

# **Selection of Next-Generation Energy and Social Systems Demonstration Areas**

April 2010

Energy Conservation and Renewable Energy Department  
Agency for Natural Resources and Energy  
Ministry of Economy, Trade and Industry

## Selection results

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- Proposals submitted from 20 areas were reviewed. As a result, the following areas were selected as “Next-Generation Energy and Social Systems Demonstration Areas”:

Yokohama City, Toyota City, Kyoto Prefecture (Kansai Science City), Kitakyushu City

- Master plans for these areas will be developed through discussions by the Next-Generation Energy and Social System Committee. Various demonstrations, including those of the construction of energy management systems, which are essential to building a smart grid, will be conducted in these areas.

# Selection Procedure and Schedule

## 1. Call for project proposals

- Application period: January 29-February 28, 2010
- Eligibility: Municipal governments, energy companies, companies engaged in the construction of energy management systems
- Type of projects: Projects mainly focusing on demonstrations of energy management systems, including those involving demonstrations of transportation and lifestyle innovations

## 2. Review procedure

> Review items: Ability to demonstrate the following and the applicability and sophistication of demonstrated issues

- ✓ Ambitious targets for energy savings and CO2 emissions reduction, and large-scale deployment of renewable energy
- ✓ Establishment of an energy management system for each site of energy consumption and at a regional level
- ✓ Establishment of a complementary relationship between regional energy management and a large-scale networks
- ✓ Efficient use of energy in a transport system that includes next-generation vehicles and railways
- ✓ Participation of not only the local government but also energy-related companies, system manufacturers, and other users (households, buildings, commercial facilities, etc.) exceeding the specified number
- ✓ Lifestyle innovation, etc.

> Review method: Interview with the applicant and scores given by experts of the Next-Generation Energy and Social System Committee

## 3. Next schedule (planned)

Development of a master plan for each area, based on the proposal, in a way that suits the purpose of demonstration.

Late April: Exchange of views between the project operator of each area and experts of the Next-Generation Energy and Social System Committee

Late May: Interim interview

Late June: Finalization of the master plan

### Yokohama City, Kanagawa

(Yokohama City Government, Accenture, Toshiba, Nissan Motor, Panasonic, Meidensha, Tokyo Electric Power, Tokyo Gas)

#### Proposal outline

- Construct a new social system by bringing together in Yokohama the wisdom of companies for reducing CO2 emissions and increasing national wealth and promote its deployment overseas. In doing so, make the utmost use of Yokohama's excellent assets and opportunities, such as civic power, diverse geographical features, and APEC meetings.
- To make the project sustainable, construct a system in an existing urban district where people actually live.
- Establish an entity responsible for overall decision making, investments, and publicity to organize a promotional structure involving energy companies and users.
- Seek to reduce CO2 emissions by 30% by 2025 compared to the 2004 level.

#### Planned actions

The following actions will be taken in three major districts, including Minato Mirai 21.

- ✓ Large-scale deployment of renewable energy (27,000 kW photovoltaic system)
- ✓ Introduction of smart house/building technology (at 4,000 households/establishments)
- ✓ Coordinated control of regional energy (e.g., electricity, heat) complementary to a large network
- ✓ Diffusion of the next-generation transport system (2,000 next-generation vehicles)
- ✓ Lifestyle innovation through visualization
- ✓ Enhanced promotional structure through the establishment of a business alliance

### Toyota City, Aichi

(Toyota City Government, Toyota Motor, Denso, Chubu Electric Power, Toho Gas, Sharp, Toyota Home, Fujitsu, Toshiba, KDDI, Circle K Sunkus, Mitsubishi Heavy Industries, Toyota Industries, Dream Incubator)

#### Proposal outline

- Focus on the household sector (homes and cars) and aim to construct a low carbon social system through joint efforts of global companies, leading local firms, and the local government in cooperation with consumers
- Demonstrate the efficient use of a mix of different energy sources (electricity, heat and unused energy) and the construction and linkage of low carbon transport systems, while restricting social costs
- Make standardization and other efforts emphasizing international competition
- Seek to reduce CO2 emissions by 20% in households and 40% in transport

#### Planned actions

- ✓ Efficient use of energy in households (70 or more households)
- ✓ Efficient use of energy based on communities
- ✓ Establishment of a low-carbon transport system (diffusion of 3,100 next-generation vehicles)
- ✓ Lifestyle innovation through support to encourage consumers to change their action patterns and verification of its effect as an incentive (to reduce social costs)
- ✓ Development of strategy for global deployment (global deployment and international standards)

# Kansai Science City, Kyoto

(Kansai Research Institute, Doshisha Yamate Sustainable Urban City Council, Kyoto Prefecture, Kyotanabe City, Kizugawa City, and Seika Town, Kansai Electric Power, Osaka Gas)

## Proposal outline

- Control energy by visualizing energy flows in homes and offices as well as those through EVs (a “nano-grid” project) in Kansai Science City, which aims to study and demonstrate sciences for a sustainable society and create new industries based on them
- By doing so, confine fluctuations in demand arising from human activity patterns and the instability of natural energy sources, and aim to establish a stable and efficient regional energy system and create new industries
- Seek to reduce CO2 emissions by 20% in households compared to the 2005 level and 40% in transport by 2030

## Planned actions

- ✓ Installation of photovoltaic systems in 1,000 households
- ✓ Building “nano-grids” in homes and buildings to intelligently control power generation systems (e.g., solar cells, fuel cells) and electrical storage systems through “computerized” management of energy
- ✓ Active deployment of EVs and construction of a network of charging stations
- ✓ Proposal of a regional energy economy model based on “Kyoto eco-points”
- ✓ Establishment of a model for local energy production for local consumption by integrating the above actions
- ✓ Experiments to demonstrate complementarities between a regional nano-grid and the national grid

### Kitakyushu City, Fukuoka

(Kitakyushu City Government, Nippon Steel, IBM Japan, Fuji Electric Systems)

#### Proposal outline

- Aim for regional energy management in which citizens and all other community members participate, by building a smart grid based on the local new energy infrastructure (solar power, hydrogen, etc.) and community infrastructure of the Yahata Higashida district, which has been pursuing an eco-friendly community under the leadership of the private sector, and eventually create a society with 50% less CO2 emissions
- Disseminate the outcome across the city by incorporating it in the city's community development policy and expand it to Asia through networking with other Asian cities
- Seek to achieve, in addition to the current target of reducing CO2 emissions by 40% by 2030 and 70% by 2050 in the residential/commercial and transport sectors), an additional 10% reduction (80% reduction instead of 70% by 2030, 80% reduction instead of 70% by 2050)

#### Planned actions

- ✓ Creation of a city block where new energy, including that from industry, accounts for 10% of energy consumption
- ✓ Deployment of energy conservation systems for an entire town (e.g., real-time energy management for 70 companies and 200 households using smart meters)
- ✓ City block energy management through a regional energy saving station
- ✓ Development of communities and transport systems based on energy infrastructure
- ✓ Establishment of a system to transfer the outcomes to other parts of Asia

## (For reference) "Demonstration of a Next-Generation Energy and Social System"

- > Need to gather actual data and create a system to manage it with the establishment of next-generation energy and social systems in view
- > Need to make the entire region, including its industry, citizens, and local government, involved in the project in order to allow the systems to be tried in the actual region and visualize CO2 emissions reductions in the residential/commercial and transport sectors
- > Need to establish a complementary relationship between the overall utility grid and the energy management system in a demonstration (e.g., storing electricity in the area or controlling consumption by users when electricity surpluses or shortages occur)

