Initiative for Smart Communities:
Aiming for eco, sustainable, and comfortable living

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1 About Panasonic Group
About Panasonic Group

Foundation 1918

Founded by Konosuke Matsushita and two family members

Attachment plug (1918)
Double cluster socket (1920)

FY2014 Financial Results

Sales 7.715 trillion yen
Operating profit 381 billion yen
Workforce 254,000 employees

Sales by Region

Japan 48%
Europe 9%
Asia 14%
Americas 16%
China 13%
What Panasonic aims to become

Leverage our Consumer Electronics’ DNA to be closer to customers and make contributions to their lives

A Better Life, A Better World
2 Direction and initiatives for Smart Communities in Japan
Japan’s energy policy: Supply and demand structure change

Aim for highly energy-efficient society and smart/flexible consumption
Fulfill energy-oriented growth strategy (Smart Community)

Transforming the supply side

Electricity System Reform
- Wide-area system operations (2015)
- Retail liberalization (2016)
- Separation of power generation and transmission (2018-2020)

Transforming the demand side

Energy-efficiency Improvement
- “Smart Meter” installation (early 2020s)
- Building “net-Zero Energy House (ZEH)”
  (Standard installation in new houses by 2020)
- Promoting HEMS (in all houses by 2030)
Aiming to create Smart Communities

Offer sustainable but high-quality living with eco, comfort and safety
Offer “home to town” solutions through various products and services
3 Panasonic’s initiatives for Smart Communities:
(1) Smart House
Houses Panasonic aims to offer

1. Efficient use of energy
2. Comfortable and convenient living spaces
3. Fully prepared for emergencies
4. Offering advanced IT services

Implemented by Smart HEMS

* AiSEG: HEMS controller
Smart HEMS: 1. Efficient use of energy

**Visualized energy information**
- e.g. Integrated monitoring of electricity/gas/water consumption, generation(PV), and residual capacity(Storage Battery)

**Automated air-conditioner control**
- e.g. Switching automatically to “eco-temperature control” after 30 minutes of operation

**Automated water heating by surplus power**
- e.g. Heat water automatically by using excess electricity, depending on weather forecast and amount of energy used

**Automated peak-use control**
- e.g. Automatically adjust heating power of IH cooker to reduce a peak-use
Smart HEMS: 2. Comfortable and convenient living spaces

Offering convenient services

- Triggering energy savings
  - Informing you about energy-consuming appliances

- Sending notices for maintenance
  - Informing you about which part requires replacement as well as its replacement period

Providing warnings about humidity, temperature, and air conditions

- “The room temperature is 35°C now. Please turn on Air-conditioner.”
- “Indoor air quality is not good. Please turn on ventilation fans.”
- “The pollen count is high. Please wear a mask.”
Smart HEMS: 3. Fully prepared for emergencies (safety & security)

Daily monitoring of energy consumption

Sending notices of energy consumption analysis

Information on safety of an elderly person living alone

“I’m worried about living alone”

Information on a child’s returning home

“I’m home!”

Energy consumption in a day

Energy not used

Energy used in a child’s room

[Illustrations of graphs showing energy consumption patterns for different times of the day and different rooms, such as AC, IH cooker, Child’s room, Hairdryer, Microwave, Morning, Daytime, Evening, and charts showing energy usage and analysis.]
Smart HEMS: 4. Offering advanced IT services toward the future

Planning to respond to a variety of billing systems in line with liberalization of electric power retailing in 2016

Sending notices with advice

“Notice”

The rate is higher during the following hours. Reduce electricity consumption!

13:00 to 15:00, August 14
(Additional charge: 80 yen per kW/h)

Diversified rate systems

Time of Use rate

Critical Peak Pricing

Peak-cut operations during peak-load hours

Automatically keep “eco” temperature

Automatically suspend EV power charge

Respond to the new devices and new services with updating a AiSEG(HEMS controller)
Initiative for a “net-Zero Energy House”

Lower energy consumption, while creating more energy in a home
Offer a net-zero-energy lifestyle with high energy efficiency and economy

**Energy creation**
- PVs and Storage battery unit

**Efficient use of energy**
- Smart HEMS
- Thermal insulation throughout the house
- Highly energy-efficient ventilation systems
Wider use of renewable energy

Bundling PV panels and Energy Creation-storage Linked Systems to maximize in-house consumption of self-sufficient energy

- Offering “cash back” incentives to customers to introduce PV-storage battery systems
- Offering special privileges to customers taking part in our “excess energy purchase” program for dissemination of solar home systems

PV-storage battery’s integrated systems enable us to...

In daily life:
- Efficient energy creation by “HIT” panels
- Saving utility costs by using energy stored in storage battery unit during the night

Even during energy shortage:
- Utilize energy created by PVs, stored in storage battery unit
3 Panasonic’s initiatives for Smart Communities:
   (2) Smart Town
Panasonic’s concept of “Smart Town”

Aiming for the development of a town based on residents’ actual lifestyles

Offering services, living spaces and infrastructure, always considering the kinds of sustainable smart lifestyles we can provide

Proposing sustainable smart lifestyles based on 5 advanced services

Providing design of smart spaces connected to the local community

Creating a smart infrastructure for ICT and energy

Community Security Energy Mobility Wellness Town information network Town energy network
Our initiative in Japan
– Fujisawa Sustainable Smart Town

Developing an actual ‘eco and smart’ town sustainable for 100 years

- Wellness Square
- Condominiums (plan)
- Detached houses
- FSST Square
- Committee Center
- Next-generation logistics center (plan)

<table>
<thead>
<tr>
<th>Area size</th>
<th>About 19 hectares ( = 4 Tokyo Domes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned buildings</td>
<td>About 1,000 households plus commercial and public facilities</td>
</tr>
<tr>
<td>Population</td>
<td>About 3,000 people</td>
</tr>
<tr>
<td>To be completed</td>
<td>FY2018</td>
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</tbody>
</table>
Setting aggressive targets at Fujisawa Sustainable Smart Town

### Overall targets

#### Environmental targets
- CO₂ reduction: 70% (cf. 1990)
- Reduction of water consumption: 30% (cf. 2006)

#### Energy target
- Use of Renewable energy: +30% or more

#### Safety/security target
- Lifeline maintenance: 3 days

### Self-creation and self-consumption of energy
- PV panels
- Storage battery unit

### “Virtual gated town”
- Security cameras
- LED street lights with human-detect sensors

### Total mobility services
- EV power charger
Platform and services supporting Fujisawa Sustainable Smart Town

Fujisawa SST Committee (Community Organization)

Fujisawa SST Management Company

- One-stop service
- Community development
- Business incubation

Fujisawa City

Partner companies

Partner companies

Fujisawa City
4 Our future initiatives
Our future initiatives

Develop Smart Communities rooted in local needs and lifestyles

China
- Tianjin Eco-City
- Dalian BEST City

Japan
- Tsunashima SST
- Fujisawa SST
- Smart City Shioashiya

Southeast Asia
- Kuantan, Malaysia
- Kuala Lumpur, Malaysia
- Iskandar, Malaysia
A Better Life, A Better World