Through experiences at Asupia, you can learn about the potential and importance of future energy by exploring past energy sources, allowing you to immerse yourself in the narrative of Saga Energy Tourism.

➤ Genkaicho Next-Generation Energy Park: Asupia DATA

| | |
|------------|---|
| Address | Saga-ken Higashi-matsuura-gun, Genkai-cho, Oaza Imamura 4560-1 |
| Hours | 9:00-17:00 |
| Closed | 3rd Mon. (Tue. if Mon. is public holiday) • New Year's Holidays (12/29-1/2) |
| Price | No charge (some paid programs) |
| Capacity | ~50 people |
| Parking | Yes |
| Directions | 30 min. drive from JR Nishi-Karatsu Station 40 min. by bus via Showa Bus "Karatsu Oteguchi Station" on the Yobuko/Kogakura Line, disembark at "Genkai Energy Park Station" |
| Duration | 1 hrs. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



04 Genkai Energy Park



The Genkai Nuclear Power Plant is surrounded by the beautiful sea and rich natural environment. Adjacent to the power plant is the Genkai Energy Park, a theme park where visitors can play and learn.

The impressive exterior of the Genkai PR Center houses the Science Pavilion where visitors can learn about energy, and the Kyushu Furusato Pavilion where visitors can learn about traditional crafts and festivals in Kyushu. There is also a Sun Plaza and an Ornamental Greenhouse on the grounds, where visitors can play while experiencing nature in each of the four seasons.

Learning Points



How Nuclear Power Works and its Safety Systems

Visitors can learn about the mechanism of nuclear power generation and the systems that ensure its safety through theater-style movies and quizzes embedded in a full-scale model of a nuclear reactor. There is also an area where visitors can experience how nuclear power plants are designed to be strong and resistant to earthquakes.



Radiation and its Management

You can learn about radiation in our daily lives, the types and functions of radiation, and radiation management at power plants through panels. You can also view real-time data on radiation around the power plant.

※Guide staff are also always available for facility tours (around 30 min.). Please contact us in advance for group tour guides.

Energy Tourism Perks



Perk

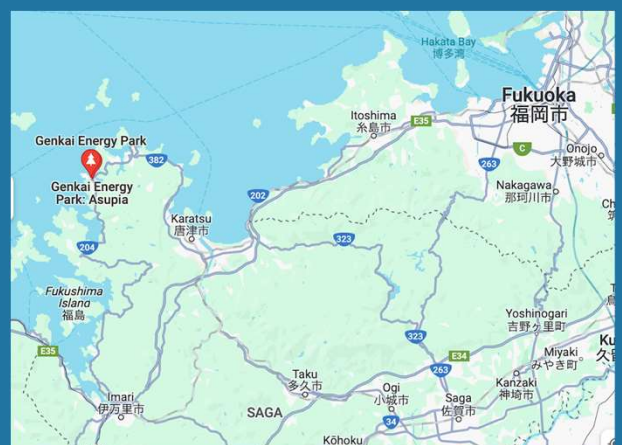
Virtual Power Plant Tour

Using 360° virtual reality images, visitors can tour the inside of the reactor and turbine buildings, which are not normally viewable. (approx. 20 minutes).

※Please inquire at the reception desk if you wish to take a tour.

► Genkai Energy Park DATA

| | |
|------------|---|
| Address | Saga-ken, Higashi-matsuura-gun, Genkai-cho, Imamura-aza Asako 4112-1 |
| Hours | 9:00-17:00 |
| Closed | 3rd Mon. (Tue. If Mon. is a public holiday) New Year's Holidays (Dec. 29-Jan. 2) |
| Price | No charge; 50 spaces, 12 for large vehicles |
| Capacity | Any |
| Parking | Yes |
| Directions | 1 hr. 10 min. drive from Maebaru-Higashi IC of Fukuoka Maebaru Road 40 min. by bus on Karatsu's Showa Bus at Oteguchi Bus Center toward Genkai-cho Nuclear Power Plant, disembark at Genkai Energy Park bus stop |
| Duration | 1-2 hr. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



Former Nakao Residence (Whaling Museum)



Energy

History

Culture

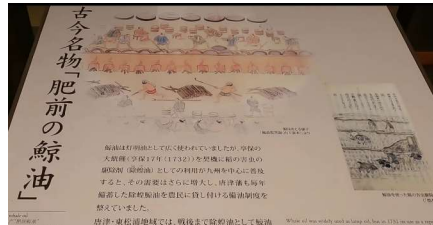


During the mid-Edo period, spanning eight generations over 170 years, the Nakao family built immense wealth through whaling based in Yobuko, leaving a significant impact on the town's development. Their mansion, standing for 250 to 270 years, featured in the "Battling Whales in Ogawa Island," portrays whaling activities off the coast of Yobuko during the Edo period, preserving the townhouse architecture of that era. Inside the building, visitors can also learn about the history of whaling.

Learning Points



① Yobuko: The Flourishing Whaling Port
Whaling in Yobuko is said to have come from Wakayama Prefecture, and the Nakao family operated a whaling business from the 18th century to the early Meiji period.



② Whales: Valuable Energy Sources
Around 1910 to 1950, the primary and largest purpose of whaling was the extraction of whale oil from whale meat, which was used as fuel for lighting, raw material for candles, and lubricant for machinery. Whale oil was highly valued as a versatile energy source that could be utilized for various purposes.

Energy Tourism Perks

Perk

Whale Oil as Energy?

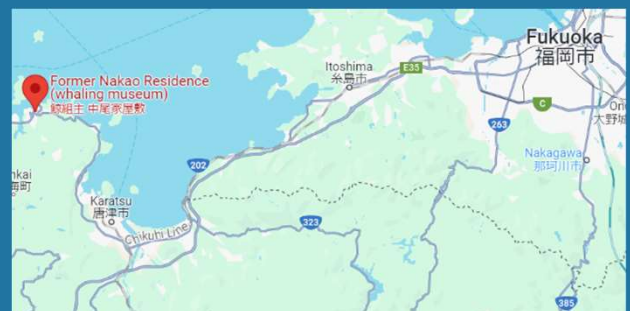
Experience the history of energy!

The fact that oil from whales was used for energy is something you would never know about unless you join Saga Energy Tourism.

Reflecting on the era when nature and animals contributed to energy, it sparks curiosity about what will power the future.

▶ Former Nakao Residence (Whaling Museum) DATA

| | |
|------------|---|
| Address | Saga-ken, Karatsu-shi, Yobuko-cho Yobuko 3750-3 |
| Hours | 8:45-17:00 (last entry 16:30) |
| Closed | Wed. (Thur. if Wed. is a public holiday) New Year's Holidays (12/29-1/3) |
| Price | General: 210 yen; Elem./Jr. high students: 100 yen *20% discount for groups of 20+ people |
| Capacity | ~45 people/session (please inquire) |
| Parking | Paid parking lot nearby |
| Directions | 30 min. drive from JR Karatsu Station 5 min. walk from Yobuko Bus Stop on Showa Bus Line |
| Duration | 30-45 min. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



Wind Energy

08

Minato Wind Power Plant



Next-Gen Energy



Karatsu is blessed with strong winds. Minato Wind Power Plant was established on former farmland in Karatsu. The company contributes to the local community by giving a portion of the proceeds from the sale of electricity from these wind turbines back to support local agricultural preservation and other activities.

Learning Points



The Minato Wind Power Plant consists of one wind turbine with a capacity of approximately 2 megawatts, and is installed on a farmland in Karatsu City, Saga Prefecture. It operates in accordance with the Basic Plan under the Act on Renewable Energy in Agriculture, Forestry, and Fisheries.



Annual power generation is predicted to be approximately 3.5 million kWh, which is equivalent to the annual power consumption of around 1,100 households.



1% of the power plant's electricity sales revenue is allocated to support the preservation of local agriculture and future-oriented community activities in the region.

Energy Tourism Perks

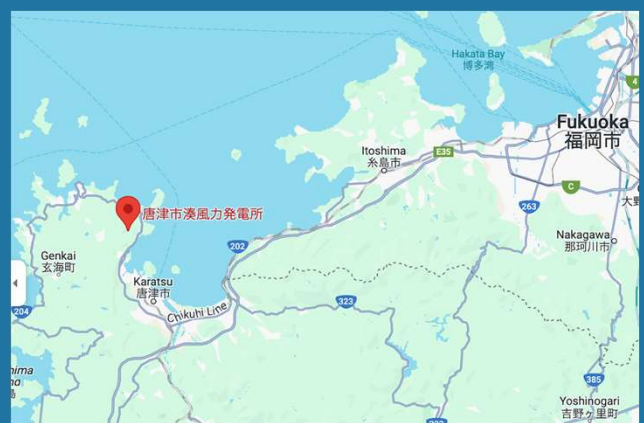
Perk

You can feel how wind creates electricity.

At the Minato Wind Power Plant, visitors can approach the wind turbines up close. Witnessing the turbines in action provides a unique experience, allowing visitors to feel the power of the wind firsthand and understand how electricity is generated. In the area, including the Minato Wind Power Plant, there are approximately 10 wind turbines installed.

Minato Wind Power Plant DATA

| | |
|------------|---|
| Address | Saga-ken, Karatsu-shi, Minato-cho |
| Hours | Weekdays 10:00-17:00 |
| Closed | Sat., Sun., public holidays • New Year's Holidays |
| Price | No charge |
| Capacity | ~20 people/session *please inquire about groups over 20 people |
| Parking | None *please do not block the road if you park on the roadside |
| Directions | 30 min. drive from JR Karatsu Station |
| Duration | around 45 min. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



09 Former Takatori Residence



The former Takatori Residence is the residence of Takatori Iko, a businessman who ran a number of coal mines including the Kijima Coal Mine. The building is characterized by modern Japanese-style architecture, with a Noh stage in the main hall and a Western-style building attached to the main building. It is designated as a National Important Cultural Property for its outstanding design, including the transom beams with reliefs of plants and molded animals, and the cedar door paintings.

Learning Points



It is a mansion that shows how coal was the center of energy from the Meiji period to the early Showa period.



It is an extremely rare example of a still-existing Noh stage that has been set up in a tatami room. It is designed so that when the tatami mats are laid out, together with the hall on the north side, it can be used as a large hall of 30 tatami mats.



This is the view through the old lattice window on the north side of the two 15-mat rooms on the second floor of the hall building. The beautiful Karatsu Bay can be seen from here.

Energy Tourism Perks

Perk

Just imagine the heyday of coal... ②

The former Takatori Residence, with its magnificent opulence and splendor, showcases the finest architectural designs and materials of its time. This shows the significant role that the coal industry played in Japan's energy and the economy of Karatsu City during that era.

▶ Former Takatori Residence DATA

| | |
|------------|---|
| Address | Saga-ken, Karatsu-shi, Kitajonai 5-40 |
| Hours | 9:30-17:00 (last entry 16:30) |
| Closed | Mon. (Tue. if Mon. is a public holiday) • New Year's Holidays (12/29-1/3) |
| Price | General: 520 yen; Jr. high/elem.: 260 yen; Under elem.: no charge *20% discount for groups larger than 20 people |
| Capacity | 200+ people OK |
| Parking | Yes |
| Directions | 6 min. drive from JR Karatsu Station |
| Duration | 30 min. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



10

Niji no Matsubara Pine Grove (Pine Needle Collecting)

History

Activity



In the early 17th century, Terazawa Hirotaka, the first lord of Karatsu Domain, initiated afforestation efforts in the Karatsu area for windbreaks, sand dune stabilization, and coastal protection, marking the beginning of Niji no Matsubara. Over 400 years, it has become one of Japan's three major pine groves, designated as a "Special Place of Scenic Beauty" for safeguarding the livelihoods of the local community. Its picturesque landscape of white sand and lush green pine trees has been preserved through community efforts. Let's learn more about these activities by experiencing this scenic beauty firsthand.

Learning Points



Pine needles and branches were used as cooking fire fuel until around 1960. In modern times, what happened is: the pine needles are no longer collected → they provide the soil with nutrition → grasses, plants, and other trees began to grow.



Without regular pine needle collecting, harmful insects called pine nematodes can cause pine wilt disease, which is deadly to pine trees. If Niji no Matsubara Pine Grove dies out, strong winds from the ocean will hit surrounding farmland directly, making it difficult to harvest. Houses nearby could also be buried in sand or rust, rendering them unlivable. You'll learn more about this in the first half of the experience, then you'll collect fallen pine needles yourself. (Perhaps you might even find the elusive mushroom known as Shoro)



Energy Tourism-Exclusive Perks

Perk ①

Easy-to understand explanations with illustrations!

KANNE, the host of the pine needle collecting program, teach you about the importance of pine needle collection using a "kamishibai" illustrated story, making it easy to understand.

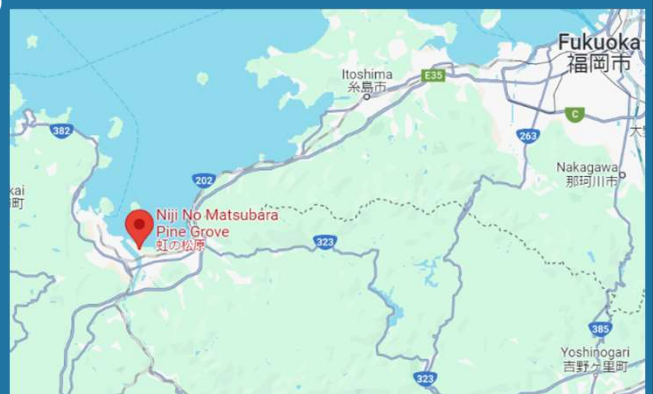
Perk ②

Luxury Saga wagyu BBQ after collecting pine needles!

After collecting pine needles, you'll use them as fuel to make a BBQ fire. This Saga wagyu beef lunch will taste twice as good due to the pine needles you worked hard to collect.

➤ Niji no Matsubara Pine Grove (Pine Needle Collecting) DATA

| | |
|------------|---|
| Address | Saga-ken, Karatsu-shi, Higashi-karatsu ~ Hamatama-cho (Niji no Matsubara Pine Grove) |
| Hours | 9:00 ~ 18:00 |
| Closed | Sat., public holidays |
| Price | 1,500 yen/person (tax incl.) |
| Capacity | 2-45 people/session *please inquire for groups over 45 people |
| Parking | Yes; ONIX-mae Parking Lot |
| Directions | 15 min. drive from JR Karatsu Station Meet at (bodymaxONIX Niji no Matsubara-mae Parking Lot) |
| Duration | 45 min. lecture, 45 min. pine needle collecting *During poor weather conditions, the lecture will be held indoors. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |

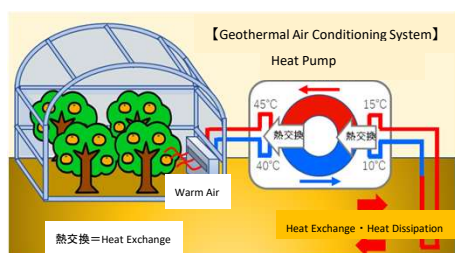


Greenhouses using geothermal heating



Saga Prefecture produces the most greenhouse-grown mikan (tangerines) in Japan. One of the most popular varieties, Miyagawa Sansho, is grown in Greenhouse 1-16a greenhouse, which has a geothermal heating system. Research is underway to achieve zero emissions in the future.

Learning Points



Geothermal Heating Introduction

In general, mikan (tangerines) greenhouse cultivation uses fossil fuels such as heavy oil for heating, but a portion of it is heated using geothermal energy. The temperature underground remains constant throughout the year, allowing for energy-efficient air conditioning.



Let's step inside the greenhouse!

Once inside, please take the opportunity to hear directly from the producers about their thoughts and experiences. Farmers who have implemented geothermal heating don't just stop at installation—they constantly think about how to utilize it more effectively.

Energy Tourism Perks

Perk

Facilities that can be observed in the cultivation environment.

Saga Prefecture is the top producer of greenhouse-grown mikan in Japan! To maintain a constant temperature within the cultivation facilities, a significant amount of energy is utilized. During your visit, we'll showcase ongoing experiments, including the use of geothermal energy—a renewable energy source—allowing you to witness and experience the actual cultivation environment.

➤ Greenhouses using geothermal heating DATA

| | |
|------------|---|
| Address | Karatsu-shi, Hamatama-cho |
| Hours | 9:00-17:00 |
| Closed | Sat., Sun., public holidays • New Year's Holidays • Golden Week |
| Price | No charge |
| Capacity | ~10 people |
| Parking | None *please do not block the road if you park on the roadside |
| Directions | 20 min. drive from JR Karatsu Station |
| Duration | 1 hr. |
| Contact | Ariake Unutilized Thermal Energy Promotion Research Group Office |
| Phone | 0952-68-3852 (run by Ariake Unutilized Thermal Energy Promotion Research Group Office) |



Saga University Institute of Ocean Energy Imari Satellite

Energy

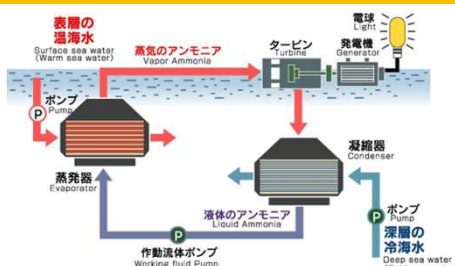
OTEC



The Ocean Thermal Energy Research Institute conducts research and development on various ocean energy technologies every day, including Ocean Thermal Energy Conversion (OTEC) utilizing temperature differences in the ocean, as well as wave and tidal power generation harnessing the power of waves and tidal currents.

Research on ocean energy is exceptionally crucial in Japan, given its status as a maritime nation. The institute is equipped with a range of experimental apparatuses, and in addition to Saga University, the institute also collaborates with external institutions for joint research. Moreover, alongside experimental equipment, there are simple models available to facilitate understanding of energy generation systems.

Learning Points



Ocean Thermal Energy Conversion (OTEC) is a form of renewable energy power generation that uses the temperature difference between warm seawater in the surface layer (surface seawater) and cold seawater in the deep layer (deep seawater), which is heated by the heat energy from the sun. Due to the low temperature of the available ocean, a medium with a low boiling point (ammonia or CFC substitutes) is used as the working fluid to drive the turbine generator.



Various Facilities for Simulating Ocean Conditions

The marine environment plays a significant role in researching ocean energy. The institute is equipped with devices that simulate various environments such as ocean temperature differences, waves, and currents. Using these diverse experimental setups, research is being conducted to generate energy that will play a role in the future.

Energy Tourism Perks

Perk ①

Learn OTEC Features

- ◎ Uses stable seawater temperature
- ◎ Low boiling point medium for turbine rotation
- ◎ Expected to become a large-scale power generation device

Perk ②

View OTEC In Person

- ◎ Planned as a base power source for Japan
- ◎ 1,000 kW model project in Kumejima Island
- ◎ Joint research with Malaysia (SATREPS Project)

► Saga University Institute of Ocean Energy Imari Satellite DATA

| | |
|------------|---|
| Address | Saga-ken, Imari-shi, Yamashiro-cho Kubara-aza Hirao 1-48 Saga University Institute of Ocean Energy Imari Satellite |
| Hours | 9:00-17:00 (except Sat., Sun, public holidays) |
| Closed | Sat., Sun., public holidays (can adjust schedule) |
| Price | No charge |
| Capacity | ~50 people |
| Parking | Yes (bus parking available) |
| Directions | 1 hr. 20 min. drive from Fukuoka Airport 15 min. drive from Imari Station |
| Duration | 1.5-2 hr. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



Chugoku Mokuzai Co. Imari Office



This company manufactures and sells structural timbers (posts, beams, girders, etc.) for wooden houses in solid, dried, and laminated forms, and has gained the support of customers to the extent that one out of every three wooden houses under construction in Japan is built with these materials. The company also engages in pre-cut processing, forest management, and export of timber products. In recent years, it has started wood biomass power generation using waste wood from its mills, and is conducting environmentally friendly management.

Learning Points



What is Biomass Power?

Biomass power generation refers to the processing of thinned forests, wood chips, waste wood, food scraps, livestock manure, human waste, and more into effective fuels and using them as an energy source for power generation.



Using Lumber Effectively

Wood chips generated as a byproduct in the process of sawing logs are used as raw material for papermaking, and sawdust is used as raw material for activated carbon. Bark and other byproducts are converted into electric energy as biomass fuel and utilized without surplus.

Energy Tourism Perks

Perk

Chugoku Lumber owns power plants reusing waste wood at five locations across Japan!

Chugoku Lumber boasts the largest market share in Japan as a manufacturer of structural timbers for wooden houses. Taking advantage of its scale, Chugoku Lumber utilizes by-products generated in the lumbering and drying process as fuel. The plant also makes effective use of unused lumber left in the mountains and forests, and provides all of the power needed in the plant, which is also sold to the grid.

Chugoku Mokuzai Co. Imari Office DATA

| | |
|------------|--|
| Address | Saga-ken, Imari-shi, Yamashiro-cho Kusuku 929-93 |
| Hours | Weekdays 8:00-17:00 |
| Closed | Sat., Sun. |
| Price | No charge |
| Capacity | ~15 people |
| Parking | Yes (Buses also welcome) |
| Directions | 1 hr. 15 min. drive from JR Saga Station 1 hr. 20 min. drive from Fukuoka Airport |
| Duration | 1 hr. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



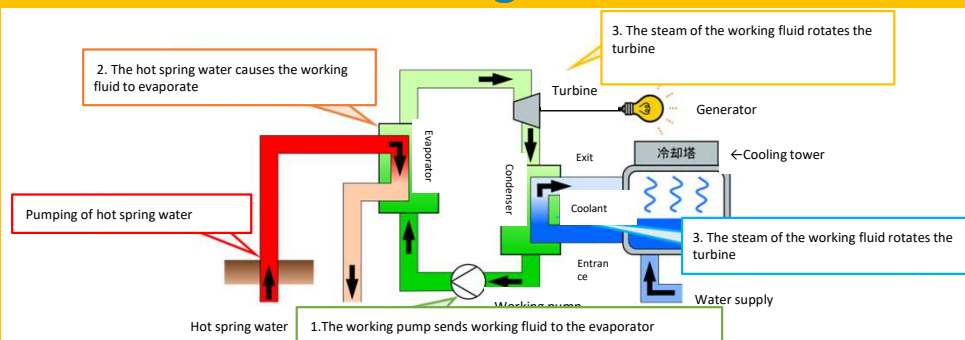
Saga University Institute of Ocean Energy Ureshino Satellite



Ureshino City, one of the leading hot spring resorts in Saga Prefecture. In Ureshino City, abundant hot springs providing healing for people's minds and bodies every day. Saga University is developing technology to convert these hot springs into environmentally friendly energy. This technology involves a system called "Geothermal Binary Power Generation," which utilizes the heat source of hot springs and a working fluid with a low boiling point to generate electricity. This facility represents a new form of power generation system packed with various technologies from Saga University.



Learning Points



What is Hot Spring Temperature Difference Power?

Hot spring temperature difference power is electricity generated stably by rotating a turbine generator with a working fluid gas heated by hot spring water. In order to utilize the temperature of the hot spring water and to apply it to small power generation equipment, inert gases such as chlorofluorocarbons are used as the working fluid.

Research Content

Yunohana, one of the components of hot springs, often has beneficial effects such as enhancing the bathing experience for the body. However, for power generation systems, it can be a factor leading to malfunctions. Therefore, various technological developments are being pursued to address this issue.

Energy Tourism Perks

Perk ①

Learn about the features of OTEC

- ◎ Utilizes unused heat from hot spring water (After the heat is utilized, the water is used for bathing and other purposes)
- ◎ Low boiling point media used to rotate turbine
- ◎ Compact power generation unit

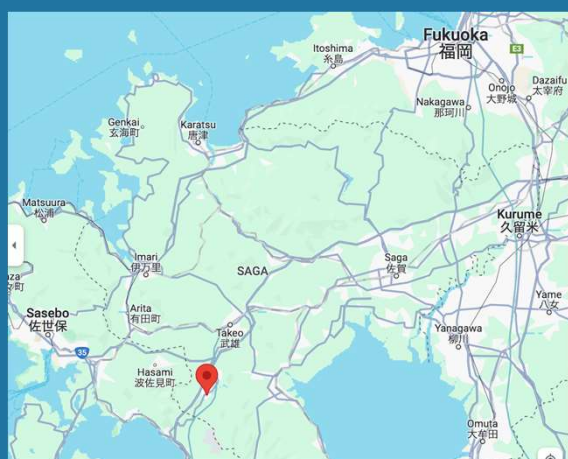
Perk ②

Distributed power source

- ◎ Effective use of unused heat
- ◎ Located adjacent to areas of power demand
- ◎ Smaller size allows market entry

▶ Saga University Institute of Ocean Energy Ureshino Satellite DATA

| | |
|------------|--|
| Address | Saga-ken, Ureshino-shi, Ureshino-cho Oaza Shimojuku 2172 Saga University Institute of Ocean Energy Ureshino Satellite |
| Hours | 9:00-17:00 (except Sat., Sun, public holidays) |
| Closed | Sat., Sun., public holidays (can adjust schedule) |
| Price | No charge |
| Capacity | ~15 people |
| Parking | Yes (bus parking available) |
| Directions | 1 hr. 10 min. drive from Fukuoka Airport 5 min. drive from Ureshino Onsen Station |
| Duration | 1 hr. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



Ariake Unutilized Thermal Energy Promotion Research Group



The Unutilized Thermal Energy Promotion Research Group consists of Saga University, construction companies, manufacturers, universities, banks, NPOs, and more, mainly in Saga Prefecture and other parts of Kyushu. It is engaged in activities such as promotion of unutilized heat, research and development, and installation. The association can handle everything from planning to installation of unutilized heat not only in Saga Prefecture but also in other regions.

Learning Points



What is Unutilized Thermal Energy?

Unutilized thermal energy refers to various sources of energy such as waste heat from factories, geothermal energy, river and sewage heat, and snow and ice heat, which are readily available but have not been effectively utilized. The Ariake Unutilized Thermal Energy Promotion Research Group consists of various participants who work together to explore, research, and develop ways to utilize unutilized thermal energy in daily life.



In fact, Unutilized Thermal Energy is a familiar form of energy.

When we think of environmentally friendly energy, we tend to focus on renewable energy sources and energy-saving technologies such as LED lights. However, unutilized thermal energy is also a form of environmentally friendly energy. Sources like geothermal energy and sewage heat are actually quite common, so please take the time to learn more about them.

Energy Tourism Perks

Perk ①

What is Unutilized Thermal Energy?

Let's learn about the principles and concepts behind geothermal and sewage heat!

Perk ②

It's being implemented in various places!

Unutilized thermal energy has been installed in many buildings and locations that you might be familiar with.

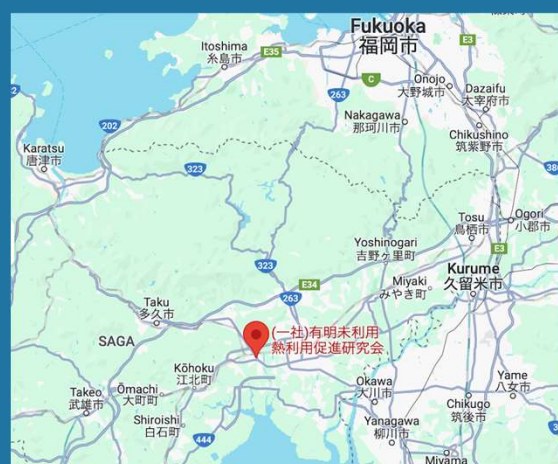
Perk ③

The Future of Unutilized Thermal Energy

Let's talk about the future development of unutilized thermal energy.

➤ Ariake Unutilized Thermal Energy Promotion Research Group DATA

| | |
|------------|--|
| Address | Saga-ken, Saga-shi, Kubota-cho, Oaza Tokuman 1856-1 |
| Hours | 9 : 00 ~ 17 : 00 |
| Closed | Sat., Sun., public holidays • New Year's Holidays • Golden Week |
| Price | No charge |
| Capacity | ~10 people |
| Parking | Yes |
| Directions | 15 min. drive from Saga Station, 25 min. drive from Kyushu Saga International Airport |
| Duration | 1 hr. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |

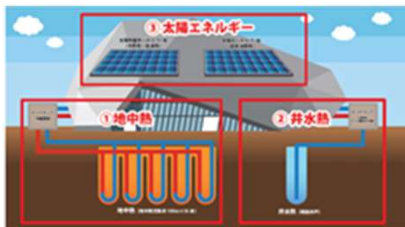




↑ Monitors with visualization of power generation, etc.

"SAGA Sunrise Park" features modern facilities such as the "SAGA Arena" and the internationally certified pool "SAGA Aqua" capable of hosting top-tier events. Additionally, there's a relaxed space called the "Park Terrace," featuring a wooden deck open terrace, cafes, and shops, catering to various lifestyles. Moreover, this park incorporates renewable energy technologies like geothermal, well water heat, and solar energy systems, ensuring environmental sustainability. Visitors can learn about these energy sources through models, videos, and onsite machinery demonstrations.

Learning Points (3 Renewable Energy Facilities)



Utilization of Renewable Energy

At Sunrise Park, renewable energy facilities include geothermal and well water heat, as well as solar energy systems (solar panels and solar thermal). While solar power may be familiar to many, well water heat and geothermal energy might be less known, so we explain these systems in an easy-to-understand manner.



Explanation using models and videos

Geothermal and well water heat are underground energy sources, so unlike facilities like solar panels or wind turbines, they can't be seen easily. Therefore, we use models, videos, and explanatory panels to explain them in a clear and understandable way. Videos are also available for children, so that even elementary school students can easily understand.

Energy Tourism Perks



Perk Visit the Energy Building Up Close

At SAGA Sunrise Park, visitors can learn about the three renewable energy facilities mentioned in the learning points on the left by observing and explaining how the equipment and mechanisms are actually used in the facilities at the energy building.

▶ SAGA Sunrise Park DATA

| | |
|------------|---|
| Address | Saga-ken, Saga-shi, Hinode 2-1-10 |
| Hours | Weekdays: 9:00-23:00/Sat., Sun., public holidays: 9:00-21:00/Dec. 29, Jan. 2, Jan. 3: 10:00-16:00 |
| Closed | 4th Tue. (Wed. if Tue. is a public holiday), New Year's Holidays (Dec. 30-Jan. 1) |
| Price | Contact |
| Capacity | ~30people |
| Parking | Contact |
| Directions | 10 min. drive from Saga-Yamato IC of Nagasaki Expressway 5 min. drive from JR Saga Station |
| Duration | 60-90min. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



We will accept applications for SAGA Sunrise Park Tours starting November 2024.

Higatayoka Tidal Flat Visitors' Center Higasasu



This facility was established by Saga City as a base for various activities such as sightseeing, learning, and exchange, with the aim of preserving the natural environment and biodiversity of the Higatayoka and promoting its value and attractiveness. Higasasu uses environmentally friendly geothermal energy. This geothermal heat, which maintains a temperature of about 20 degrees Celsius at 100 meters underground, keeps the facility cool in summer and warm in winter, allowing you to spend your time comfortably with a small amount of electricity. It maintains this constant temperature throughout the year regardless of the season or weather, so it is also used for air conditioning throughout the building.

Learning Points



Higata no Theater

Watch thousands of wild birds and other creatures peculiar to mud flats. Please enjoy the four seasons of the Higashi Yoka Tidal Flat with beautiful images.



Tidal Flats, Creatures, and Life

The Ramsar Convention Certificate (the actual certificate) is on display, as well as the wild birds that visit the site and the creatures that live in the tidal flats. It also introduces the relationship between tidal flats and people's daily lives.



Geothermal Heat System Monitor

At Higasasu, geothermal energy is used for air conditioning. The mechanism of geothermal heat utilization and energy saving can be observed on the monitor.

Energy Tourism Perks

Perk

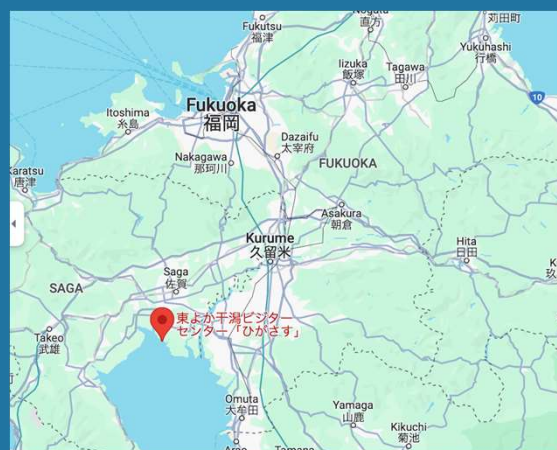
To protect the nature of the Higatayoka Tidal Flat

At Higasasu, geothermal energy is used for the building's air conditioning system. While this is a unique aspect of energy tourism, we also want visitors to experience the splendor of the Higatayoka Tidal Flat and its creatures up close and personal.

We would like visitors to think about what we should do to protect the Higatayoka Tidal Flat in relation to renewable energy.

Higasasu DATA

| | |
|------------|---|
| Address | Saga-ken, Saga-shi, Higatayoka-cho Oaza Tanaka 2757-4 Higatayoka Park-Nishi |
| Hours | 9:00 ~17:00 |
| Closed | Mon. (Tue. If Mon. is a public holiday), New Year's Holidays |
| Price | No charge |
| Capacity | 200~300 people |
| Parking | Yes *Higatayoka Park Parking Lot |
| Directions | 30 min. drive from Saga Station, 10 min. drive from Kyushu Saga International Airport |
| Duration | 30 min.-1 hr. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



Matsuguma Micro-Hydroelectric Power Plant

Micro-hydroelectric
Power

Regional
management



A small hydropower system refers to hydroelectric power generation with an output of less than 1,000 kW. The Matsuguma Small Hydroelectric Power Plant operates with an even smaller 30 kW system. Interestingly, a small hydro was used in the Matsuguma area from 1923 to 1967 but was later taken down. However, in 2019, it was reintroduced as part of community development efforts with the locals. Residents set up their own company to run the power generation business, using profits to benefit the Matsuguma area. It's a great example of how renewable energy can help rural communities tackle Japan's depopulation issues.

Learning Points



Matsuguma Micro-hydroelectric Power Plant's Saga Model

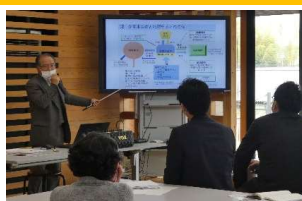
At the Matsuguma Micro-Hydroelectric Power Plant, the Saga Model of micro-hydroelectric power generation is used for experiments.

*Matsuguma Micro-Hydroelectric Power Plant was established by local residents who invested in the establishment of Matsuguma Community Development Co.



The Saga Model Features ①

The Saga Model targets a profitable minimum output (30kW). The initial assessment process to power plant installation is offered in package form, lowering construction periods and manpower to minimize cost.



The Saga Model Features ②

By determining the feasibility of a project at each stage of the initial assessment survey, feasibility survey, and basic design, early decisions can be made when commercialization is difficult, thereby reducing risk. Risks can be further reduced by requesting support for survey costs from the local government.

Energy Tourism Perks

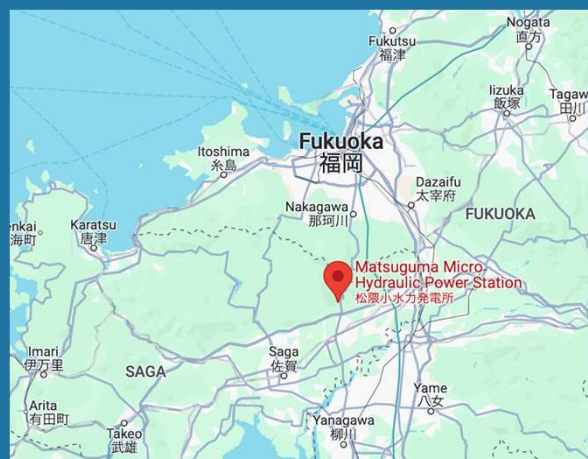
Perk

Hear eye-opening stories!

At the Matsuguma Micro-Hydro Power Plant, Mr. Tara, the representative of the plant, will explain in detail about the learning points listed on the left. In addition, you will hear many stories about how they started up from zero, such as how they obtained the understanding of local residents. The stories are all fascinating.

▶ Matsuguma Micro-hydroelectric Power Plant DATA

| | |
|------------|---|
| Address | Saga-ken, Yoshinogari-cho, Matsuguma-chiku |
| Hours | Weekdays 10:00-17:00 |
| Closed | Sat., Sun., public holidays • New Year's Holidays |
| Price | No charge |
| Capacity | ~20 people/session *please inquire about groups over 20 people |
| Parking | Please contact |
| Directions | 45 min. drive from Fukuoka Airport 30 min. drive from Saga Station |
| Duration | 90 min.+ |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



27

Yoshinogari Mega Solar Power Plant Teru Teru no Mori



This power plant is a symbol of the spread of renewable energy and the development of the region, where visitors can experience and learn about solar power generation in close proximity to the Yoshinogari region.

Approximately 54,000 solar panels are lined up, generating 13,800 MWh of electricity per year (enough to power approximately 3,800 ordinary households). It also serves as a regional energy safety net, supplying power to Lifespot and EV chargers in the event of power outages.

The Yoshinogari Ruins are also nearby, so you can also peruse the scenery and Buried Cultural Properties in the area.

Learning Points

Energy Tourism Perks



Teru Teru no Mori Information Center
Visitors can learn about solar power generation and the Yoshinogari Mega Solar Power Plant through DVDs and other materials. A display at the entrance allows visitors to check the amount of electricity generated in real time.



Teru Teru Mountain
This viewing platform provides a panoramic view of the Yoshinogari Mega Solar Power Plant. Looking around against the display panels, you can see the entire power plant.

Perk

Learn, see, and feel the unique features of the facility that coexists in harmony with the local community...

After learning the basics of solar power generation the features of the Yoshinogari Mega Solar Power Plant through DVDs and quizzes, visitors can actually visit the power plant and experience solar power generation.

Considering the characteristics of the Yoshinogari region and the efforts made to coexist with the local community, visitors can learn about the unique features of the facility. They can explore differences from other solar power plants in other regions and witness the evolution of solar energy utilization in this area during the guided tour.

Yoshinogari Mega Solar Power Plant Teru Teru no Mori DATA

| | |
|------------|--|
| Address | Saga-ken, Kanzaki-shi, Kanzaki-cho Shiwaya |
| Hours | 10:00-17:00 |
| Closed | Sat., public holidays (maintenance days, New Year's Holidays) |
| Price | No charge |
| Capacity | ~40 people (Information Center capacity) |
| Parking | Yes |
| Directions | 10 min. drive from JR Kanzaki & JR Yoshinogari-Koen Station |
| Duration | General (no guide): 15-30 min.; Group (guide, reservation): 30 min. *"Environment & Energy Class (Solar Motor Car Making Class)" for elementary school students is 2 hrs. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |



Yoshinogari Historical Park



© Saga Prefectural Tourism Federation.

With the main theme of "Hear the Voice of the Yayoi People," the park was created to preserve the Yoshinogari Ruins and to create and utilize a place where visitors can experience the Yayoi Period. The park is divided into four zones, and various events are held every month, including a tour of the giant moat encircling settlement and an experience of making magatama, a type of Japanese ceremonial jewel, for multipurpose use.

Learning Points



© Saga Prefectural Tourism Federation.

Life Blessed by the Sun

The Yoshinogari area is blessed with ample sunlight, and it was here that rice cultivation began in the Yayoi period. Today, with the installation of the local Mega Solar Power Plant, you can feel for yourself how solar energy has evolved.



© Saga Prefectural Tourism Federation.

Pit Dwellings Utilizing Geothermal Heat

Pit dwellings were the main type of housing in the Yayoi period. Underground temperatures are not easily affected by outside temperatures and remain almost constant throughout the year. By taking advantage of this geothermal heat, you can experience how people lived comfortably cool in summer and warm in winter, even when there was no electricity.

Energy Tourism Perks

Perk

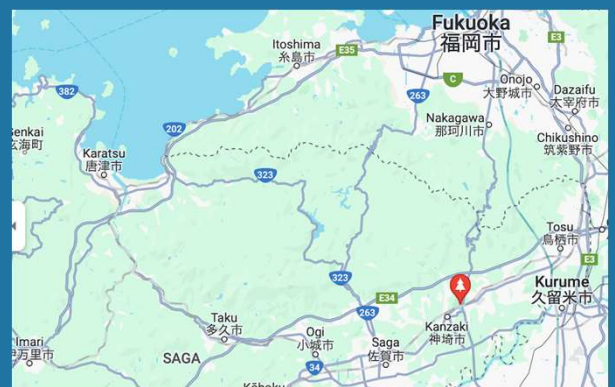
Visit the starting point of the evolution of energy to experience the change in its usage...

Visitors can experience the ancient way of life of the people of Yoshinogari, who were supported by the rich nature and blessings of the sun. You can learn how they kept warm and lit fires in the days when there was no electricity.

By combining this tour with visits to modern solar power and geothermal heat-related facilities, visitors will experience how the use of natural energy has evolved along with changes in lifestyle and the environment as time has changed.

Yoshinogari Historical Park DATA

| | |
|------------|--|
| Address | Saga-ken, Kanzaki-gun, Yoshinogari-cho Tade 1843 |
| Hours | Apr. 1-May 31: 9:00-17:00/Jun. 1-Aug. 31 9:00-18:00/Sep. 1-Mar. 31 9:00-17:00 |
| Closed | Dec. 31, 3rd Mon. & Tue. of Jan. |
| Price | Middle school age and under (general, group): no charge Adults (15+ years) (general): 460 yen (group) 280 yen Senior (65 years old and above) (General/Group): 200 yen |
| Capacity | Any |
| Parking | Yes; large vehicles 1,050 yen/regular cars 310 yen; 2-wheeled vehicles 100 yen; bicycle parking no charge |
| Directions | 40 min. drive from Saga Airport 25 min. drive from Saga Station |
| Duration | 60-120 min. |
| Contact | Institute of SAGA Energy Tourism Promotion Council |
| Phone | 0955-82-2811 (NPO Karatsu & Genkai Tourism Exchange Department) |





The Fascinating SAGA Energy Tourism

Scan here to visit the official website



How to Get to Saga Prefecture

To Saga City

| | | | |
|----------------------|--------------------------------|---------------|-----------------|
| Tokyo Haneda Airport | Airplane | 1 hr. 50 min. | Saga Airport |
| Tokyo Narita Airport | Airplane | 2 hrs. | Saga Airport |
| Fukuoka Airport | Highway Bus | 1 hr. 15 min. | Saga Bus Center |
| Hakata Station | JR (Special Express) | 40 min. | Saga Station |
| Nagasaki Station | JR(Shinkansen/Limited Express) | 1 hr. | Saga Station |

To Saga Prefecture's Karatsu • Genkai Area

| | | | | |
|-----------------|---|---|-------------------------------|-----------------------------|
| Saga Airport | Car (Local Road) | | 1 hr. 30 min. | Karatsu City |
| | Limousine Bus 35 min. | JR Saga Station Bus Center Saga Station | JR Karatsu Line 1 hr. 10 min. | Karatsu Station |
| Hakata Station | Subway • JR Chikuhi Line | | 1 hr. 20 min. | |
| Fukuoka Airport | Subway • JR Chikuhi Line | | 1 hr. 30 min. | |
| | Highway Bus | | 2 hr. | Karatsu Oteguchi Bus Center |
| | Car (Urban Expressway, Nishi-Kyushu Expressway) | | 1 hr. 10 min. | Karatsu IC |

※ Please be advised that the duration provided is just an estimate.

SAGA Energy Tourism

Saga Prefecture is the first prefecture in Japan to launch an "Energy Tourism"!

Energy is essential to our daily lives and has become increasingly important due to global warming and current global social trends. With a long history intertwined with energy since the Edo period (1603-1868), Saga Prefecture boasts numerous energy-related facilities scattered throughout the region, which also serve as tourist attractions. Therefore, Saga Prefecture pioneered "Energy Tourism" in Japan, allowing visitors to learn about energy while enjoying their travels. We aim to inspire you to think about the future of energy while experiencing Saga Prefecture's nature, history, landscapes, experiences, and specialties in a new way!

This publication is based on information available up to February 2024. The information provided is intended for reference purposes only. Please be aware that we cannot accept any responsibility for any losses or damages resulting from the use of this information. Your understanding is appreciated.