Netherlands: Stad van de Zon (City of the Sun)

BIODATA

PV community name: Stad van de Zon / HAL location
Kind of community: Residential – urban
Main building type in community: Houses - attached houses
New/Retrofit/Added: New district/community – building integration
Type of project: Commercial project
Start of operation: Year 2002-2008
Location/City: HAL-location, Heerhugowaard/Alkmaar/Langedijk
Country: The Netherlands
Latitude: N52 38'46"
Longitude: E4 48'25"

PV SYSTEM CHATACTERISTICS

PV power total community: 5 000 kW
Number of houses/buildings: Over 3 500 dwellings (in whole HAL-location)
PV power per unit: 1,45 kW/house
Energy yield per year: 3 750 000 kWh/year (calculated)
Main PV system type: Grid-connected – demand side
Main PV application type: Inclined roof – integrated & Flat roof – integrated
Main PV module type: Framed regular module
Main PV cell type: Crystalline silicon – general, mixed or unknown
PV module manufacturer/brand: Shell Solar and BP Solar
Inverter manufacturer/brand: SMA Sunny Boy 2500
Investment for PV systems/modules: 25 million EUR

OWNERSHIP

Building owner: Inhabitant (dwellings are individually owned)
PV owner: Inhabitant
PV energy user: Inhabitant

PV COMMUNITY DESCRIPTION

PV Community Brief

The core of the "Stad van de Zon" (City of the Sun) is the residential area in Heerhugowaard, which has been designed to be a net zero CO_2 emissions area. This would be achieved by installing 3,75MW of photovoltaic systems, 100 hectares of forest and three wind turbines of 2,3 MW each. The project is part of the urban development "HAL-Lokaties" covering the area between three cities. Together with PV-projects in Alkmaar and Langedijk the project was aimed to have a total installed peak power of 5MW. The residential area has been built up since 2002 and the development will be completed in 2008/09. Due to mainly financing problems the goal of 3,75MW in 'suncity' Heerhugowaard has been lowered to 2,45MW. The project is the largest PV housing project in the world.

Grid issue

A grid study has been carried out. As the PV systems are installed in a new housing district, the grid has been designed and realized in line with all needs. Therefore grid problems are not to be expected nor have been occurred up to now. City of the Sun offers us a unique situation with so many dispersed small energy producers in one district, but no major research has been planned on grid issues yet.

Urban planning and architectural issues

Solar energy was taken into account from the very first beginning of the urban development. In 1992, upon the request of the provincial government, the cities of Heerhugowaard, Alkmaar and Langendijk started together to develop a new town called HAL-location. Ashok Bhalotra, a well-known urban planner from Kuiper Compagnons was invited and introduced sketches for a city based on solar energy (1993). Based on this a so-called "structural sketch" was made for the HAL-location, as well as the name "Stad van de Zon" was born. The sun became starting point for urban and architectural design. To stimulate and educate architects a design workshop "PV-Atelier" was organized.

As well as being the urban developer of the City of the Sun, Ashok Bhalotra is also the architectural supervisor in the HAL-area. A great number of architects have been involved in the 5MW project including BEAR Gouda, Nowotny Rotterdam, INBO Woudenberg, 19 Het Atelier Zwolle, Roy Gelders Amsterdam, Hans Wagner Amsterdam, BBHD Schagen, Taneja Hartsuyker Amsterdam and Van den Oever Zaaijer & Partners Amsterdam.

Economic / financial issues (including information on tariff, net-metering etc.)

One of the early goals of stakeholders of the project was that the size of project would help to reduce PV prices in the Netherlands but the project has had little influence on the price of PV, especially because the market in Germany became dominant for this. An overall price below 5 EUR/W is not bad though.

In the (early) Langedijk sub-projects the PV system is owned by the energy company NUON during the first 10 year; after 10 year the system will be owned by the house owner. However, in Alkmaar and Heerhugowaard the owner of the house is also the owner of the PV system from the start. Initially, the inhabitants were not very interested, but the introduction of net-metering increased their interest.

Other remarks

In the Heerhugowaard project the municipality had the lead. There are three major subsidizing bodies: the Dutch government, the province of North Holland and the European Commission. The time frames of both the national and European subsidies turned out to be too narrow for the real development of a new town: a mismatch continuously causing almost 'fatal' problems. The important awards which this project has won may have helped the municipality and the province of North Holland not to loose heart.

COMMUNITY INFORMATION

Project leader company: City Heerhugowaard, Postbus 390, NL-1700 AJ Heerhugowaard
Other project company: HALLokaties C.V., Edisonweg 3, NL-1821 BN Alkmaar
Project's www: http://www.pvdatabase.org
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