

Case Study: Primrose Hill Solar Village



PROJECT SUMMARY

This case study provides an overview of an initiative to create a solar village including 121 solar-powered homes as part of an overall regeneration scheme for the Primrose Hill area in the Kirklees District. This includes existing houses managed by Kirklees Neighbourhood Housing and new homes being built by Yorkshire Housing Group.

The Primrose Hill Solar Village includes:

113 kWp of solar electricity PV (photovoltaic) systems:

- 58kWp of 'bolt-on' systems on existing social housing properties including 12 individual bungalows, 34 two storey houses and 3 two storey flats (1kWp per home).
- 55kWp of roof integrated systems on 31 new houses and a new building containing 48 flats.

and:

- 63 solar thermal (hot water) systems on 32 existing social housing properties and 31 new homes.

PROJECT AIMS

The project aims to:

- Reduce tenants' fuel bills. The solar installations will provide around 20% of electricity needs and 50-60% of tenants' hot water needs.
- Supply tenants with power from renewable energy sources, which will contribute to reaching a target of meeting 5% of the Kirklees district's energy demand from renewable sources by 2005.
- Increase the Council's capacity to deliver large scale renewables initiatives on domestic properties and maintain its leadership in the support of renewable energy both locally and in the UK.
- Develop local skills.
- Make a huge reduction in climate change emissions (over 50 tonnes of carbon dioxide per year).
- Support Decent Homes energy efficiency improvements on the existing houses
- Contribute to achieving an Ecohomes 'Excellent' status for the new build development.

WHO IS INVOLVED?

This initiative is run by Kirklees Council's Environment Unit in partnership with:

Existing houses

Kirklees Neighbourhood Housing
Kirklees Energy Services

Installers:

David Fountain, Solar Energy Systems
FilSol Solar Limited
SunCities UK partner Energy for Sustainable Development (ESD)

New build

Yorkshire Housing Group
WATES Construction
Kirklees Energy Services

Installers:

David Fountain, Solar Energy Systems
FilSol Solar Limited
SunCities UK partner Energy for Sustainable Development (ESD)

Tenant representatives, local Councillors and tenants have provided a high level of support to the project. Kirklees Strategic Housing has also provided project support.

HOW WAS IT STARTED?

The project at Primrose Hill is part of a European scheme called SunCities. Through this programme Kirklees Council, with partners from the Netherlands and Germany, aims to install a total of 3.05 MW (megawatts) of solar photovoltaic (PV) systems on several thousand dwellings. This includes a total of 400kW of PV in Kirklees. This represents 4.9% of the UK's installed capacity of solar PV (based on a 2004 estimate), which shows how significant this project is.

The KNH-managed homes at Primrose Hill were chosen as they had already received energy improvements under the Decent Homes Plus programme. The Yorkshire Housing Group new homes were included as this programme would contribute towards achieving an Ecohomes 'excellent' rating.

FUNDING AND EXPENDITURE

This project has brought a significant amount of money (more than £400,000) into the Kirklees community, from the following funds:

	Primrose Hill Solar PV	Primrose Hill Solar Thermal
Total cost	590,000	124,500
Funding:		
DTI Major PV and ClearSkies Programmes	310,000	60,500
EU SunCities programme	125,000	
Yorkshire Housing Group	75,000	31,500
Kirklees Neighbourhood Housing	55,000	
KMC Single Regeneration Budget		25,000
KMC Renewable Energy Fund	25,000	7,500

MEASURING SUCCESS

- Technical. The PV systems will be monitored for their performance.
- Social. There has been 100% uptake from tenants as a result of liaison by KNH staff and tenant area representatives.
- Environmental. This project will save more than 50 tonnes of carbon dioxide every year.

TECHNOLOGY

Solar PV

Average capacity per residence	1.0 kWp
Module type:	Framed poly-crystalline silicone module
Array size	10 modules of 100Wp rating 2.6m wide and 3.3m high
Structural integration:	Aluminium frame with slide-in module systems. 'Bolt-on' on existing homes, roof integrated on new homes
Energy produced each year per home	Around 780kWh
% of home's energy produced	20% approx, depending on energy use in the home

Solar thermal

System size per residence	3m ²
Energy produced each year per home	1730kWh
% of home's hot water produced	50-60%
Storage system	Condensing boiler

Energy performance of the existing KNH homes

Decent Homes Plus upgrades	Improving wall and loft insulation and installing double glazing.
Wall U-value (W/m ² K)	0.85
Windows U-value (W/m ² K)	3.3
Roof U-value (W/m ² K)	0.9
Floor	0.7
SAP	82
Construction	Traditional brick and stone

ACHIEVEMENTS

- The installations on the existing KNH homes were completed in September 2005.
- The installations on the new build Yorkshire Housing properties were completed in September 2006.
- There has been a very positive response from tenants. In addition, through consultation exercises running parallel with this project, residents in other areas of Kirklees have expressed their support for more renewables to be installed in Kirklees.
- The project has benefited from strong Councillor support, which has assisted greatly in obtaining funding and Council approval.
- Local jobs have been created and local skills increased. This includes training a local solar thermal installer in solar PV installation and the establishment of a new team with demonstrated experience in installing solar PV and solar thermal systems on social housing properties.
- More than £400,000 in external funds has been brought into the Kirklees community.
- The project has attracted national attention as a result of a visit from Elliot Morley (Minister for the Environment and Climate Change) as part of a tour of best practice sustainable development initiatives in West Yorkshire in Sept 2005 and the Duke of Edinburgh in May 2007.
- The SunCities project was recognised by the prestigious Ashden Awards for excellent local sustainable energy projects in 2006.



PROBLEM AREAS AND LESSONS LEARNED

- Provide information to tenants about the systems, including energy efficiency advice, any savings to be made and who to contact if there are any problems. This will ensure that tenants actually benefit from the systems. This information should also be available for future tenants.
- Multiple funding streams can be very challenging for Council Officers having to bid and assemble funding packages and contracts. To overcome this we would encourage Councils and Housing Associations to increase their in-house funding allocation to projects.
- Regular project meetings are essential. We found that these installations involved many new concepts that needed to be explained in detail.
- Ensure all parties are committed to grant timeframe deadlines. This is particularly important when managing multiple funds.
- Assist installers with Council procedures such as responding to Health & Safety requirements. The installers are often on site and may be the only person in their company so they have limited time to complete the necessary paperwork.
- Use local installers. This increases the economic benefits to the local area.
- Encourage developers to become involved by highlighting the benefits, such as assistance with meeting EcoHomes standards and early compliance with future policy.
- Link to Renewable Obligation Certificates (UK) and the sale of surplus electricity. If appropriate, provide tenants with information about how to do this.

PLANS FOR THE FUTURE

As a result of the Ashden Awards 2006 Kirklees are implementing a mentoring programme for Housing Associations. The aim of the programme is to build the capacity in the Kirklees district and the wider Yorkshire & Humber region to deliver medium to large scale sustainable energy projects in the housing sector.

CONTACT DETAILS

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Produced by: Kirklees Council Environment Unit

Updated: May 2007

