

# Transformation Towards Low Carbon City -The Challenge of Yokohama, Environmental Model City



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あなたの毎日に、エコをプラスしよう。

Yokohama **エコ活。**



# Overview of the City of Yokohama

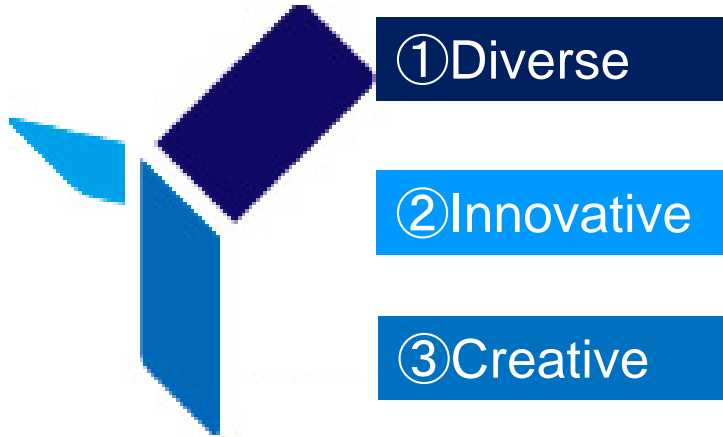


Population	<b>3.7 million</b> (largest city in Japan)
Number of Households	<b>1.59 million</b>
Participation in Neighborhood Associations	Percentage of participation <b>80%</b> (second among major cities in Japan)
Number of registered NPOs	<b>Approx. 1,100</b>



Citizens with a High Level of Public Spirit<sub>2</sub>

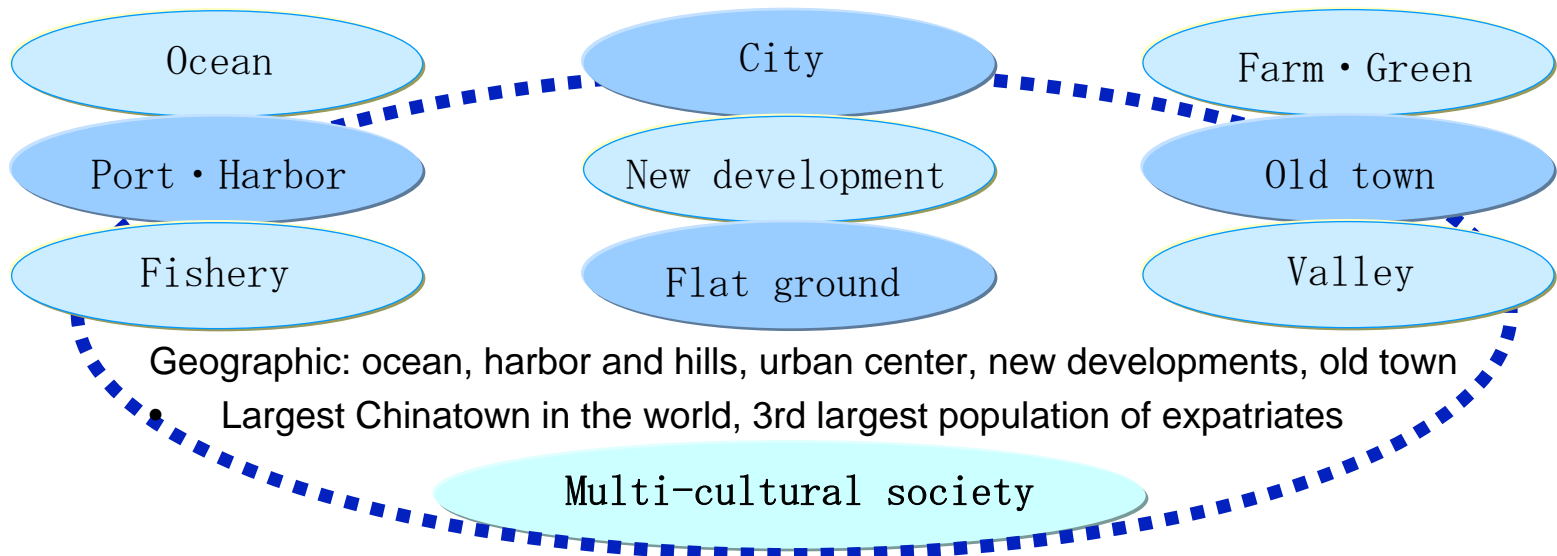
# Yokohama is ...



Yokohama, is the first harbor city introduced to the world as the entrance to Japan. Since the time its port was opened 152 years ago, Yokohama has been vigorously acquiring new cultures and information from foreign countries and introducing to Japan our country's first-time-ever things.

The Yokohama, referred to as “Hamakko” in Japanese, has been very cheerful at enjoying life and willing to adopt whatever is good. Such a tradition of the “Hamakkos” cultivated long ago has been incorporated into the present fashionable and sophisticated streetscape.

## 1. Diverse – Geographic, Culture, industry



## 2. **Innovative** – City was made with bold challenges

- Port of Yokohama opened 152 years ago
- Home for multi-nationals, local venture industries
- Birthplace in Japan of silk, telephone, railway, sewage system, ice-cream, dry cleaning



## 3. **Creative** – Citizens power

- City where people came to create change
- 80% participation rate in Neighborhood Associations
- 9<sup>th</sup> in the nation for NPOs, Yokohama Eco School
- 1000 participants in Open Yokohama event

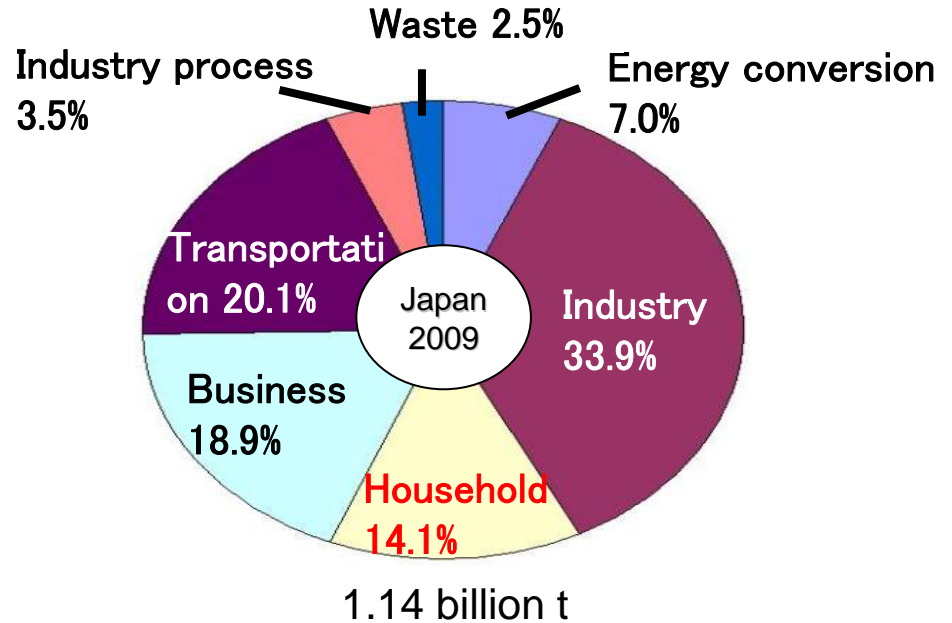
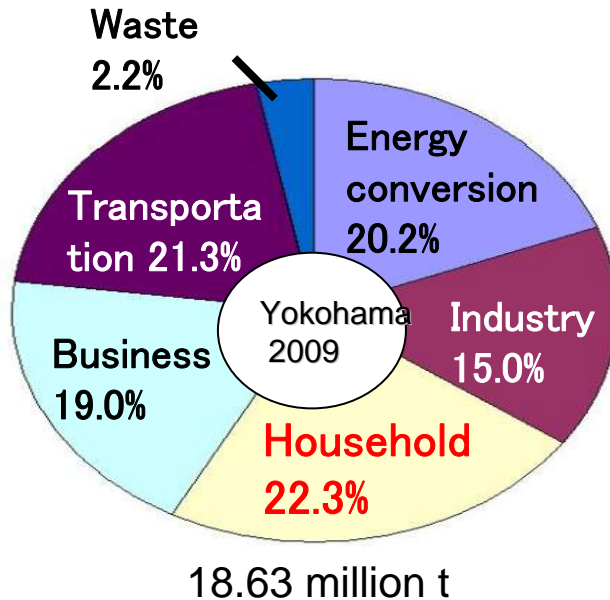
YES

NPO/Citizen Group

OPEN YOKOHAMA

Creative city

## Breakdown of CO2 emissions



### Wealth of Successful Initiatives

- ◆ G30
- ◆ Hama Wing(wind power plant)
- ◆ Partnership Between Urban and Rural Areas
- ◆ Biodiesel Fuel Programme
- ◆ Solar Power Programme for Schools
- ◆ Environmental Accounting for Homes
- ◆ Kids Energy Efficiency Challenge
- ◆ LED Lighting Programme
- ◆ Yokohama Green Valley
- ◆ Yokohama Green Power
- ◆ Yokohama Mobility Project Zero

- Waste increase outstripped population growth
- Launch G30 program
  - target :30% reduction (compared to 2001) by 2010
  - Waste separation
  - Reuse, recycle
- Outcome
  - Target met ahead of schedule
    - Achieved 40% reduction in 2009
  - Cost savings
    - Decommissioned two waste processing plants
    - Reconstruction costs \$1.3BN
    - Operation costs \$36M
  - Selected for World Bank's Eco2Cities initiative

## Citizen Power

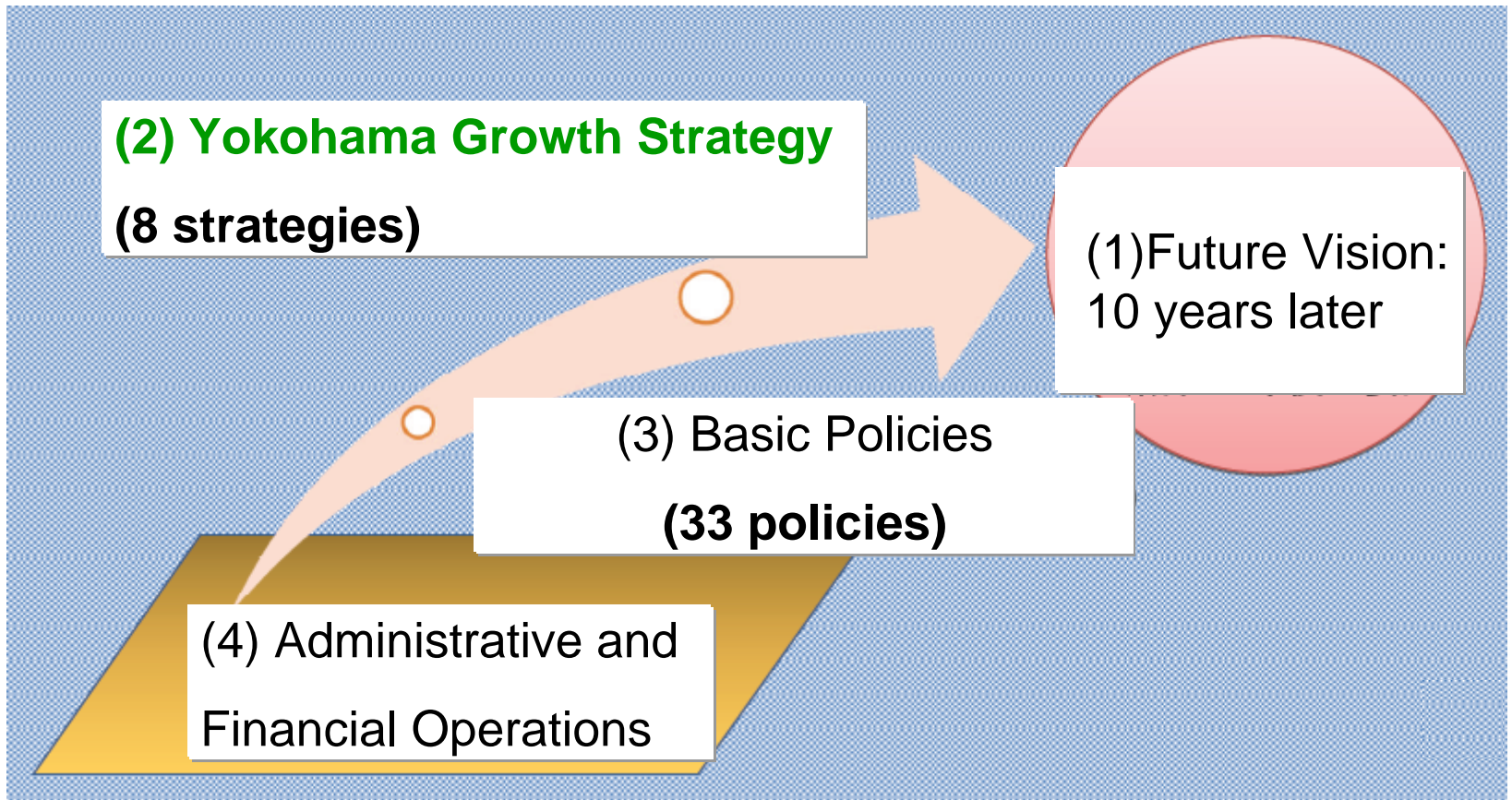
- ✓ Over 11,000 workshops
- ✓ Metro-wide advertizing
- ✓ Theme song  
⋮





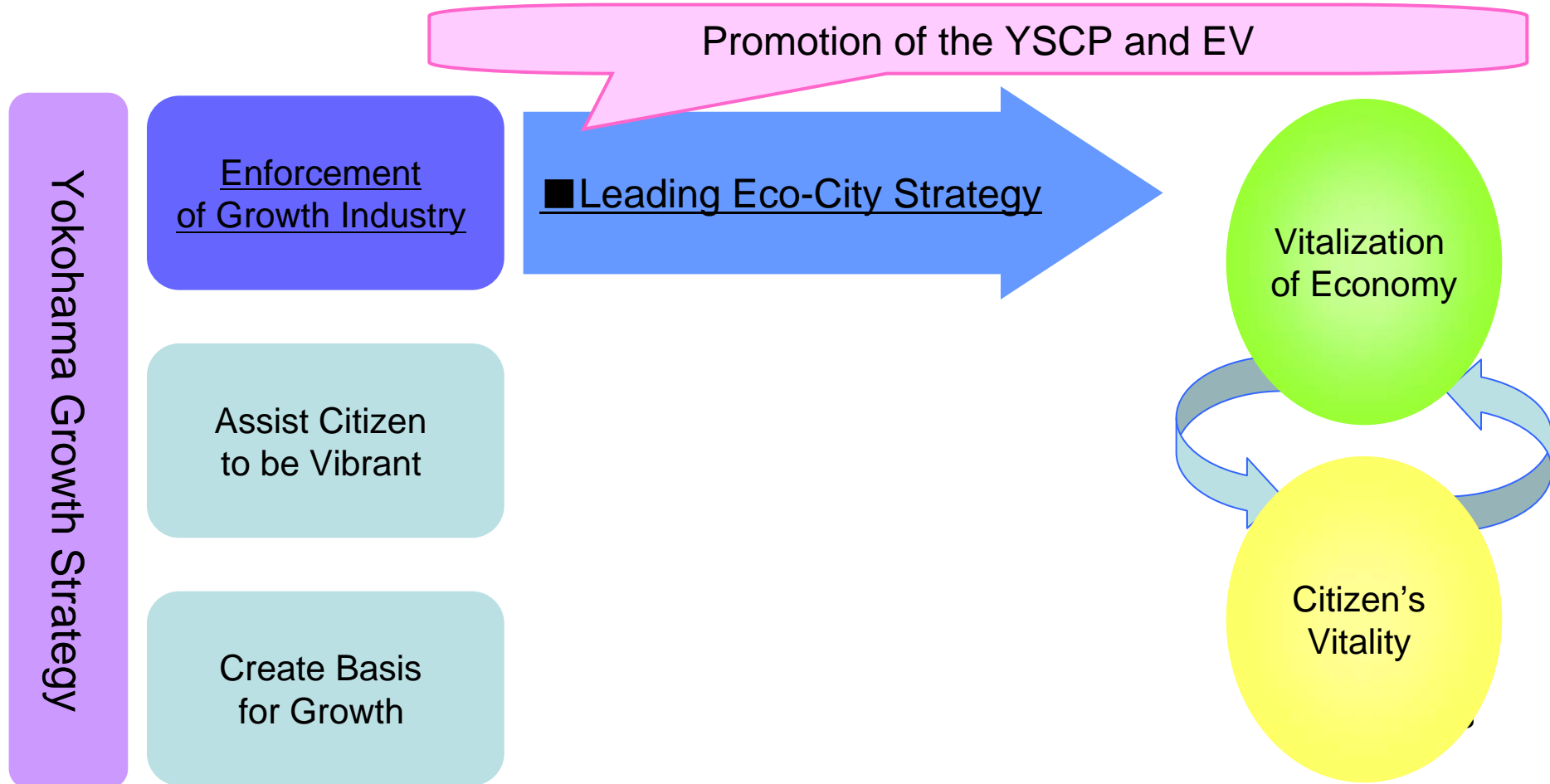
# New Midterm Four-Year Plan (2010-2013)

- (1) Future Vision (2) Yokohama Growth Strategy (3) Basic Policies  
(4) Administrative and Financial Operations



# New Midterm Four-Year Plan (2010~2013)

Upwardly revised reduction targets of GHG  
To Reduce by 25 % by 2020 and 80% by 2050



# Growth Strategy Yokohama Version

## -Urban Strategy Towards a Cutting-Edge Environmental City-

Yokohama leads and promotes the global warming prevention, and makes the best possible use of the power of local businesses and boost development of vibrant city economically.

### Provide business opportunities through demand creation

Households : Eco-Friendly Activities

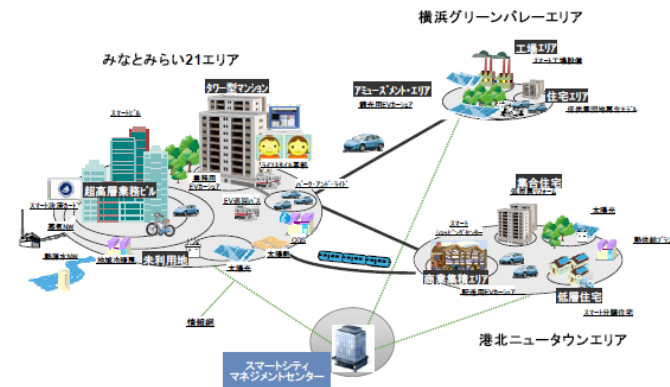
Households : Rapidly Expanding Diffusion of EV

Public : Regeneration that pays attention to the infrastructure environment

Private : Investment expansion by considering the environment

Private : Expansion of the Yokohama Smart City Project

- Massive introduction of renewable energy such as sunlight, solar heat, and wind power
- Promotion of development and introduction of energy management system
- Massive introduction of electric vehicles and building of energy cooperation system



### Promote technological innovation of corporations within the city

Growth support of small- to medium-sized corporations within the city in the environmental field

Leading Efforts: Promotion of Yokohama Green Valley

Attracting Environment-related Corporations

Creating New Business Opportunities

# YSCP Vision and Objectives

YSCP aims to build the "Next Generation Energy Infrastructure and Social System" that maximizes CO2 reduction in the forefront of innovation.

## Background

Increasing need for energy security

Economic development (green innovation)

Cities as center of CO2 emissions

Environmental Model City

⋮

## Vision and Objectives

**Ambitious CO2 reduction target (64,000t-CO2 by 2014 )**  
**Export overseas as a city scale infrastructure package**

Assemble Advanced Knowledge, Build in Yokohama, Expand Abroad



**Build the existing urban model solutions by citizen participation**  
**Aim to Expand to APEC regions after APEC 2010 in Yokohama**

# 2011.3.11 14:46 Great East Japan Earthquake

Magnitude 9.0, Ensuring 37.9m Tsunami

Number of Missing and Dead: 24,988 (as of May 5)



©: Nikkei Net



Rolling Blackout held in Tokyo, March 18 ©Nikkei Net



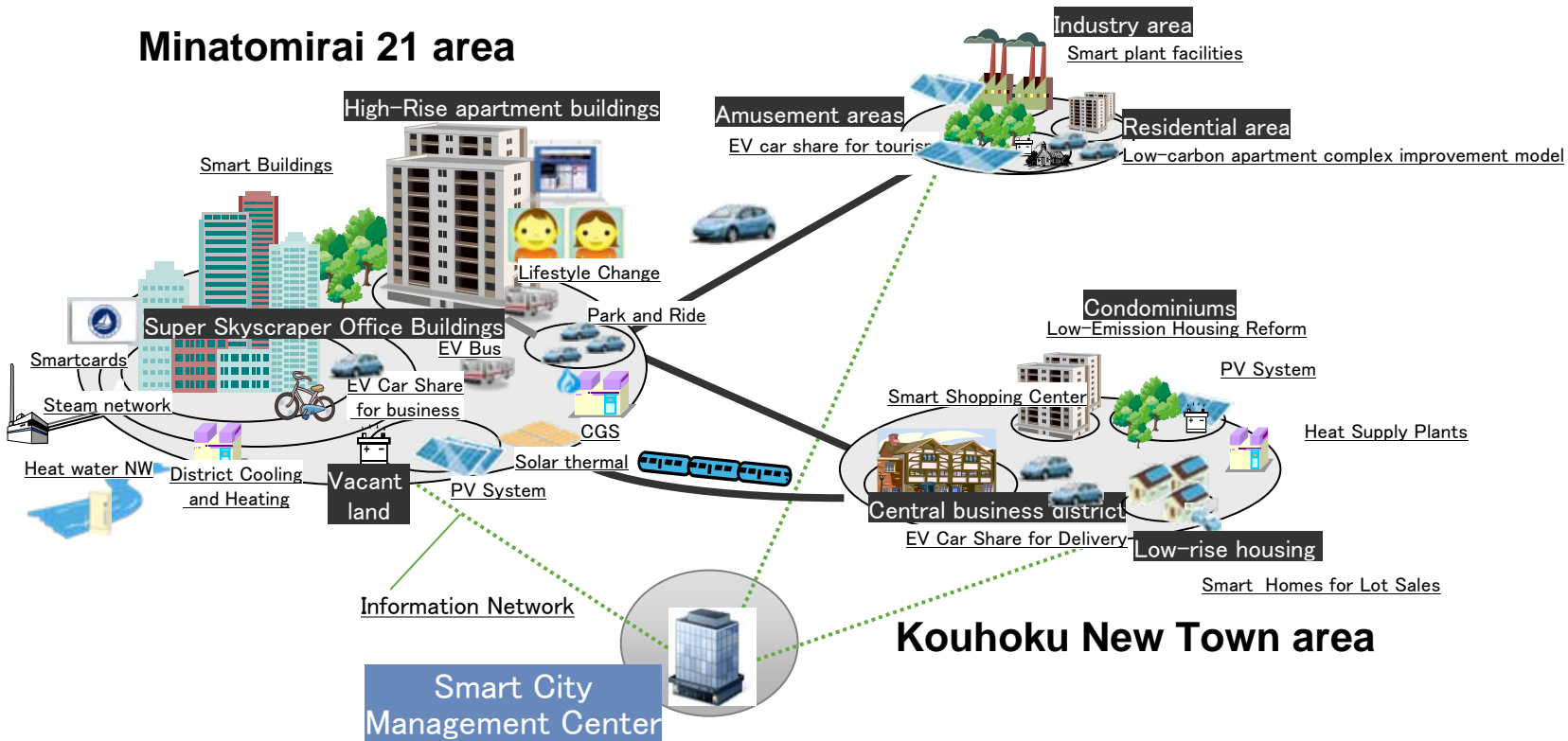
Fukushima Daiichi Nuclear Power Plant

©: The Wall Street Journal Japan Website

# YSCP Overview

## Yokohama Green Valley area

### Minatomirai 21 area



### Project Members

City of Yokohama, Accenture, Tokyo Gas, Tokyo Electric Power Company, Toshiba, Nissan, Panasonic, Meidensha, etc.

### Project Areas

Minatomirai 21Area, Kohoku New Town Area, Yokohama Green Valley Area, etc.

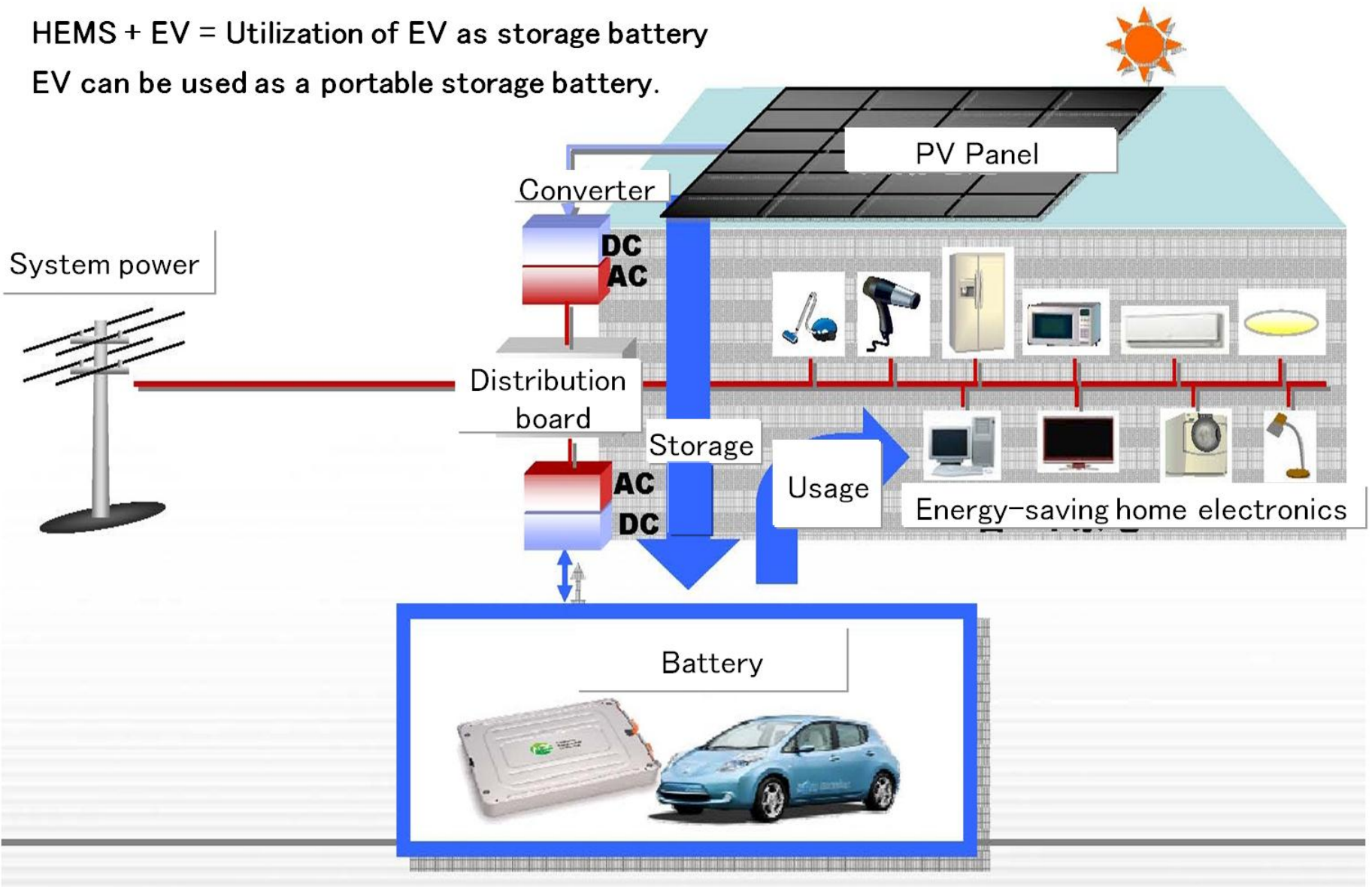
### Area Statistics

Population 420,000, Approx. 60km<sup>2</sup>

# EV linkage with HEMS

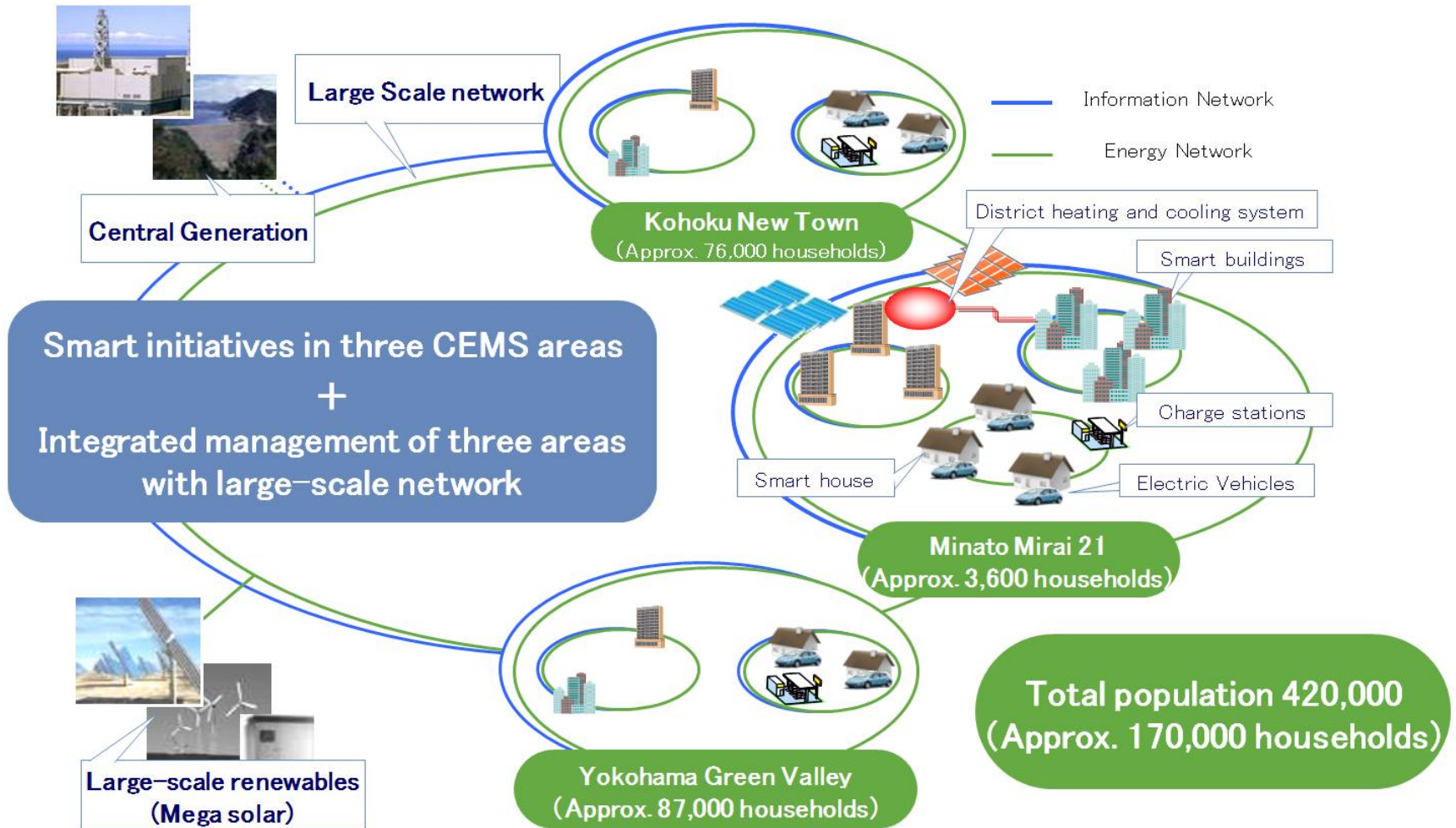
HEMS + EV = Utilization of EV as storage battery

EV can be used as a portable storage battery.



# Community Energy Management System

Absorbs power output fluctuation from renewables by integrating a stationary battery with HEMS and BEMS



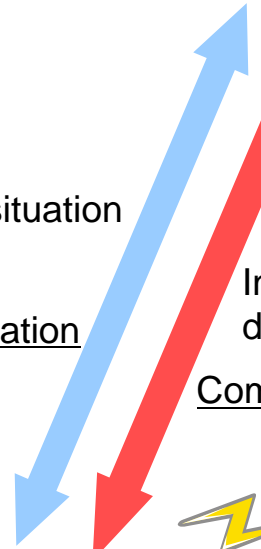
Achieves efficient energy management by managing both demand and stationary energy storage

# Energy supply in a time of disaster utilizing CEMS (image)



In normal situation

Information



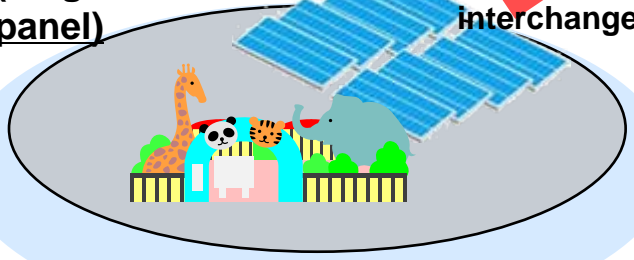
In a time of disaster

Command



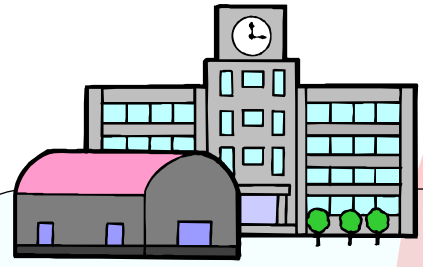
Kanazawa Zoo  
(megawatt solar panel)

Electric power interchange



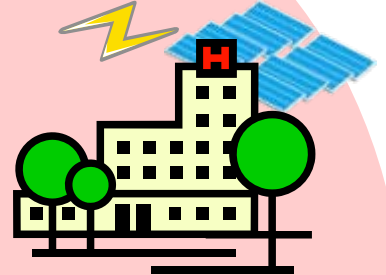
Electricity supply in normal situation

**Local disaster preparedness center etc.**



**Disaster-prevention and medical care facilities**

In addition,  
3 facilities have solar panels  
(10kW)

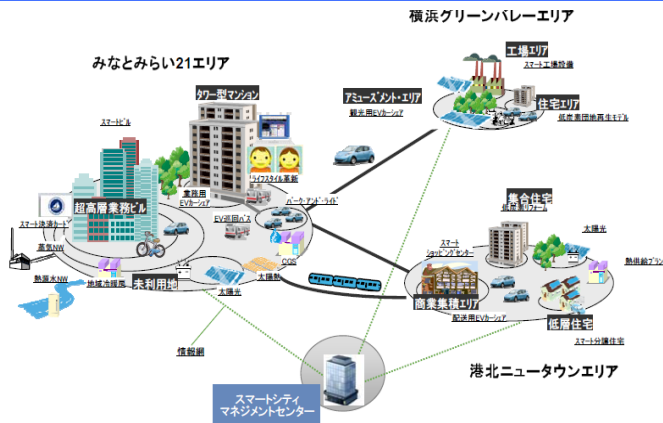


**City University Hospital**



**Kanazawa Ward Office**

**Self-sustained operation**



- **Uncertain technology**
  - Privacy, data security, standardization
- **Sustainability ≠ Frugal**
  - Misunderstanding, lack of awareness
- **From CODE to MODE**
  - Because you want to, not because you have to
  - Citizen Power to drive success