Japan: Sekisui Harmonate-town Tsuru-no-ura

BIODATA

PV community name: Sekisui Harmonate-town Tsuru-no-ura
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 2005
City, state, etc.: Kurashiki, Okayama
Country: Japan
Latitude: N 34 32’ 53”
Longitude: E 133 42’ 37”

PV SYSTEM CHATACTERISTICS

Total PV power: 98 kW (as of Apr. 2007)
Number of houses/buildings: 25 houses (as of Apr. 2007)
PV power per unit: 3,5 – 4,0 kW/house
Energy yield per year: 1 000 kWh/kW/year (calculated)
Main PV system type: Grid-connected - demand side
Main PV application type: Flat roof – mounted (9), Inclined roof – mounted (16)
Main PV module type: Framed regular module
Main PV cell type: Crystalline silicon – multi (9), Crystalline silicon – mono (16)
PV module manufacturer/brand: Sharp corporation
Inverter manufacturer/brand: Sharp corporation
Investment for PV systems: 500 000 JPY/kW

OWNERSHIP

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

PV COMMUNITY DESCRIPTION

PV Community Brief

Sekisui Harmonate-town Tsuru-no-Ura is located in Okayama prefecture. The area is 7 400 m^2 in total and consists of 32 house compartments.
In 2005, 16 houses equipped with PV system were sold and presently another 16 houses are being sold in lots. In December 2006, 19 houses in total were being built.
In the near future, the PV community consisting of 32 houses, all equipped with PV systems will be completed.

Grid issue

To avoid negative influences such as an over-voltage phenomenon caused by a high-density of PV systems installation in a limited area, a precise negotiation with a utility company (Chugoku Electric Power corporation) was implemented. As a result, the PV system capacity was limited to not exceed 4 kW/house.
The electricity distribution line in the area was designed and constructed by the utility company.

Urban planning and architectural issues

The compartments before building houses were sold with a carrying option to build an all-electric house equipped with PV system, then each house was designed and built on the compartment according to users' (inhabitants') requirements.
The electric power lines in the area were installed underground creating an open environment appearance.

Economic / financial issues

A net-metering scheme has been applied and surplus electricity from the house is being traded between the inhabitant and the utility company, at the same price of electricity tariff for residentials.
For the all-electric house, electricity tariff structure is different than usual. The daytime rate is higher, while in nighttime the tariff is discounted. This means the value of the PV electricity from inhabitant to the utility company is higher.
Additional significant energy bill reductions resulted from energy conservation measures of high thermal insulation and high efficiency equipment.

Other remarks

In addition to thermal insulation performance satisfying the energy conservation standards, all-electrified houses were standardized. Not only PV system but also a high-efficiency electric water heater, called "Eco-Cute", was equipped in all houses. These advanced facilities caused a high price of the houses, however the added value of the houses and the community was highly-regarded as a property value.
As well as each inhabitant's environmental consciousness, it is expected the extensive consciousness and actions for environment as a community will be developed.

COMMUNITY INFORMATION

Project leader company: Sekisui Chemical Co., Ltd.
Other project company: -
Project's www: -
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