Runnymede BOROUGH COUNCIL

Renewable Energy

Interim Advice Note

February 2010

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This note is intended to assist applicants, agents and developers in completing an acceptable energy statement to demonstrate what energy efficiency and on site renewable energy measures are being incorporated within a proposed development to comply with current policy requirements.

Contents

1. Background to the Interim Advice Note

1.1 The South East Plan was published in May 2009, replacing the Surrey Structure Plan 2004 as part of the development plan. One of the Plan's primary purposes is to promote renewable energy and energy efficiency through new development. In addition, it promotes prudent use of energy through improving the quality of the built environment as part of high quality design. One of the principal aims of the South East Plan is to achieve at least 10% of the energy of development from renewable or low carbon sources.

1.2 Runnymede Borough Council has published a Sustainable Communities Strategy and Corporate Plan called 'Making a Difference. One of the priorities to make a difference for Runnymede is to promote the sustainable use of resources. The Preferred Approaches Core Strategy published in June 2009 also has a core objective to help tackle the causes and effects of climate change encouraging among other things, renewable energy provision.

1.3 This Interim Advice Note updates the existing Advice Note first published in April 2007. It explains the current policy background to achieve renewable energy in the Borough, continues the current approach for every new development to achieve 10% of the energy requirement through renewable energy, and provides advice to applicants on the range of renewable energy technologies, which may be incorporated into developments to achieve this aim. This note also explains what should be included in an energy statement when submitting a planning application to Runnymede Borough Council for new development.

1.4 For clarification, at present this policy approach applies to new or replacement dwellings, but does not apply to householder extensions.

1.5 Householder extensions will be required to meet current building regulations.

2. Government policy approach to climate change and renewable energy

2.1 There is compelling evidence that significant climate change is occurring and the Government has signed up to challenging targets for reducing carbon dioxide emissions, which has been identified as one of the main factors in climate change. The Climate Change Act 2008 introduced a legally binding target of at least an 80% cut in greenhouse gas emissions by 2050, plus a reduction in CO_2 emissions of at least 26% by 2020. The critical importance of energy efficiency and renewable energy in mitigating climate change underpins national policies and targets.

2.2 Some of the Government's targets are:

(i) to meet 10% of UK electricity generation from renewable sources by 2010, and to increase this by 2020

(ii) To reduce domestic energy consumption by 30% by 2010

(iii) To ensure all new homes are built to zero carbon standards by 2016

(iv) To eradicate fuel poverty among vulnerable households in the UK by 2016-18.

2.3 The Government has published a series of Energy White Papers which have continued to stress the commitment to increase the use of renewable energy. Most recently, the UK Low Carbon Transition Plan and the UK Renewable Energy Strategy were published in July 2009, which reaffirmed the agreement to drive the uptake of renewable energy across Europe, whereby 15% of energy in the UK must be from renewable sources by 2020.

3. National Planning Policy Statements

3.1 National planning policies have continued to put renewable energy at the top of the agenda in addressing climate change. Planning Policy Statement 1 'Delivering Sustainable Development' – PPS 1 sets out the Government's objectives for achieving sustainable development, this is identified as the core principle underpinning planning. One of the key aspects of this is the prudent

use of natural resources. Development plan policies are required to take account of environmental issues such as climate change and the mitigation of its effects. PPS 1 Supplement sets out how planning should contribute to reducing CO_2 emissions and stabilising climate change. Proposed development is expected to comply with policies for decentralised energy, and to take account of site characteristics to minimise energy consumption and support opportunities for renewable energy.

3.2 Planning Policy Statement 22 'Renewable Energy' – PPS 22 stresses that increased development of renewable energy resources is vital to facilitating the delivery of the Government's commitments on both climate change and renewable energy. It places a requirement on development plans to contain policies designed to promote and encourage, rather than restrict, the development of renewable energy resources. The role that small-scale projects can play in providing a valuable contribution to overall outputs of renewable energy is also acknowledged. Local policies are encouraged to require a percentage of energy used in a development to come from on-site renewable energy, so that each local authority can contribute to meeting targets and reducing overall demand for energy.

4. The South East Plan May 2009

4.1 The South East region is already being affected by signs of climate change with the 1990s being the warmest decade in 100 years, and is more influenced by climate change than any other part of the UK. The Plan states that the Region has a very low base of renewable energy development, with less than 1% of electricity coming from renewable resources in 2003. The Plan acknowledges that the Region needs to do much more to contribute to the national target of reducing greenhouse gas emissions. '*Balancing affluence with the need to live within environmental limits will mean changes in the behaviour of residents, businesses and all others who live, work, visit or invest in the region, and will be one of the biggest challenges for the next few decades.*'

4.2 The main priorities of the South East Plan expressed in Policy CC1 include:

- achieving sustainable levels of resource use;
- reducing greenhouse gas emissions associated with the region;
- ensuring that the South East is prepared for the inevitable impacts of climate change.

4.3 Policy CC2 clearly identifies that positive planning is required to achieve regional targets for reducing CO_2 emissions, which are 20% below 1990 levels by 2010, 25% by 2015 and 80% by 2050. One of the primary means of reducing CO_2 emissions is through the use of renewable energy to generate electricity. Policies CC3 and CC4 require increased efficiency of use of resources and sustainable construction methods, including renewable technologies.

4.4 The Plan requires increased proportions of energy to be generated by renewable sources. These targets are both regional and sub regional and are detailed in Policies NRM13 and NRM14. Runnymede is situated within The London Fringe and this has the highest targets of any sub-region. All local authorities are required to include policies in development plans to contribute to these targets and by 2026, 16% of the electricity generated in the Region is expected to be from various scales and types of renewable resources. Other sources of energy are harnessed to heat water that is used for both domestic water and heating purposes. These alternative sources either directly tap in to the sun's energy or access the earth's natural heat.

4.5 Policy NRM11 is the detailed policy requiring renewable or low carbon energy to be secured in new development. Authorities are required to set ambitious and deliverable targets, which should be set out in development plan documents. The policy gives a target base figure of 10% for major developments until more detailed Local Plan policies are in place. Runnymede currently operates an Interim policy approach with a requirement of 10% of energy for all new development to come from renewable sources.

5. Runnymede Borough Council's approach to renewable energy in new development

5.1 The Council's previous Interim Advice Note included the target for 10% of the energy requirement for a development to be provided by renewable energy. This figure was derived directly from Policy SE2 of the Surrey Structure Plan 2004. In April 2009, the South East Plan replaced the Structure Plan. Policy NRM11 of the South East Plan identifies that a new development should secure at least 10% of their energy from decentralised, renewable or low carbon sources. As Runnymede has successfully operated the Interim Advice based on a target of 10% applying to all new development, this approach will be continued in this updated Interim Advice, pending the adoption of the Local Development Framework Core Strategy and more detailed Development Plan Documents (DPDs).

5.2 The Council's Adopted Validation Document (available on the Council's website) require an Energy Statement to be submitted with every relevant planning application. All planning applications for new houses, offices and other developments proposing new buildings and conversions involving one unit or more will be expected to incorporate renewable energy measures and should include an energy statement.

5.3 The Energy Statement should clearly show the predicted energy requirement of the development and how at least 10% of the energy requirement can be achieved by renewable measures. In cases where sites are physically/environmentally constrained opportunities for providing renewable energy may be limited. This should be clearly explained in the Statement. Details of the chosen renewable technologies and calculations should be included with the application and shown on the plans and elevations where relevant.

5.4 An Energy Statement, together with the Design and Access Statement which should include information showing how sustainability issues have been addressed during the design process should be the first step in planning high quality development and should not be an after-thought. The remainder of this Interim Advice Note will explain what Runnymede requires in an Energy

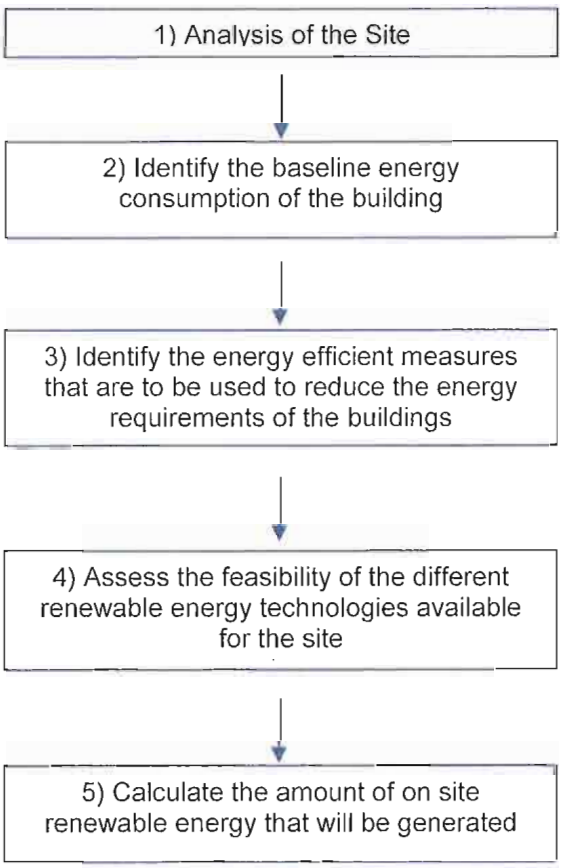
Statement and gives advice on how developments can be designed to maximise energy efficiency and reduce the energy requirement.

Relevant Documents:

- Climate Change Mitigation and Adaptation Implementation Plan for the South East March 2007
- Making a Difference Sustainability Community Strategy and Corporate Plan Runnymede Borough Council January 2009
- Planning for Renewable Energy – Companion Guide to PPS 22 2004
- Planning Policy Statement : Planning and Climate Change Supplement to PPS1
- Planning Policy Statement 1: Delivering Sustainable Development 2005
- Planning Policy Statement 22: Renewable Energy 2004
- Preferred Approaches Core Strategy Runnymede Borough Council June 2009
- Surrey Design – A Strategic Guide for Quality built environments.
- The South East Plan Regional Spatial Strategy for the South East of England Government Office for the South East May 2009
- The UK Low Carbon Transition Plan – National Strategy for Climate and Energy HM Government July 2009
- The UK Renewable Energy Strategy HM Government July 2009

6. Requirements for an energy statement submitted with a planning application to Runnymede Borough Council.

Follow the steps in the flow chart:-



i) Site Analysis

The Supplement for PPS 1[1] advises that when considering the environmental performance of a development, a Design and Access statement for a new development should expect to take into account various issues. These include:

Landform – Natural physical features of the land.

Building orientation – Is the area predominantly south facing?

[1] Planning Policy Statement: Planning and Climate Change Supplement to Planning Policy Statement 1 Para 42

Massing and Landscaping – Are there any mature trees on or close to the site, and are they deciduous? These could provide screening which could assist in cooling, but may limit the opportunity for Solar heating or PV panels.

Water courses – Is there a river nearby? This could be used for siting ground source heat pumps, and/or hydropower.

Building styles and heights – Are the surrounding buildings tall or small. This could influence the type of buildings on the site and their location, to minimise energy demands.

Land heights – Higher land may lead to increased opportunity for solar and wind technology.

Wind speeds –
Low wind speed – limited chance for wind power generation.
High wind speed – good opportunity to harness wind.

Urban or rural setting – Could help in type of wind turbine chosen, and opportunity for different types of heat pumps.

Site Constraints – Is the site within the Green Belt? Is the site within a Conservation Area? Is the site within the curtilage or adjacent to a Listed Building? Are there Tree Preservation Orders on the land? Does the site fall within an area of High Archaeological Potential? These constraints will assist in determining the type of technologies that are feasible and shape the design of a proposed development.

This is a factual account using words, drawings and/or photographs to explain the setting of the site. Carrying out this analysis will aid in designing a proposal that has a low energy requirement, e.g. by positioning main rooms facing south; optimising the use of natural sunlight; and one that is resilient to Climate Change. Conducting a site analysis will also help in identifying whether or not certain types of renewable energy would be suitable for the site. You will need to visit the site to do this; it cannot be done wholly as a desktop exercise.

ii) Identify energy requirements

This is the electrical, heating, lighting and cooking energy that would be consumed by the occupied building over a year if it were built to Building Regulations minimum standards.[2]

The energy requirements will vary depending on the site, its surroundings and the type of proposal. Benchmark data can be used to calculate the baseline energy requirement. In the case of households, utility bills may provide an indication of energy output. All measurements of energy should be in kWh (kilowatt-hour).

The following table presents an illustrative view of average types of houses and provides examples of approximate annual energy requirements including gas central heating, lighting and cooking, based on types of new dwellings. However each energy statement should give specific information about the energy requirement of the development. Many residential developments in the Borough will have much greater energy requirements. Home cinemas, use of basements, can also increase energy requirements with swimming pools increasing this by as much as 20,000 kWh per year. Therefore, these figures detailed below are for illustrative purposes only.

Examples of dwelling type and floor area	**Average Energy requirement** kWh/year	**Energy requirement deriving from a renewable energy source (10%)** kWh/year
Top floor flat 60.9m²	**8456**	**845.6**
Mid-terraced 78.8m²	**9443**	**944.3**
Semi detached 88.8m²	**11205**	**1120.5**
Detached 104m²	**13233**	**1323.3**

(Source: The Energy Saving Trust)

As the applicant, you will have certain development objectives, e.g. minimum floor space; financial outlay; positive commercial image; matching external

[2] Part L Conservation of Fuel and Power Approved Documents cited by the Building Regulations 2000. Office of the Deputy Prime Minister April 2006

materials; room sizes; number of units; number of rooms; position of rooms etc.

The constraints and opportunities for the energy requirements should be combined with important features identified in the site analysis and your own development objectives.

iii) How to reduce the energy requirement of the proposal

Describe the 'best practice' energy efficiency measures that will be included in the design of the development which will reduce the baseline energy requirements including:

- Double/triple glazing
- Energy efficient boilers
- Roof and wall insulation
- Use of energy efficient construction materials
- Energy efficient lighting

Careful design and layout of a building can help to reduce energy requirements this can be achieved by various means including:

- Solar gain from orientation and layout of buildings –Taking account of the sun when designing masterplans and individual buildings can reduce the need for additional lighting or cooling where appropriate. Locate tall buildings to the north of a site and shorter buildings to the south and orientate properties with a southerly aspect.

- Internal arrangement – More frequently used rooms such as living rooms and main bedrooms should be orientated to face south.

- Use of natural ventilation and lighting – To ensure that excess heat can be expelled within a building, thereby reducing the energy need for heating and cooling.

- Window size, design and layout – Larger windows on south elevations trap light and solar warmth. These should serve more commonly used rooms.

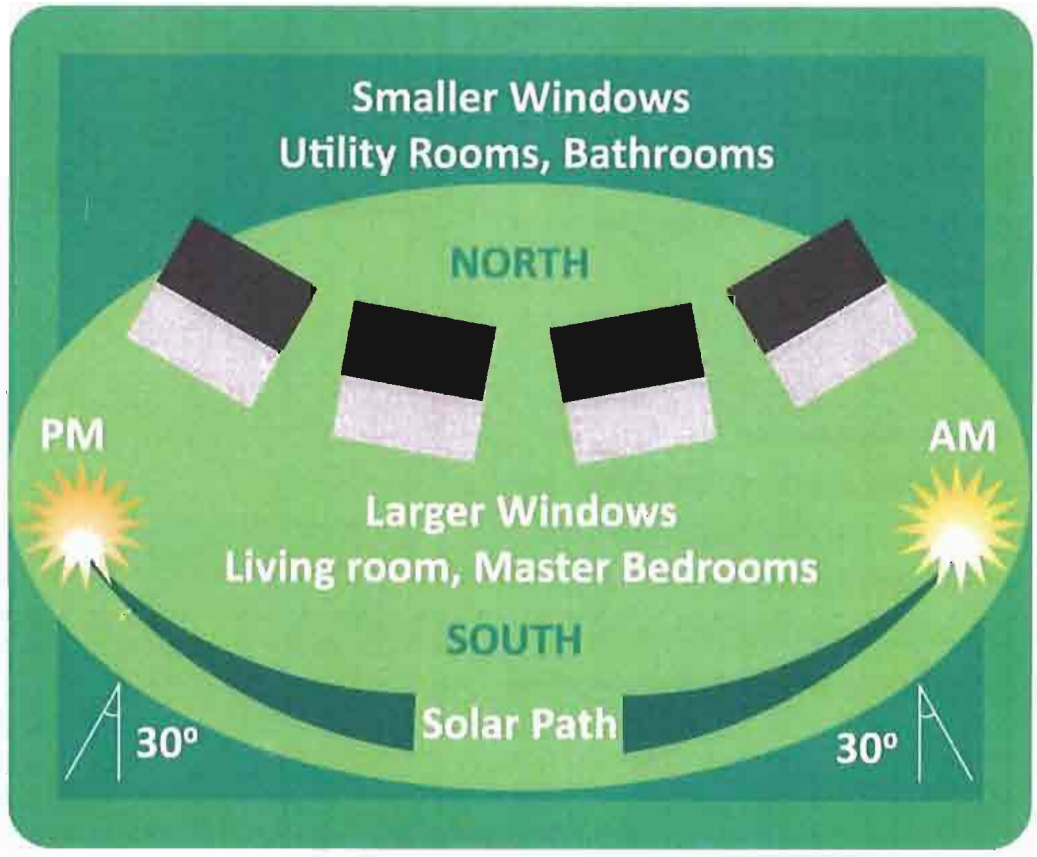
- Overhanging canopies/eaves can shield south facing rooms from direct sunlight.

- Sensible landscaping – Deciduous trees can provide shade in the summer months, but allow sun to filter through in the winter months.

- Use of light reflective interior paint to improve natural light and reduce energy requirements for lighting.

The following diagram shows some of the ways energy can be minimised.

Figure 1



Solely reducing the baseline energy requirement of a building by having good energy efficiency measures are not sufficient to address the requirements of an energy statement.

iv) Assessment of renewable technologies

Once the assessment of technologies has been completed, clearly identify the chosen renewable energy technologies to be used and justify why that technology is being proposed. Details of technology/technologies must be submitted with proposals and shown on accompanying plans and elevations.

Popular examples of renewable energy include Photovoltaic (PV) Panels; Solar Water Heating; Air Source Heat Pumps and Ground Source Heat Pumps (GSHP), and in larger developments, Wind and Biomass generated energy.

The position and angle of any roof installations will need careful consideration to avoid any undue visual impact on the street scene. This can be a particular problem in cases where a building is designed to have a flat roof. Early consideration of this is vital to achieving a successful outcome to a planning application.

Photovoltaic panels

PV panels harness the sun's light, turning it in to electricity. These can be added onto the roof or incorporate into the fabric of the unit i.e. as part of an elevation to provide detailing or roofline.

Source: British Gas

Solar water heating

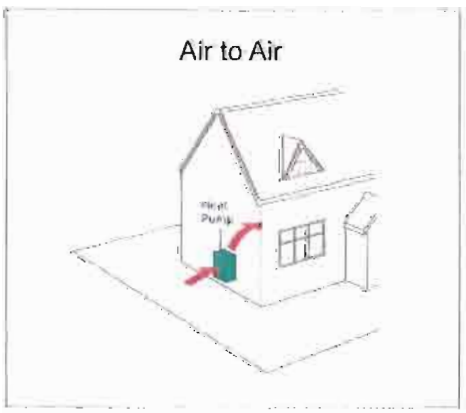
Solar water heating systems use the sun's energy to warm domestic hot water. A conventional boiler or immersion heater is then used to make the water hotter, or to provide hot water when solar energy is unavailable.

Source: Energy Savings Trust

The redevelopment of **Freemantles School** incorporated the installation of solar thermal panels on 12 of the proposed homes to provide 10% of the site's energy requirements from renewable resources, as they were easy to install and rely on daylight rather than sunlight (so can be used all year round). These have been incorporated with the dwellings and are in line with the roof slope, being subservient and not visually prominent on the building.

Air source heat pumps

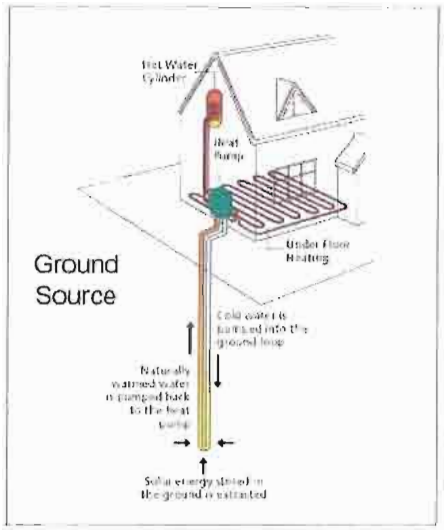
These are fitted externally, take heat out of the air, and can be used for under floor heating, radiators of hot water. They do not take up a lot of space, however could affect residential amenity by noise and vibrations.



Source: www.heatpumps.org.uk

Ground source systems

Ground source systems use closed pipes / loops buried in the ground to extract heat and are connected to heat pumps. They can be coiled, piled or laid on the bottom of a water course. These can be used for underfloor heating or for radiators.



Source: heatpumps.org.uk

Wind turbines

These can be vertically or horizontally mounted. Vertical mounted turbines are best used when the air is turbulent in urban areas, whereas horizontal mounted turbines need clean unobstructed air to operate.

Source: www.est.org.uk

Biomass boilers

Boilers run from wood chippings or pellets. The use of these is dependent upon a supply of wood chippings or pellets.

Source:
www.biomassenergycentre.org.uk

The site needs to be assessed to identify the most feasible technologies for renewable energy. The following table is an example of how the assessment of technologies may be displayed in your statement

Technology	Feasible	Reason
Ground Source heat pumps	Yes	Sufficient ground coverage
Solar thermals	No	Slope of land would not allow re-orientation of building for optimal "sunlight catching"
PV Panels	Yes	Dependent on solar radiation, but not orientation dependent
Wind turbine	No	Not enough exposure to wind
Air Source Heat Pump	No	Equipment causes neighbour noise problems

v) Calculate the amount of on site renewable energy

This should be explained in a clear and simple method, ideally in a table. It should be clear what the energy requirements of the building would be, the chosen renewable energy generator, how much energy would be generated from renewable energy sources, and the percentage of how much of the required energy for the building would be generated by renewable energy technology. The chosen technology should be shown on all relevant plans and elevations

Example of how this should be shown is displayed below:-

Total energy requirement of development	Proposed level of energy generated from renewable methods	Proposed net energy requirement of a building	Percentage of energy requirement for building generated by renewable methods
45,000 kWh/yr	15,000 kWh/yr	30,000 kWh/yr	33%

A template accompanies this interim advice note to assist applicants in the preparation of an energy statement. However, if an applicant prefers to submit a bespoke statement, this must include the above table. The following websites also provide further information regarding renewable energy technologies and energy efficiency:

www.est.org.uk www.carbontrust.co.uk www.breeam.org
www.direct.gov.uk www.bwea.com/ www.heatpumps.org.uk/
www.lowcarbonbuildings.org.uk
www.planningportal.gov.uk/uploads/code_for_sust_homes.pdf

You can contact Planning Officers at:
Runnymede Borough Council,
Civic Centre, Station Road,
Addlestone, Surrey, KT15 2AH

Tel No. 01932 838383 Fax 01932 838384
Website www.runnymede.gov.uk
Email development.control@runnymede.gov.uk

Frequently Asked Questions:

1. What is the difference between energy efficiency and renewable energy?
   Energy efficiency - This is the efficient use of energy in order to reduce economic costs and environmental impacts. It is the use of less energy/electricity to perform the same function.
   Renewable Energy - These are energy flows derived from natural sources that are continuously at work in our environment and are not depleted by being used. Sources of renewable energy include: solar, wind and wave energy.

2. Do I have to install renewable energy on a residential extension?
   No. The Council's current approach is to require renewable energy measures on all new buildings but this does not apply to extensions to residential properties or small buildings within residential gardens. However there are grants available under the low carbon buildings phase 1 for residential properties. www.lowcarbonbuildings.org.uk

3. Is affordable housing exempt?

No. New affordable housing development will be required to include renewable energy measures. The Low Carbon Buildings programme has grants available for renewable energy measures via Micro generation certification scheme. See www.lowcarbonbuildingsphase2.org.uk

4. How can I work out what the energy requirement for my development is?

The Energy Savings Trust has helpful information. www.est.org.uk

5. Will larger houses be required to provide more than 10% of the energy by renewable technology?

No, the 10% minimum target is applied to all schemes but there is no upper limit

6. Does it matter which technology I choose?

Your decision on the choice of technology will depend on the costs of the technology, and the site characteristics and constraints.

7. Is there enough sun in the UK to make solar thermal panels a viable option?

Yes. Solar thermal panels can provide around two thirds of your hot water requirement for the year and need to be sited on a roof space which faces east to west through south and receives direct sunlight for the main part of the day. Solar Photovoltaic panels do not need direct sunlight to work - you can still generate some electricity on a cloudy day and you can sell any electricity you don't use back to the grid.

8. What are benefits of P.V. Panels?

P.V. panels generate electricity from solar radiation, which can be used to substitute for the normal sources of electricity

9. Do Solar Panels need planning permission?

This will depend on the extent to which the solar panel protrudes from the roof. It is advised that you contact the Council's Planning Department for more information.

10. Are there any grants available for improving energy efficiency in my home?

Grants are available for individual residences. If you are over 70 years old, some companies install loft and cavity wall insulation for free. Contact your energy provider to find out if you qualify.

If you are over 60 years old or on benefits, you may be able to get a Government grant. Visit www.warmfront.co.uk for further information

11. Are there renewable energy grants for my home?

You may qualify for a grant towards renewable technologies, providing you have met the energy efficiency criteria for your home.

Visit www.lowcarbonbuildings.co.uk/home for more information.

Any enquiries about this paper should be directed to:

Development Control
Runnymede Borough Council
The Civic Centre Station Road
Addlestone
Surrey
KT15 2AH

Tel 01932 838383

email: development.control@runnymede.gov.uk
www.runnymede.gov.uk

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