

Canada: Waterloo, Ontario Solar Community Demonstration Project

BIODATA

PV community name:	Waterloo, Ontario Solar Community Demonstration Project
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:	Demonstration project
Start of operation:	April, 2003
City, state, etc.:	Waterloo, Ontario
Country:	Canada
Latitude:	N 43° 28' 46"
Longitude:	W 80° 32' 28"

PV SYSTEM CHATACTERISTICS

Total PV power:	12,8 kW
Number of houses/buildings:	4 houses
PV power per unit:	3,2 kW/house
Energy yield per year:	1 200 kWh/kW
Main PV system type:	Grid-connected – demand side
Main PV application type:	Inclined roof – integrated
Main PV module type:	Laminates – regular laminate
Main PV cell type:	Amorphous silicon
PV module manufacturer/brand:	Uni-Solar
Inverter manufacturer/brand:	SMA, Xantrex and Fronius
Investment for PV systems:	12 500 CAD/kW DC (including Standing Seam metal roofing material)

OWNERSHIP

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



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PV COMMUNITY DESCRIPTION

PV Community Brief

Waterloo, Ontario is located in central Canada, approximately 600 km South West of Ottawa, the Canadian Capital. This project was the first demonstration of a grid-connected PV community in Canada. The aim was to offer the solar home package; including 3,2 kW of grid-connected PV system with energy efficiency upgrades to the mainstream homebuyer market.

Grid issue

Due to the early stage of the use of grid-connected PV system in the Canadian Market under which this project was performed, significant discussion with the utility was required to allow installations to be connected to the local utility grid. In the net metering scenario, it was difficult to find an appropriate meter that could be used due to Canadian electrical revenue metering regulations and in the end a standard electro-mechanical meter was used.

Urban planning and architectural issues

Only gable roofs with the rear roof surface facing south were used for solar homes. The geometric shape of the roof proved appropriate to provide the required space for the installation of the amorphous silicon PV modules. The rear of the house was the only location that was acceptable by the architect who was required to approve all home designs. The builder, although very supportive of the project, insisted the first of the four homes be built in a smaller adjacent subdivision, rather than being built in the main subdivision. Once comfortable with the aesthetics of the PV, the solar homes could be built in the main subdivision as shown in the picture above.

Economic / financial issues

The solar company selling and installing the PV systems was provided with funding from the Canadian Federal government that resulted in the customer being able to purchase the Solar option with energy efficiency upgrades for 50% of its true retail cost of 40 000 CAD /system. The supporting federal program that provided support for this project was called Technology Early Action Measures (www.team.gc.ca) from the department of Natural Resources Canada (NRCan). The customer entered into a net-metering program with their local utility where the solar electricity was traded at the same price that the customer paid for consumed electricity. Time-of-day pricing was not incorporated into the electricity pricing regime.

Other remarks

As a first in Canada this project provided a significant contribution to the development of grid connection standards and provided a demonstration of PV technology that had a positive aesthetic compared to past applications.

COMMUNITY INFORMATION

Project leader company: ARISE Technologies Corporation

Other project company: Cook Homes (www.cookhomes.ca)

Project's www:

Contact address: ARISE Technologies Corporation

65 Northland Road

Waterloo, Ontario, Canada

N2V 1Y8

Tel: +011 519 725 2244

www.arisetech.com