

## *The Field Trial in Brief*

The aim of the DTI's Domestic PV Systems Field Trial is to use the design, construction and monitoring of a wide range of domestic types of installation as a learning opportunity for key players in the process of PV installation. Information will be gathered on the buildability, operating performance, reliability and maintainability of building integrated PV (BIPV) systems.

Eight installations of photovoltaics are now complete. Six of these are from the first round, whilst Pinehurst and Hamlet 1 are from the second round.

The eight sites are:

1. BedZED- Beddington Zero Emissions Development, South London, Peabody Trust
2. Greenfields, Maidenhead, Royal Borough of Windsor and Maidenhead
3. Hunters Moon, South Devon, Cholwell Energy Systems
4. Montagu Road, North London, Laing Homes
5. Machynlleth, Wales, Cantref (Housing Association)
6. Corncroft, Nottingham, Nottingham Community Housing Association
7. Hamlet 1, Milton Keynes, Bloor homes
8. Pinehurst Estate, Liverpool, CDS Housing

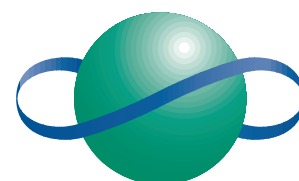
The first four have been described in the first newsletter, while this newsletter deals with the latter four.

The installation process in each case so far has run smoothly, which augers well for future programmes. Any delays experienced have been due to the main building programme or to the complexities of monitoring.

All but one of these sites are new build, but as the second round of the trial gets into its stride more retrofit projects are expected to be included.

Two thirds of the projects are for social housing schemes where PV has a role in reducing fuel poverty.

- Over 500 dwellings to benefit
- Over 750kWp total rating to be installed
- Two thirds social housing or mixed developments
- Thirty sites
- Sixteen new-build, thirteen retrofit, and one site with both
- Exemplar energy efficiency technology
- New-build located mostly on brownfield sites
- Total budget £5.3 million, excluding management costs



# Machynlleth

## Dyfi Valley, Mid Wales, Cantref (Housing Association)

This 10 unit housing association project, being near the Centre for Alternative Technology, is well located to showcase energy efficient housing.

The modules are mounted onto an Intersole waterproof base designed to be laid onto ordinary felt and battens, to provide the modules with back ventilation, and to interlock with a range of adjacent roofing types. In this case it is edged with Welsh slate in keeping with the locality. The cells, made into modules by Solar Fabrik of Freiburg, Germany, are from Astropower.

The installation has been done entirely by specialist subcontractors to Dulas, rather than the on-site roofers and electricians.

The roof area enabled arrays larger than most other field trial projects. As a result it is estimated that they will provide enough electricity to meet all the tenants' needs.

This site will also provide specialist information on the effect of photovoltaics on the electricity supply grid's safety systems. For technical reasons this is best done where the grid supply is 'weak', ie in a rural situation. Manweb are working with EA Technology on this detailed monitoring. The results of such a study will be invaluable in addressing the concerns of the electricity distribution companies about the potential effect of PV on the network.



*Installation in progress (photo Dulas)*



*The site from the main road into Machynlleth (photo Dulas)*

- 8 systems
- 18.4kWp total rating
- SF115 115Wp mono-crystalline modules
- 35° inclination, 18° off south
- DNO-Manweb/Scottish power
- System commissioning September 2002

# Corncroft

## Green Lane, Nottingham, Nottingham Community Housing Association

The NCHA have promoted a number of developments using environmentally benign methods and materials. Corncroft is a community housing project consisting of 44 ground level bungalows, mainly housing the elderly, but also some young, disabled people. This has now been completed, systems commissioned, and bungalows occupied in a very tight timescale.

The modules are mounted on a British patented mounting frame from PV Systems. It comes factory assembled for sizes of up to 6 modules, above which they have to be joined together on site. The use of this integration system allows the PV to be installed flush with the roof tiles, and for concealing the fixings.

PV Systems fixed the frame and modules and the roofers followed, fitting the tiles up to the edges of the frames and doing the lead flashing. Good co-ordination between the roofers and PV installers is necessary for a job like this.

- 22 systems
- 34kWp total rating
- BP585L mono-crystalline 85Wp
- 30° inclination, orientation almost south
- DNO – East Midlands Electricity
- Systems commissioning March 2002



*The bungalows from the main road, Green Lane*



*A bungalow from within the cul-de-sac.*

## Pinehurst Estate

Liverpool, Lancashire, CDS Housing

In the renovation programme on this estate, nine of the 55 houses were deemed to be beyond economic repair. As they were being completely re-built, they were selected for this project. The nine new properties will be single-household social housing. This is the first of the second round projects to be completed.

The total installation comprises Redland PV700 tiles, 40 on each of the smaller houses and 48 on the larger ones. The Redland system was chosen because other houses on the estate have these tiles. Each PV tile displaces four conventional tiles. Total installed capacity will be 13.72kWp.

The installation was by the main roofing contractors who were given some initial instruction about handling and connections between the modules. The PV contractor installed and labelled the DC cabling before they began.

The PV tiles are not designed to look like tiles, but rather to fit in with the tiles' horizontal lines, keeping flush with them and not exposing any supporting frame. The result is an uncluttered roof which exposes the PV to view.

This project will provide a showcase for PV as an integral part of urban regeneration.

- 9 rebuilt houses
- 13.7kWp total
- Redland PV700 tiles
- 35° inclination, 55° west of south and 24° west of south
- DNO – Manweb
- First occupations late Summer 2002



*The tiles being installed (photo CDS)*



*Installing the counter battening to provide an air gap for cooling behind the tiles*

# Hamlet 1

## Milton Keynes, Buckinghamshire, Bloor Homes

Bloor Homes and English Partnerships are collaborating in this project to integrate 17 PV systems into a large new-build development at Broughton Leys, near Milton Keynes. The PV systems will be installed onto a mixture of social and private houses. Eight of them are terrace houses in a crescent shape. The remaining houses have been selected for their south facing roofs.

The house designs incorporate high energy performance (NHER 10) with good standards of insulation, condensing boilers and low heat loss glazing. The development, based on the urban village principle, has won a design award.

The Pfeleiderer Terra Piatta solar tiles use Solarwatt crystalline modules. Each module takes the place of six ordinary clay tiles, which are a flat tile in this case. They have been installed, without requiring excessive extra time, by the main roofing contractor with a little training by Solar Century.

- 17 systems
- 36.6kWp total rating
- Pfeleiderer Terra Piatta tiles 52Wp
- 30° and 40° inclinations, orientations almost due south
- DNO – Powergen (East Midlands Electricity)
- Final commissioning November 2002



*A completed house showing the good visual integration achieved*



*Final touches to the roof, showing the PV, ventilation tiles and ordinary tiles cut to fit at their lower edges*

For Further Information

DTI Renewable Energy Website  
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