

# World-Leading Energy Policy

## Kitakyushu City



### Background

Kitakyushu City has worked to promote energy saving and the creation of new energy sources as part of measures to fight global warming. In response to electricity shortages, soaring power bills and other problems following the Great East Japan Earthquake, the city decided to take on some responsibility for ensuring the stable supply of low-priced energy, in order to support citizens' lives and industrial activities in the local region. Work to ensure the stable supply of low-priced energy has become a key component of the city's growth strategies.

Furthermore, the city hopes to contribute to efforts to promote a shift to a low-carbon society by working to create a community whose main energy source is hydrogen, which is said to be the ultimate clean energy. The introduction of a new energy source will also promote local industry, create new jobs with local companies and attract companies from outside the region. In addition, the city's ability to supply electricity during a disaster will also be enhanced.

### Purpose of Project

1. Pursuit of Goals for Both Environment (Low-Carbon) and Economy
2. Creation of Energy Base That Allows Citizens and Businesses to Engage in Activities with Peace of Mind
3. Promotion of Improvement in Local Companies' Condition by Encouraging Energy-Saving Measures; Enhancement of Competitiveness by Raising Their Productivity through Enhanced Energy Efficiency

4. Conversion of Project Results into Business for Launch Elsewhere in Japan and Overseas.

### Outline of Project

The city carries out feasibility studies, gathers opinions from local electricity users, conducts environmental assessment research and attracts businesses to the area. The individual projects listed below are carried out by business and other participants. The city will extend assistance, such as subsidies to help cover equipment costs, to research and development activities that may spark technological innovation.

#### ◆Kitakyushu City Regional Energy Base

##### Establishment Promotion Project

1. Invites companies engaging in power generation using renewable energy (wind power including offshore facilities, large-scale solar power) and new energy (hydrogen).
2. Concentrates primary energy storage bases (oil storage, coal importation, LNG import stations).
3. Develops highly efficient power generation technologies for coal.
4. Utilises energy in linkups with industry (coke dry quenching (CDQ), sharing and exchanges of thermal power generation energy and resources).

#### ◆Kitakyushu Hydrogen Town

1. Supplies hydrogen to fuel cells installed at collective housing, a museum, etc., using a pipeline crossing the town.
2. Supplies electricity from fuel cell vehicles (FCV) to homes.
3. Effectively utilises hydrogen generated as a

by-product in the steelmaking process, by supplying it to fuel cell vehicles (with potential for 500,000 FCVs).

#### ◆Kitakyushu Smart Community Project

1. Realises a citizen-involving energy management system that has at its core the *Setsuden-sho* Smart Community Centre, which manages the electricity supply-demand balance in the community. Specifically, community residents have taken part in the demonstration of a dynamic pricing system (electricity prices change when short supply is expected), etc., to adjust energy consumption from the user side.



Smart community centre at Kitakyushu smart community



Pipeline laid across Hydrogen Town

### Features and Advanced Aspects

#### ◆Kitakyushu City Regional Energy Base Establishment Promotion Project

1. Realises bases for providing low-carbon, safe and low-priced energy, so that citizens and businesses can engage in activities with peace of mind.

2. Realises the establishment of various types of power plants, such as wind, solar, hydrogen and highly efficient thermal power plants (a comprehensive showroom).
3. Establishes smart energy grids that use community and other energy management systems.

#### ◆Kitakyushu Hydrogen Town

Realises the only project in the world to achieve a hydrogen energy-based society in a town setting.

#### ◆Kitakyushu Smart Community Project

1. A dynamic pricing system that changes electricity rates in accordance with fluctuations in supply-demand conditions has led to a cut in peak-time demand of more than 20%.
2. A carbon dioxide emissions cut of more than 50% has been realised compared with emission levels at Kitakyushu City districts outside the project zone.
3. The project was the only Asian finalist in a competition for the International Smart Grid Action Network (ISGAN) Award of Excellence. ISGAN is under the wing of the International Energy Agency.

### Effects of Project

- ◆The five projects below were undergoing environmental assessment procedures as of December 2015 (including assessments based on city ordinances).

#### Wind Power:

- A New Energy and Industrial Technology Development Organization (NEDO) Project to Demonstrate Offshore Floating Wind Power Equipment
- A Ground-Based Wind Power Project

#### Highly Efficient Thermal Power:

- A High-Performance LNG-Fired Power Project
- Two Highly Efficient Biomass Mixed Combustion Projects.

- ◆In the district where the Kitakyushu Smart Community Project is implemented (the Higashida area in Yahata-Higashi Ward), a CO2 emissions cut of more than 50% compared with other areas in the city has been achieved.
- ◆Regional energy company Kitakyushu Power Co. was set up (Dec. 1, 2015). It uses energy management know-how from the Kitakyushu Smart Community Project and supplies to Kitakyushu users electricity procured from power sources in the city.
- ◆In the Kitakyushu Hydrogen Town, hydrogen was supplied through a private-sector pipeline. The safety and stability of the hydrogen supply has been confirmed.
- ◆The city has been chosen as the venue of the Group of Seven energy ministers' meeting May 1-2, 2016, in recognition of its advanced energy projects.



NEDO Kitakyushu Offshore Wind Power Generation Demonstration Project

## Problems and Responses

### ◆Before Project Implementation

For the Kitakyushu City regional energy base establishment promotion project, it was confirmed that the city was the most suitable place for power generation in Japan. Many discussions were held on how to gain the understanding of the local parties concerned and what role the city should play. For the Kitakyushu Hydrogen Town project, explanatory meetings were held for local residents, because easing residents' fears about the use of hydrogen and creating safety standards before the

world's first private-sector pipeline was laid were top priorities.

In connection with the Kitakyushu Smart Community Project, a key problem was whether the envisioned user-side energy management could be realised. Many educational activities (more than 100 explanatory meetings and opinion-exchange gatherings) were held for citizens and companies participating in the demonstration.

### ◆After Start of Project

All projects require the provision of information to citizens and companies, as it is essential to obtain their understanding, cooperation and participation. The city held talks with parties concerned as it proceeded with the projects.

## Outlook

### ◆Kitakyushu City Regional Energy Base

#### Establishment Promotion Project

Establishment of stable and low-priced regional energy supply bases, creation of foundation allowing citizens and businesses to engage in activities with peace of mind

### ◆Kitakyushu Hydrogen Town

Launch of hydrogen supply businesses using private-sector pipelines

### ◆Kitakyushu Smart Community Project

Expansion of energy management system to other districts in Kitakyushu

## Reference URL

<http://jscp.nepc.or.jp/en>

<http://www.city.kitakyushu.lg.jp/kankyoku/00200086.html> \*Japanese

[http://www.city.kitakyushu.lg.jp/kankyoku/file\\_0325.html](http://www.city.kitakyushu.lg.jp/kankyoku/file_0325.html) \*Japanese

For the regional energy base establishment promotion project, a PDF leaflet is attached.

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