



Photovoltaics in the UK

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Problems and solutions

Within PV UP-SCALE we have reviewed PV projects in the UK, Germany, Austria, the Netherlands and France

Common Success factors

- Positive local political commitment (champions and prizes)
- Renewable obligations of some kind
- Provision of information, e.g. local energy agencies (compulsory in Gleisdorf)
- Economic benefits assessed and publicized
- Schools included in demonstration projects, links to curriculum needed and ownership
- Consumers energy behaviour encouraged to change
- Challenging and inspiring development opportunities

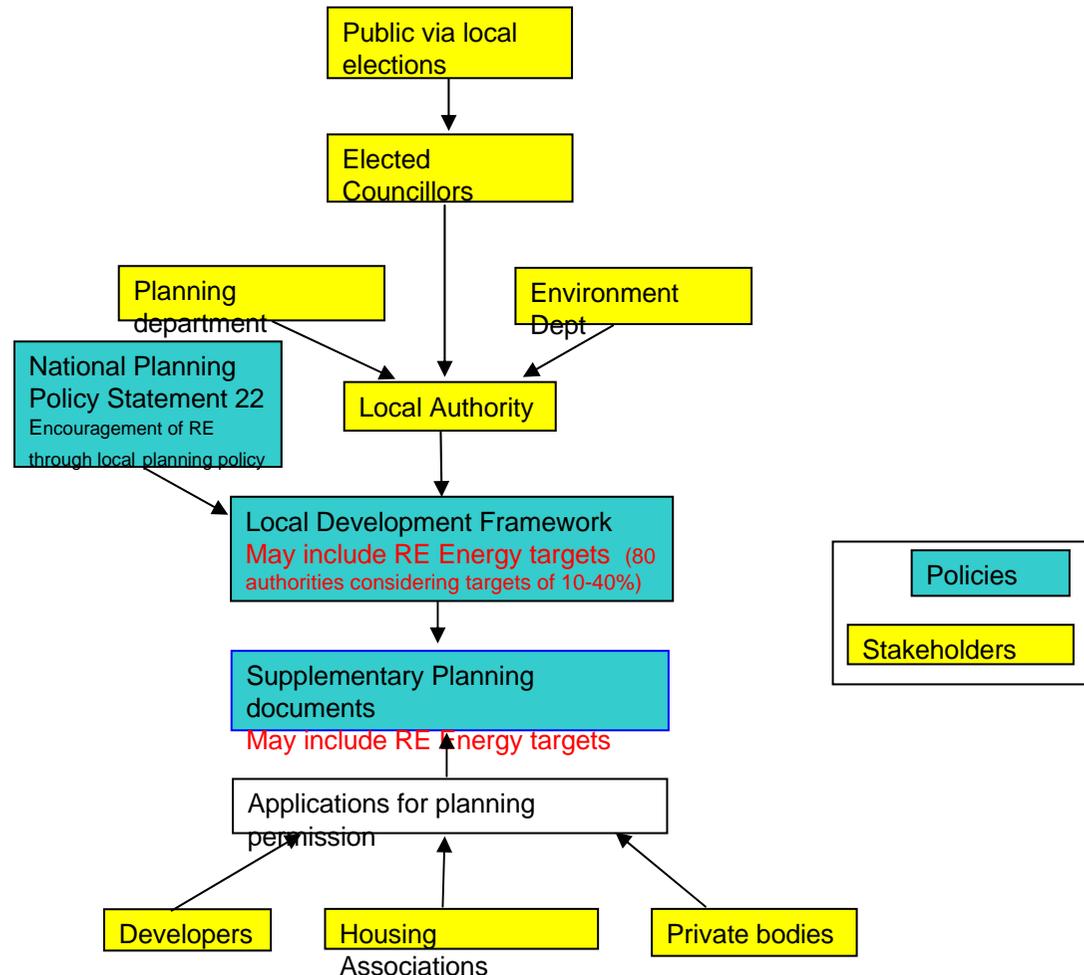


- Common problems to solve
 - Capital finance
 - Grants
 - Shares
 - Payment for renewable electricity
 - Renewables premiums, Germany - UK
 - Maintenance, different needs for different occupiers: utility, school, private house, rented house.
 - Commitment of owners and tenants



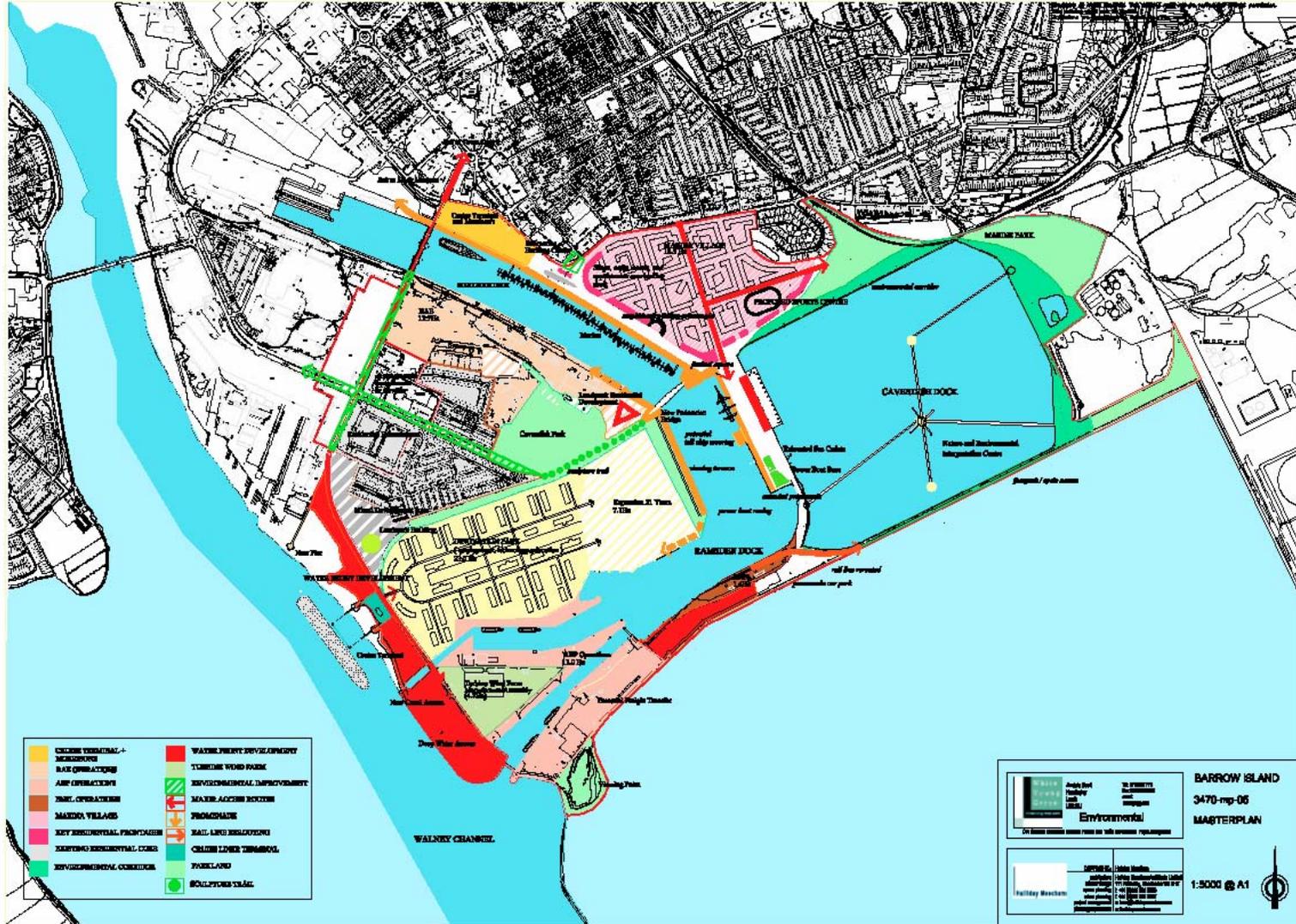
Urban Planning and PV in the UK

- National Planning Policy Statement 22 specifies the encouragement of renewable energy at a local level.
- Local development frameworks (LDFs) will come into force in 2007 and last for 10 years.
- Around 80 authorities are including renewable energy rules, typically all new large developments (10 or more dwelling or > 2000m²) must generate a percentage of their energy requirements from on-site renewables, range from 10% - 40%.
- Planning departments limited to assessing whether or not applications for planning permission meet various policies. Limited scope for initiating developments which are initiated by developers, housing associations, and building owners.





- Three areas we have looked at in PV UP-SCALE
 - Croyden, a London suburb and one of the first to implement a % renewables rule.
 - Kirklees, an area in the north of England and a PV pioneer area.
 - Barrow a shipbuilding port just starting to look at renewables.



Barrow Port Redevelopment





Kirklees

Kirklees is an area in northern England consisting of the towns of Huddersfield, Batley and Dewsbury and surrounding areas, with a population of around 380 000 people.

Kirklees Council was one of the first municipal authorities in the UK to promote the widespread use of PV on buildings within the urban area. The Council participated in the European funded project SunCities which led to the installation of 350 kWp of PV, mainly on social housing. The Council has also installed PV on council buildings and schools.





PV in Kirklees

- In the SunCities project PV was installed in a number of locations.
 - 40kWp retrofit to 31 houses in a social housing complex
 - 50 kWp on the roof of Titanic Mill, the conversion of an historic textile mill into 130 luxury apartments and spa.
 - 110 kWp in Fernside retrofit to 100 social housing properties, mainly occupied by elderly and disabled, as well as 2 local schools
 - 113 kWp Primrose Hill – A solar village with 121 new and existing houses and flats.
 - 40 kWp on 6 new build care homes for the elderly and people with disabilities.
- Others projects in the area:
 - ZEN- Civic Centre III. PV (17.6kWp) solar thermal and two 6kW wind turbines installed on one of the main council buildings.
 - Moldgreen Primary School – 15.36kWp with funding from the Major PV Demonstration Programme and the Councils' Renewable Energy Fund.
 - Scholar Programme – Cliffe House 0.8kWp



Political Commitment

- Strong commitment to renewables in local council
- Dedicated Environment Unit covering areas of work such as biodiversity, energy management and renewable energy, environmental management systems, planning and policy development. Unit manager is a champion for renewables.
- Success in the early projects led to continuing political support, strengthening of policies to support renewables and further successful projects. Commitment to renewables strengthened when Kirklees won:
 - Ashden Award for Sustainable Energy
 - British Renewable Energy Association Award
 - Green Apple Award.



Renewables Obligations

- Recently adopted 2025 Kirklees Environment Vision includes commitments to:
 - reduce greenhouse gasses,
 - work with partners to become carbon neutral,
 - continue to raise awareness of climate change and its impacts
 - to raise the environmental standards of buildings.
- To meet these policies the council has set ambitious targets for the use of renewable energy in the district. Targets have been set in 4 areas:
 - Reducing the council's own CO₂ emissions by greater than 30% by 2020 from a 2005 baseline. This follows on from a successfully achieved target of a 30% reduction by 2005 from 1990 baseline.
 - By 2010/11 all new council buildings will meet 30% of their energy demand from on-site renewable energy sources.
 - New developments across the district will be required, to reduce CO₂ emissions through increased efficiencies and incorporating renewable energy sources. Targets and thresholds are under review. Possibility is to reduce predicted CO₂ emissions by at least 10% by 2010, 15% up until 2015 and 20% up until 2020. This applies to all non-residential developments above 500m² and all residential developments.
 - Increasing the proportion of the district's energy consumption coming from renewable resources to 10% by 2010. This follows on from a target to meet 5% of the districts energy consumption from renewable sources by 2005. Despite the considerable progress made these targets are still a long way from being achieved. It is recognised that much larger scale projects are needed if these targets are to be reached.

Economic benefits assessed

- In Kirklees the impact of renewable energy on the local economy was checked and the results publicized.
 - Local jobs have been created and local skills increased.
 - More than £400,000 in external funds has been brought in to the Kirklees community.
- The project has attracted national attention
- Fuel poverty among the elderly and poor has been reduced



Schools

- PV installed in local schools early on



Moldgreen Primary School



Energy Behaviour

- Impact on energy behaviour addressed
- Information provided on energy efficiency and making the most of the PV.
- Results assessed.



Development Opportunities

- Challenging development locations result in ambitious ideas!
- Early input is most effective.
- In Kirklees the Environment Unit coordinates activities that promote and support the development of renewable energy both within and outside the Council including policy advice, technical and financial advice, developing demonstration schemes, securing and administering financial support for renewable energy.
- Good links between developers and the local council at the early stages of project development can lead to interesting projects
- Diverse locations used where opportunities arose





Finance for capital

- Capital funding available from council and assistance in applying for national or European funding
- the Kirklees Council Renewable Energy Capital Fund. The fund was set up in 2000 using savings from reduced National Insurance contributions under the climate change levy.



Payments for electricity

- Tried to obtain renewables premium but too complicated in the UK.
- Until recently only large renewable generators could obtain Renewable Obligation Certificates (worth around 4.5p/kWh) for the export of **renewable** electricity. Recent changes to legislation have simplified the process but a lot of paperwork and effort is still required to obtain and sell ROCs.
- Nor has it proved possible for householders to group together and aggregate ROCs to sell. These problems led to Kirklees Council lobbying for better payment for export of electricity and easier access to ROCs for small generators.
- Negotiating payments for exporting electricity is a complex process and may involve switching to a more expensive electricity tariff. There are a number of suppliers who will offer to buy back energy from householders.
- The majority of householders have not obtained agreements to sell excess electricity.



Maintenance

- Housing Associations have maintenance contracts with installers or Kirklees Council Building Services
- Local installers are easier to get back than national !!
- With schools or care homes it is important to make sure someone at the building “takes ownership” of the PV. At one site there was a fault showing on the display panel because one of the inverters was down but it was not noticed or reported. Watch out for personnel changes.
- At Fernside there are monthly visits from the energy co-ordinator who collects data and chats!





Owners and tenants

- Private house owners who have chosen a PV system have an incentive to keep it working, but if the house is sold the new owners will need to get to know the system.
- Creating an energy service company to own and run the PV system is an alternative that particularly suits apartment buildings such as Titanic Mill.
- Tenants need to know something about their PV systems. In Kirklees the housing associations prepared leaflets and the installers explained the systems when they were installed.
- The systems have been particularly successful at estates with a stable population and involved tenant representatives.
- At the first estate where PV systems were installed the tenants have changed fairly frequently leading to a poor understanding. A tenant information sheet is now included in all new tenant packs.
- Tenants not planning on staying long are less interested

