

## Japan: Sengendai Sai-no-michi

### BIODATA

<b>PV community name:</b>	Sengendai Sai-no-michi
<b>Kind of urban area:</b>	Residential – urban
<b>Main building type in community:</b>	Houses - single houses
<b>New/Retrofit/Added:</b>	New district/community – building integration
<b>Type of project:</b>	Commercial project
<b>Start of operation:</b>	Year 2005
<b>City, state, etc.:</b>	Koshigaya, Saitama
<b>Country:</b>	Japan
<b>Latitude:</b>	N35 49' 22"
<b>Longitude:</b>	E139 45' 29"

### PV SYSTEM CHATACTERISTICS

<b>Total PV power:</b>	50 kW
<b>Number of houses/buildings:</b>	25 houses
<b>PV power per unit:</b>	2 kW/house
<b>Energy yield per year:</b>	-
<b>Main PV system type:</b>	Grid-connected - demand side
<b>Main PV application type:</b>	Inclined roof – integrated: PV roof tiles
<b>Main PV module type:</b>	PV roof tile
<b>Main PV cell type:</b>	Amorphous Si
<b>PV module manufacturer/brand:</b>	Kubota corporation / MSK corporation
<b>Inverter manufacturer/brand:</b>	Kubota corporation / MSK corporation
<b>Investment for PV systems:</b>	700 000 JPY/kW

### OWNERSHIP

<b>Building owner:</b>	Inhabitant
<b>PV owner:</b>	Inhabitant
<b>PV energy user:</b>	Inhabitant



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## PV COMMUNITY DESCRIPTION

### PV Community Brief

Sengendai Aya-no-Michi is located in Koshigaya city, Saitama. Koshigaya city is a major urban area about 25km from Tokyo area, and the urban development has been implemented according to 'Koshigaya city urban planning master plan'.

In the land readjustment project in 2004, the city government held a competition for residential area development. Hakushin corporation proposed a concept of 'Harmony of Ecology & Community: Shine and Wind, Green and Water, Approach for Communication' and the proposal won the competition.

Hakushin was allowed to develop and sale 25 house compartments in the area and promoted to develop a community of all-electric houses equipped with PV systems.

### Grid issue

To avoid negative influences against the grid network caused by a high-density of PV systems installation into a limited area, a precise negotiation with a utility company (Tokyo Electric Power corporation) was implemented.

The electricity distribution line in the area was designed and constructed by the utility company, and each transformer was set for four houses, e.g. four PV systems.

### Urban planning and architectural issues

To create a well-designed appearance of the houses and a harmonized streetscape as a community, it was decided that roofing geometry of all houses was designed as gable roof laid out to tilt at a 30 degrees angle from a compartment boundary. Due to the shape and direction of the compartments, south-faced geometry was difficult. The solution design layout in PV modules facing the south-east direction.

PV roof tiles were selected for the PV systems and, based the roof design, an energy consumption pattern and a desired house price level, etc. the PV system capacity was standardized at 2kW.

### Economic / financial issues

There were no available subsidy programs for residential PV systems, at this time. After starting operation, a net-metering scheme was applied so that surplus PV is traded between the inhabitant and the utility company, at the same price of the residential electric tariff.

### Other remarks

In this project, an all-electric house is standardized and all houses are equipped with a high-efficiency electric water heater, called "Eco-Cute", as well as the PV system.

In the center of the community, there is a stone-paved approach for inhabitants and a corridor of water along the approach. Rain water is used for the corridor and pump power is supplied from the PV system.

## COMMUNITY INFORMATION

**Project leader company:** Hakushin Co., Ltd.

**Other project company:** Kubota corporation / MSK corporation

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