



AGENDA

SELECT COMMITTEE - RENEWABLE ENERGY

Monday, 22nd February, 2010, at 11.00 am
Wantsum Room, Sessions House, County Hall,
Maidstone

Ask for: **Christine Singh/Sue**
Frampton

Telephone **(01622) 694334** or
694993

Tea/Coffee will be available in the meeting room

Membership

Mr K A Ferrin, MBE (Chairman), Mr C Hibberd, Mr D A Hirst, Mr R E King, Mr T Prater,
Mr C P Smith, Mrs P A V Stockell and Mrs E M Tweed

UNRESTRICTED ITEMS

(During these items the meeting is likely to be open to the public)

Item No		Page Number
1.	Minutes of the Meeting held on 26 January 2010	1 - 4
2.	Joint presentation by Carolyn McKenzie, Greener Kent Manager and Neil Hilkené, Sustainability Manager	5 - 38

EXEMPT ITEMS

(At the time of preparing the agenda there were no exempt items. During any such items which may arise the meeting is likely NOT to be open to the public)

Peter Sass
Head of Democratic Services and Local Leadership
(01622) 694002

Friday, 12 February 2010

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KENT COUNTY COUNCIL

SELECT COMMITTEE - RENEWABLE ENERGY

MINUTES of a meeting of the Select Committee - Renewable Energy held in the Wantsum Room, Sessions House, County Hall, Maidstone on Tuesday, 26 January 2010.

PRESENT: Mr K A Ferrin, MBE, Mr C Hibberd, Mr D A Hirst, Mr R E King, Mr T Prater, Mr C P Smith, Mrs P A V Stockell and Mrs E M Tweed

ALSO PRESENT: Mr D L Brazier

IN ATTENDANCE: Mrs S Frampton (Research Officer), Mr N Hilkene (Sustainability Manager) and Mrs C A Singh (Democratic Services Officer)

UNRESTRICTED ITEMS

1. Election of Chairman

(Item 1)

Mrs P Stockell proposed, Mr C Hibberd seconded that Mr K A Ferrin be elected Chairman of this Select Committee.

Agreed without a vote

2. To discuss and agree the terms of reference and general approach to the review

(Item 2)

(1) The Chairman asked officers to introduce themselves to the Select Committee Members.

(2) The Chairman then asked Sue Frampton, Research officer to introduce the proposed scope of the Review. Sue highlighted key aspects of the Scope in particular paragraph 3 'To identify key challenges' suggesting that this was the biggest part of the review covering a range of challenges and opportunities for KCC to influence and develop leadership.

(3) Sue Frampton advised the Members that she had been in contact with Amy Wright, a member of KYCC from Thanet who was very keen to participate in the review. Members were in favour of Amy's involvement on behalf of KYCC, as far as possible, including hearings and visits, with consideration to her school commitments.

(4) Sue Frampton also informed the committee that there may be an opportunity for some joint work with Essex County Council who are conducting a review of the generation of energy and Mr Ferrin agreed to look at this further on 11th February.

(5) Members were then given the opportunity to ask questions and make comments on the Terms of Reference and the Proposed Scope of the Review. Discussion included:

- that there should be more emphasis on 'Energy Efficiency' within the Terms of Reference, as it will affect the baseline requirements. KCC should be leading on Energy Efficiency as the Strategic Authority for Kent and residents need to be able to receive guidance from KCC. (Members were advised that work was being carried out on KCC education estates regarding energy efficiency therefore this should not be duplicated by the Review but the work being undertaken could inform the report).
- establish existing energy patterns.
- Winter/Summer balance (energy requirements)
- the effect of taking energy to the consumer from its source.
- where Kent sits in the context of Europe – could import all energy requirements from Europe?
- the Energy Bill currently going through Parliament
- Medway as part of geographical Kent and its gas importation terminal
- tidal systems – potential for the future in Kent?
- Lack of experienced technicians and experts (covered by KEB task and finish group? – evidence will be requested)

(6) Following their discussion Members agreed the following changes to the Terms of Reference;

- (a) In paragraph 2 after the word 'generation' add the words '*and distribution*'
- (b) In paragraph 3 (b) after the word 'Kent' alter the remainder of the sentence to read '*and it's residents in relation to energy efficiency and renewable energy*, and
- (c) In paragraph 5 after the word 'increased' add the words '*energy efficiency*'; and the following changes to the scope,

(7) It will be necessary to read a lot of evidence before a clear vision is reached on the direction KCC wants to take and we should not be confined by a definitive list now (witnesses/visits). The need for particular witnesses or visits may emerge as the work progresses.

(8) The wish was expressed that the review recommendations are such that there could be real achievements in say 3 years time.

(9) The Chairman made a suggestion and Members agreed that Stuart Gibbons, the former Head of Rural Regeneration for KCC, who now worked as a consultant, be invited as an independent expert on the Review. Paul Wickenden agreed to pursue this on the Committee's behalf.

(10) Members then discussed the list of potential witnesses to be invited to give evidence and visits to be made. Members' suggestions and comments included the following:

- Add Ministry of Agriculture to the list of witnesses
- Conker Conservation was involved in small to major projects and was identified via an online database of householders across the County who had made energy saving alterations or added renewable technologies to their properties.

- A subgroup of the Kent Economic Board had focused on sustainable building issues and James Sweet, of C4Ci to be included on the witness list to give evidence about the work of the subgroup.
- The Kent Design guide should be acknowledged in the review.
- It was suggested the Committee look for input from the academic sector on skills issues.

(11) The Select Committee agreed to include visits to:

- Beaufort House – HQ off Renewable Energy Systems
- Graveney substation – indication of onshore impact of offshore windfarms (added to list)
- A working example of CHP (Maidstone Borough Council/Woking Borough Council)
- The focus of the Eco Build Conference was sustainable building but Members may wish to visit this independently.
- A suggestion was made that Members may like to attend the British Air Industry, Conference in North Hampshire.
- Other visits would not be excluded if time allowed as Members worked through the review.

(12) Mr Brazier, Deputy Cabinet Member for Environment Highways and Waste, who has an interest in the review as co-proposer, and provides an informal link to the Climate Change Cabinet Working Group, advised that he would be attending the Conference on Biomass in Austria, which had been arranged for him through the Forestry Commission. Mr Brazier also recommended a 1-day BWEA conference.

(13) Date of next meeting Thursday, 11 February 2010 for an Environment Highways and Waste Directorate briefing.

(14) RESOLVED that the Members suggestions and comments be noted to update the Terms of Reference and Scope of the Review *(as attached to these Minutes)*.

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KCC Renewable Energy Select Committee

**An Overview of Renewables and Kent
Neil Hilke – 22nd February 2010**



Scope of today's presentation

- ◆ Guiding principles for low carbon energy
- ◆ A definition of renewable energy
- ◆ The drivers behind renewable energy
- ◆ A look at renewable energy targets
- ◆ Baseline energy information for Kent
- ◆ Renewable energy sources and technologies
- ◆ Planning and development
- ◆ KCC and renewable energy

Guiding principles for delivering low carbon energy

Action based around four key areas



A definition of renewable energy

Renewable energy is the term used to describe energy flows that occur naturally and continuously in the environment such as energy from the sun, wind, waves or tides

Includes biomass and geothermal heat in the ground

Excludes nuclear power and energy from non-biodegradable waste

Not always zero carbon

In some cases it is free energy!

The drivers behind renewable energy

- ♦ The need to maintain a secure and affordable supply of energy which is not dependant on imported sources
- ♦ The diminishing availability of fossil fuels for energy generation
- ♦ CO2 from energy generation and use is one of the key greenhouse gases contributing to climate change
- ♦ Power stations reaching the end of their working life
- ♦ Continuing growth in the demand for energy
- ♦ Compliance with International, European and National regulations and targets

Policy, Regulatory & Fiscal Measures

Driving Down Carbon Emissions

- Energy Act**
- Climate Change Act**
- EU Renewable Energy Directive**
- UK Renewable Energy Strategy**
- UK Low Carbon Transition Plan**
- Renewables Obligation**
- EU Emissions Trading Scheme**
- Carbon Emissions Reduction Target**
- Carbon Reduction Commitment**
- Climate Change Levy**
- Climate Change Agreements**
- Zero Carbon Buildings**
- Planning Policy & Design Codes**
- Building Regulations**
- New Product Standards**

New Economic Opportunities

National, Regional & Local Impacts



Renewable energy targets

European/National

EU target of 20% of total energy consumption from renewables by 2020

Apportioned to member states with UK target set at 15%

Will require:

- ♦ 35% electricity to be generated from renewables
- ♦ 12% heat generated from renewables
- ♦ 10% of transport energy from renewables

Regional/Sub-regional

Included within the South East Plan

Regional target of 1130MW of installed electricity capacity by 2020 respectively

Kent contribution to this target is 154MW of installed renewable energy capacity by 2016



Baseline energy information for Kent – consumption

Kent total energy consumption 2007 (GWh)

	All Fuels			Total
	Industry & Commercial	Domestic	Transport	
Ashford	877.8	911.5	1,346.3	3,135.6
Canterbury	879.5	1,275.5	972.4	3,127.4
Dartford	902.5	812.2	1,297.4	3,012.2
Dover	1,069.9	947.4	706.3	2,723.6
Gravesham	2,704.6	829.3	696.4	4,230.2
Maidstone	983.7	1,294.2	1,598.3	3,876.2
Medway	1,091.2	2,100.6	1,283.2	4,474.9
Sevenoaks	667.1	1,121.5	2,187.8	3,976.5
Shepway	736.3	887.0	916.8	2,540.1
Swale	2,333.8	1,123.7	1,264.7	4,722.2
Thanet	578.9	1,190.4	534.6	2,303.8
Tonbridge and Malling	945.4	1,053.7	1,716.3	3,715.4
Tunbridge Wells	621.0	990.8	717.9	2,329.7
TOTAL KENT	14,391.7	14,537.7	15,238.3	44,167.8

Source DECC December 2009



Baseline energy information for Kent – renewable generation

UK renewables target = 15% of total energy consumption
Equivalent to 6625GWh of total energy consumption in Kent

Current installed renewable energy generation capacity in Kent:

- 201MWe (electricity) = Approx. 493GWh
- 1.18MWth (heat) = Approx. 0.85GWh

Renewable energy generation currently supplies approx. 1.1% of total Kent energy consumption

Additional factors:

Growth in demand for energy as the economy recovers

143,000 new homes in Kent

120,000 new jobs in Kent



Wind

UK has very large potential

Coastal areas and higher ground in Kent

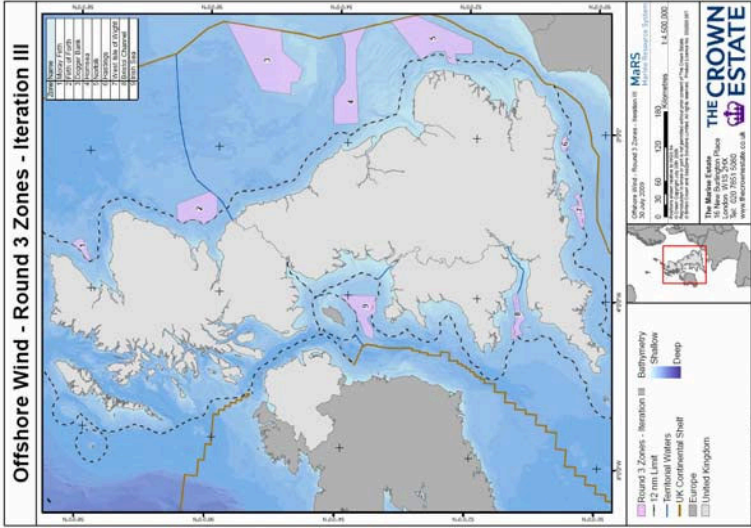
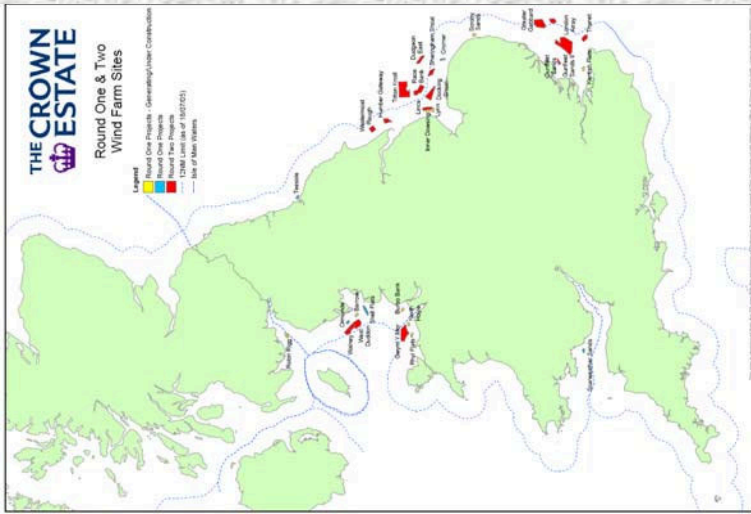
Currently most economically viable of renewable energy sources

Many scales of deployment:

- Offshore wind farms
- Onshore wind farms and clusters
- Stand alone turbines
- Roof mounted turbines
- Blade and vertical axis formats

Many development issues and as a general rule the larger the proposed turbine the more significant these issues become!

Offshore wind



Key Kent Projects:

- Kentish Flats = 90MW/30 turbines
- Thanet Offshore = 300MW/100 turbines
- London Array = 1000MW/271 turbines



Onshore wind

Planning and design issues:

- An open site free from obstructions
- Minimum wind speed of 5-6 m/s at hub height
- Visual impact especially where landscape designations, conservation areas and green belt
- Impact on special wildlife areas and bird migration corridors
- Proximity to radar and airports - larger projects
- Amenity - inhabited buildings, noise and flicker
- Associated infrastructure
- Access - construction and servicing

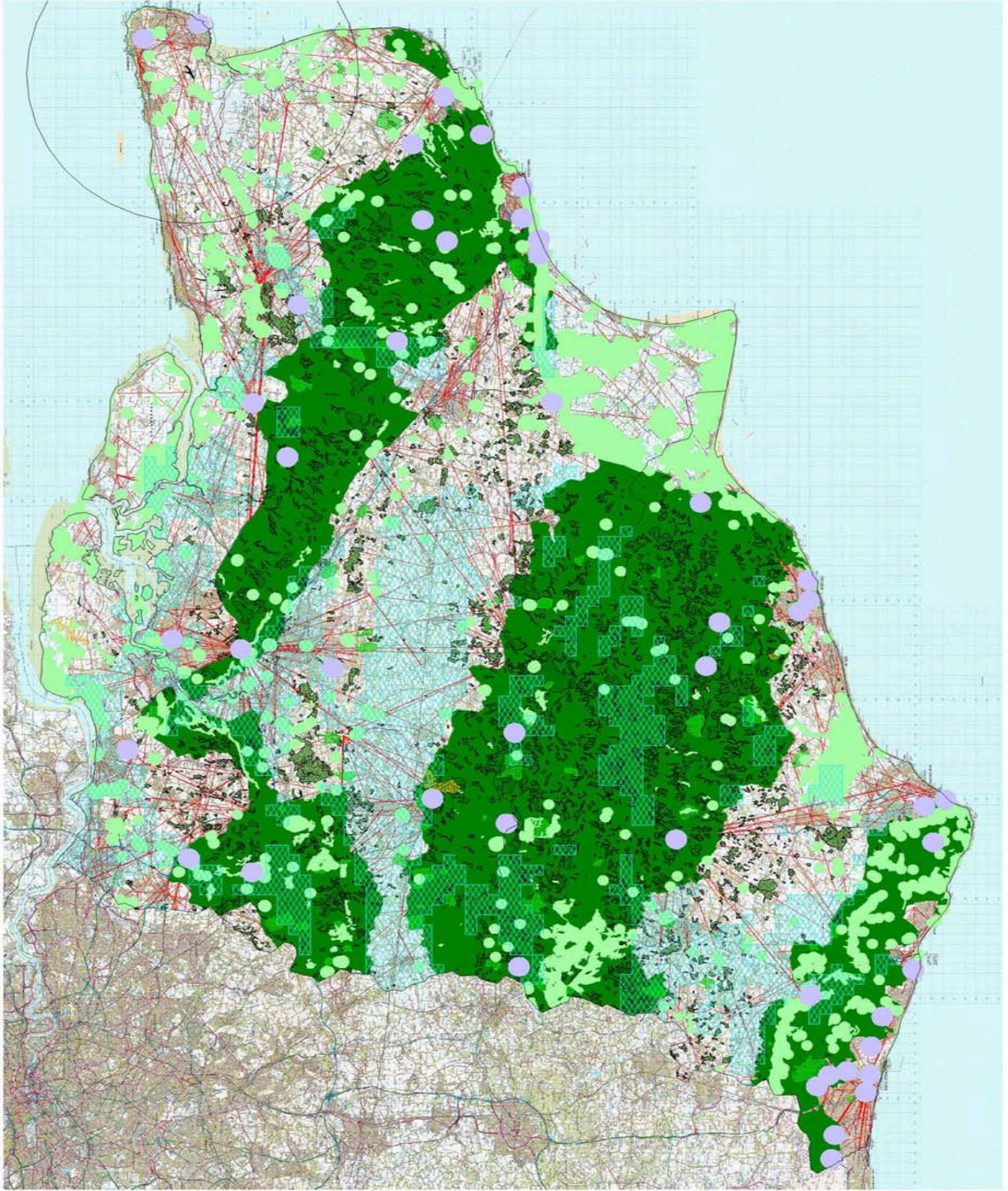
Projects:

Little Cheyne Court Wind Farm

Sheerness Docks and Isle of Grain

Small to medium scale turbines

Technical and environmental constraints to windfarm development

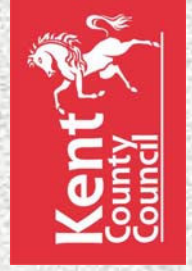


- County boundaries
- 15km buffer around London Marston Airport
- London-Manchester Airport
- Technical constraints
- Wind speeds below 6m/s
- Environmental constraints
- Microwaves lines
- RSPB sites
- Parks and gardens
- Areas of Outstanding Natural Beauty
- Ancient Woodland



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Wind turbine examples



Biomass

Biofuels among the fastest growing energy sector

Good potential in Kent - woodlands and agriculture

Fuel sources:

Forestry wood, waste wood, energy crops, agricultural residues, biodegradable food and organic wastes

Fuel Types:

Wood chip/wood pellet/logs

Bio-diesel/Bio-ethanol/Biogas

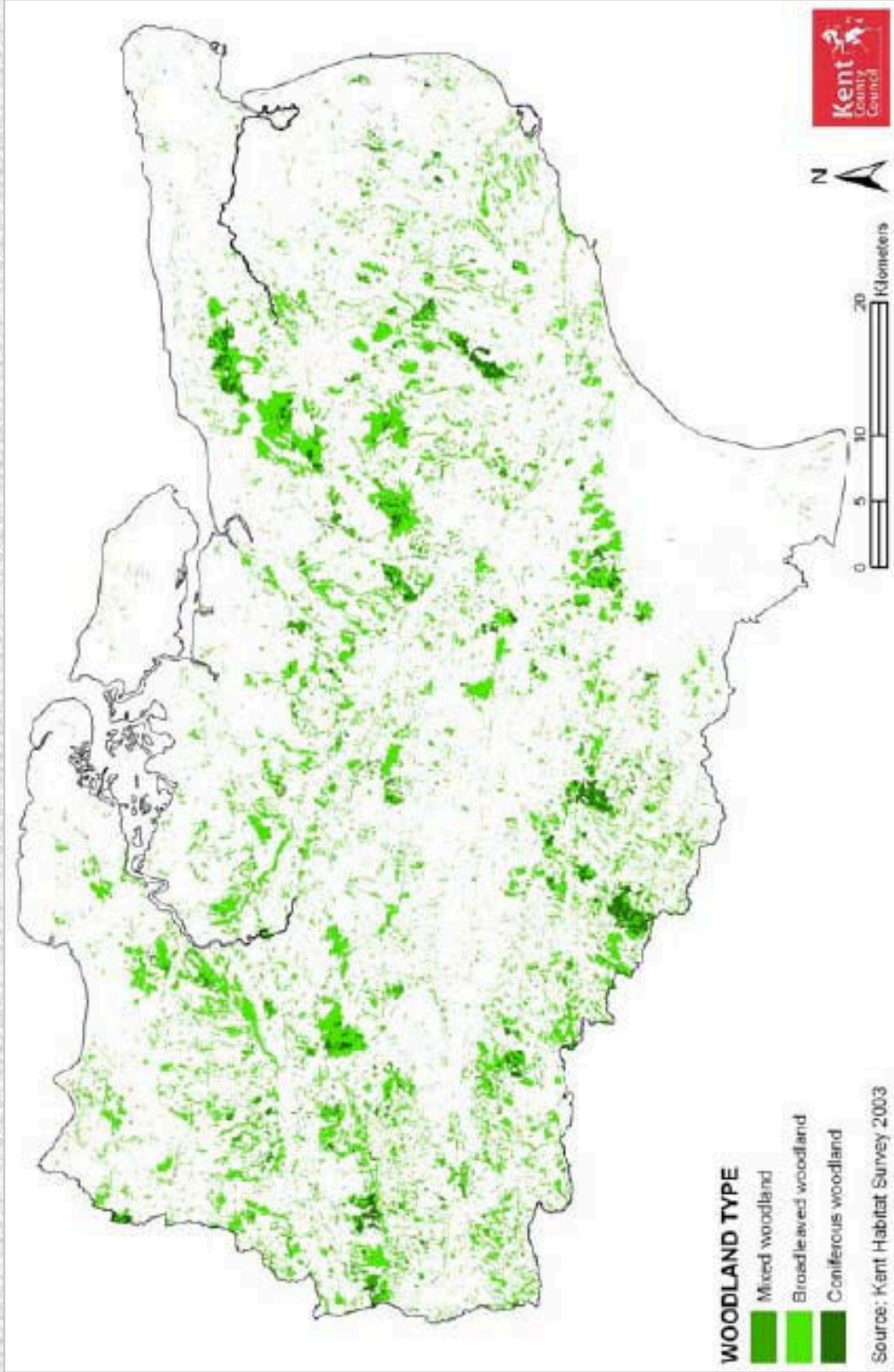
Fuel uses:

Heating stoves, boilers/heat networks, CHP, co-firing at existing power stations, transportation, agricultural machinery

Fuel versus food and spectre of cheap imports rather than home grown

Issues around economics, carbon linked to processing and transportation – Local solutions work best!

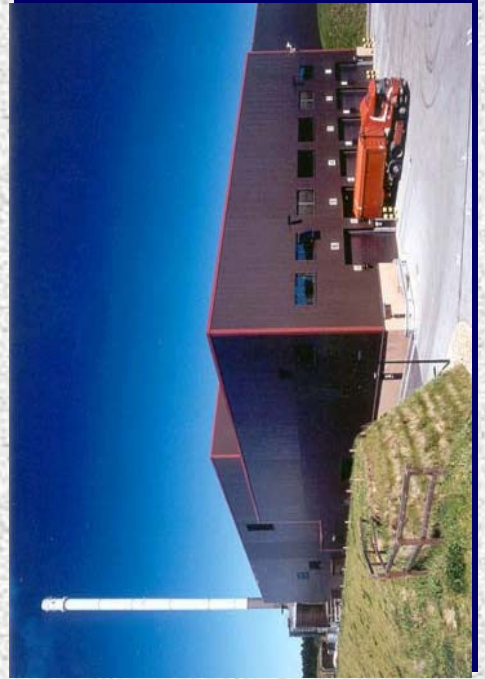
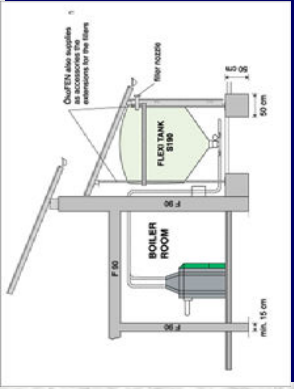
Kent woodlands



	Existing woodland	New Coppice/SRC
Wood renewable energy potential in Kent	6–19MWe	3–31MWe



Biomass examples



Solar

Good potential in Kent buildings

Works in sunny and cloudy conditions

Two main applications:

- Solar thermal (heat for water)
- Solar photovoltaics (electricity)

Needs unobstructed location orientated between SW & SE

Optimum inclination of between 30-45 degrees

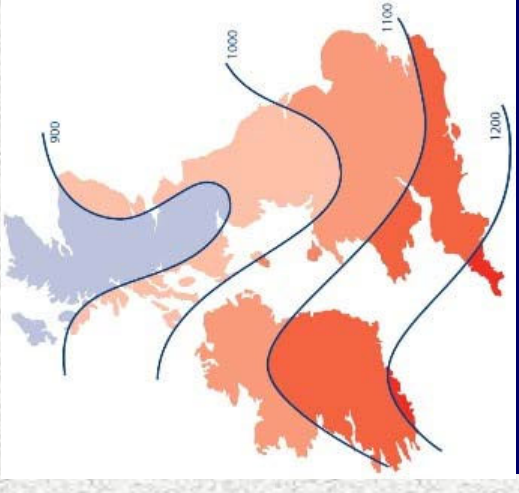
PV is more flexible in its applications than solar thermal and can be used on roofs, vertical and curved surfaces

PV can be integrated into the buildings design and materials

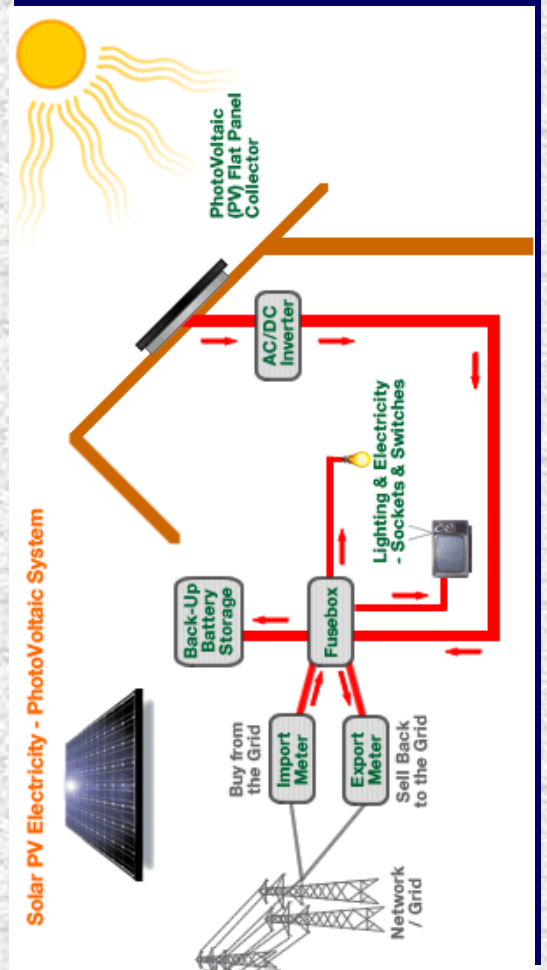
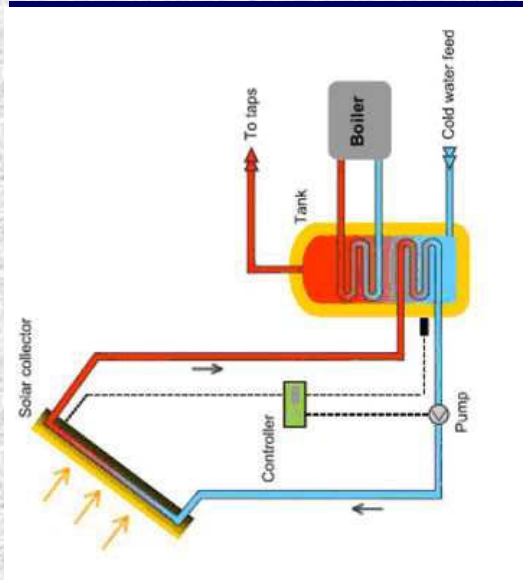
Solar raises few planning issues

Downside – PV technology is expensive and not yet mature

Upside – a new 'Feed in Tariff' with guaranteed price for electricity generated and which supports investment case



Solar examples



Ground and air source

Ground source

Harnesses energy by utilising stable ground temperatures, generally 9 to 14 degrees centigrade in the UK

Horizontal, trench and borehole systems

Geology and ground conditions must be surveyed to establish suitability for use

Air source

Air source heat pumps absorb heat from the outside air

Less efficient due to fluctuations in air temperature

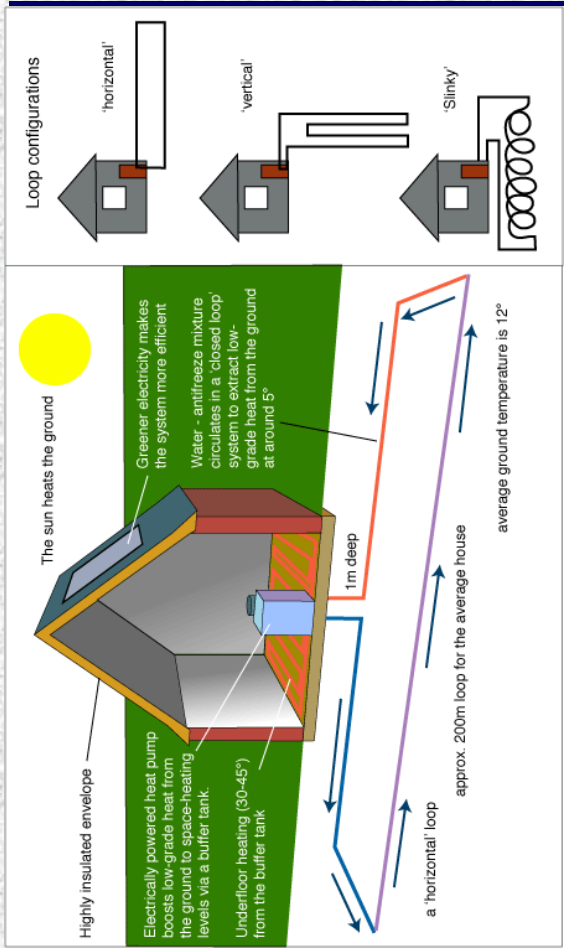
Both

Heating and cooling options

Best used where high energy efficiency and often in connection with under floor heating systems

Electricity needed to operate compressor and pump

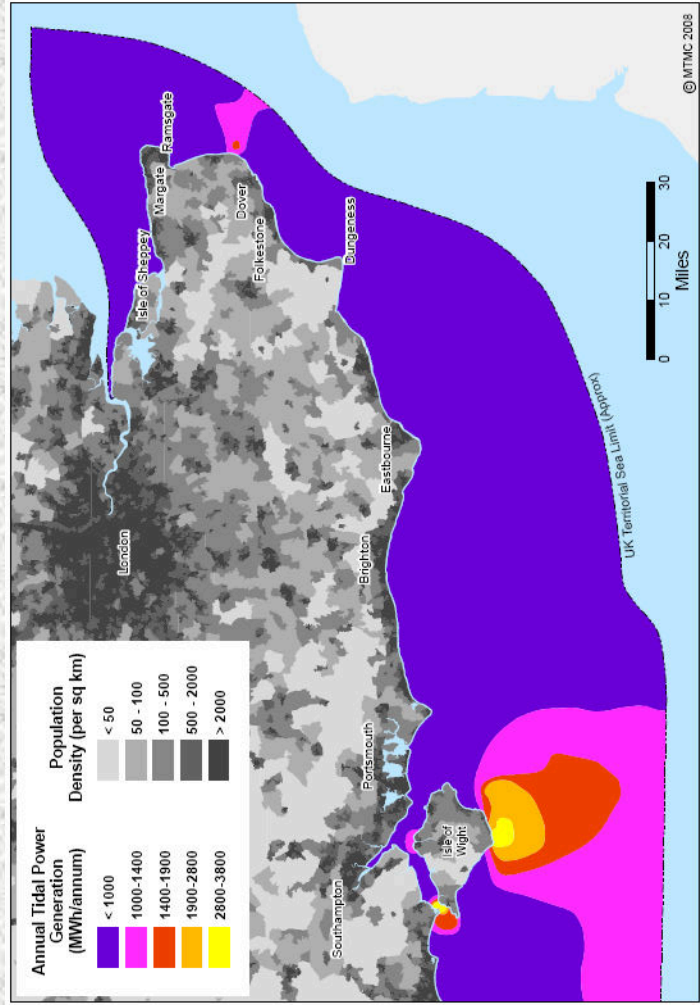
Ground and air source examples



Wave, tidal and hydro

UK focus on west coast and Scotland
Some potential around Kent but:

- Congested shipping routes
- Subsea power cables
- Protected historic wrecks
- Environmental constraints



Atlas of the
Tidal Energy Resource
on the South East Coast of England

Prepared for the
South East England Development Agency (SEEDA)
May 2007

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Renewable energy costs and savings

Measure	Cost	Annual Savings	Payback	CO2 Reduction	Notes
Condensing boiler and heating controls upgrade	£2,500-£3,000	£235	9-12 years	1,300 kg	Based on existing boiler being G rated.
Biomass wood boiler and flue	£9,000	£410	22 years	9.6 tonnes	Savings based on replacing a coal fired system.
Ground source heat pump	£7,000-£13,000	£160-£840	8-81 years	0 kg-6 tonnes	Savings depend on fuels source replaced.
Air source heat pump	£5,000-£9,000	£20-£700	7-180 years	0 kg-5 tonnes	Savings depend on fuels source replaced.
Solar thermal water heating	£3,000-£5,000	£185	15-30 years	260-580 kg	Savings depend on fuels source replaced and are based on a 3.5 sq. m panel.
Solar PV electricity generation	£8,000-£14,000	£500-£600	13-28 years	1 tonne	Savings based on a 2kWp system and income received under new Feed in Tariffs.
Wind turbine	£11,000-£19,000	£1000	11-19 years	2.6 tonnes	Savings based on a well sited 2.5kW turbine and income received under new Feed in Tariffs.

- Based on information sourced from the Energy Savings Trust
- In the case of heat systems does not take into account the availability of grant support
- Heat savings depend on fuel displaced and on site demand



Planning and development

National

- ◆ Draft National Planning Statements on energy
- ◆ Planning Policy Statements – PPS1 & PPS22

Regional

- ◆ South East Plan

Local

- ◆ Local Development Frameworks
- ◆ Supplementary Planning Documents
- ◆ Kent Design
- ◆ Masterplans and energy studies

Other

- ◆ Code for Sustainable Homes/BREEAM
- ◆ Building Regulations
- ◆ Energy Performance Certificates

KCC and renewable energy

Strategic direction
and influencing
policy

Baseline
evidence and
research

Kent Design – Guide
to Sustainable Energy
Solutions



Regeneration, new
jobs and economic
growth

Responding to the
demand for new
skills and training

Working with like
minded partners in
the public and
private sectors

European initiatives
and funding

Backing business and
inward investment
through sector
support



Thank you

Questions and discussion...

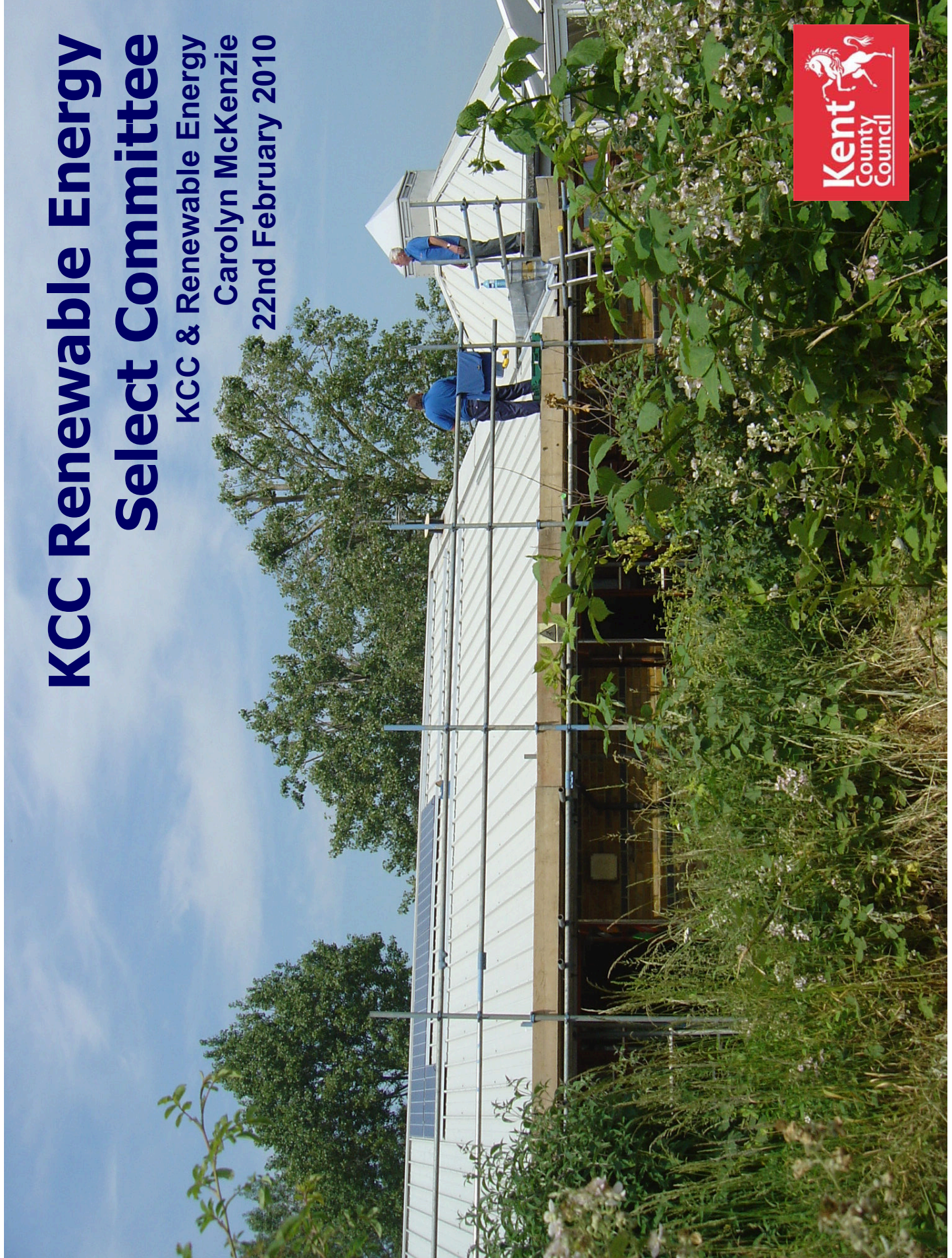
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KCC Renewable Energy Select Committee

KCC & Renewable Energy
Carolyn McKenzie
22nd February 2010



KCC and renewable energy

What are we doing?

- ◆ **EWIF – Renewables pot £500k**
- ◆ **£500k external funding**
- ◆ **Over 20 renewables projects**
- ◆ **4 biomass boilers**
- ◆ **Over 12 solar PV and solar thermal systems at the last count**

Valley Park Community School

- ◆ Off gas – oil
- ◆ Biomass Boiler
- ◆ Local woods 15 mile radius
- ◆ Combined energy efficiency measures
- ◆ £30k year savings



Not all plain sailing!

- ◆ Varying business case – Not a panacea
- ◆ Currently longer payback
- ◆ Finance
- ◆ Smart client
- ◆ Installers
- ◆ Teething problems
- ◆ Maintenance

Will we do more?

- ◆ Yes
- ◆ Definitely part of future energy mix
- ◆ Changing Landscape push – pull
- ◆ Reduces carbon
- ◆ Potential for income
- ◆ Value added – educational benefit
- ◆ KCC Community Leader

Thank you

Questions and discussion...

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