

Japan: Cosmo-Town Kiyomino Saizu

BIODATA

PV community name:	Cosmo-Town Kiyomino Saizu
Kind of urban area:	Residential - urban
Main building type in community:	Houses - single houses
New/Retrofit/Added:	New district/community – building integration
Type of project:	Commercial project
Start of operation:	Year 2001
City, state, etc.:	Yoshikawa, Saitama
Country:	Japan
Latitude:	N35 53' 54"
Longitude:	E139 51' 22"

PV SYSTEM CHARACTERISTICS

Total PV power:	239 kW
Number of houses/buildings:	79 houses
PV power per unit:	3 kW/house
Energy yield per year:	3 106 kWh/year (calculated)
Main PV system type:	Grid-connected - demand side
Main PV application type:	Inclined roof – integrated: PV roof tiles
Main PV module type:	PV roof tile
Main PV cell type:	Amorphous Si
PV module manufacturer/brand:	Kubota corporation
Inverter manufacturer/brand:	Kubota corporation
Investment for PV systems:	2 300 000 JPY/3kW

OWNERSHIP

Building owner:	Inhabitant
PV owner:	Inhabitant
PV energy user:	Inhabitant



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PV COMMUNITY DESCRIPTION

PV Community Brief

Kiyomino is located in the northeast of Yoshikawa-city, Saitama, and is approximately 20km from the center of Tokyo. The area has been developed toward a comfortable living environment of 21st century and its concept is "human-friendly town development".

The development of Kiyomino area was planned and promoted by the Urban Renaissance Agency of Japan (the UR). Hakushin corporation was allowed to develop and sell 79 houses in the area. Then, they decided to develop a PV community, e.g. all houses equipped with PV systems.

The community was one of advanced and practical cases of 'PV community' and was given 'New Energy Award in FY2002' in Japan.

Grid issue

To avoid negative influences on the grid network caused by a high-density of PV systems installed in a limited area, a precise negotiation with a utility company (Tokyo Electric Power corporation) was implemented and the design of grid-connection was decided below;

- each PV system (each house) has each point for grid-connection (LV line)
- one transformer for four PV systems
- enhancement of a capacity of transformer

The negotiation with the utility company was in charge of PV system provider for the community.

Urban planning and architectural issues

To create a well-designed appearance of the houses and a harmonized streetscape as a community, well-integrated PV modules into the roof were required, as well as satisfying fundamental facilities of 'roof' is indispensable. From the viewpoints, design of PV modules, technological reliability on developing and installing roof materials and the cost were comprehensively evaluated for selecting PV module manufacturer.

Originally, roofing geometry of houses was a gable roof design. However, the design was changed to a shed roof to maximize PV system electricity generation and still creating well-designed roofs.

Economic / financial issues

The development plan of Kiyomino area given by the UR defined the averaged sale price of the houses in the area. To realize the price level, the costs of house itself and various kinds of equipment, including PV system had to be reduced. Drawing up a cost-effective construction schedule was a promising cost reduction measure and installing many PV systems in a limited area also reduced installation cost.

The PV system received a governmental subsidy, available through Japan's residential PV program. 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

The community project has been contributing not only to deploying areal PV system installation in residential area but also to increasing publicity of the project companies.

The concept of the community development and equipping PV systems was well accepted and handed down to the inhabitants. Some of houses in the community were also equipped with a high-efficiency electric water heater, called "Eco-Cute".

According to the recent interview, the inhabitants' concern about environmental problems and motivation of energy saving have been growing.

COMMUNITY INFORMATION

Project leader company: Hakushin Co., Ltd. and Urban Renaissance Agency

Other project company: Kubota corporation, Fuji-design Co., Ltd.

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