

## KENT COUNTY COUNCIL

---

### SELECT COMMITTEE - RENEWABLE ENERGY

MINUTES of a meeting of the Select Committee - Renewable Energy held in the Swale 3, Sessions House, County Hall, Maidstone on Wednesday, 31 March 2010.

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

ALSO PRESENT:

IN ATTENDANCE: Mrs S Frampton (Research Officer) and Mrs C A Singh (Democratic Services Officer)

### UNRESTRICTED ITEMS

#### 5. Minutes - 22 February 2010

(Item 1)

##### *Mr Brazier's visit to Austria*

(1) Further to Minute (12) 26 January 2010 Mr Brazier gave a verbal report on his visit to Austria. He advised the Select Committee that he would be producing a report for the Climate Change Working Group on his findings, which was part of a larger piece of work on biomass, and this would be copied to the Committee.

- a) Mr Brazier's trip had lasted 4 days with day 1 and day 4 taken up with travel. Days 2 and 3 consisted of an intensive visit programme. On day 2 he visited a prestige factory and saw three types of biomass boiler; 80, 150 and 250kW which could be fuelled by logs, woodchips or pellets with woodchips being the most popular.
- b) He then visited a Biomass Centre and was shown a lorry with a blower and cradle which could pick up 30" logs which were then fed into jaws (with hooks for bigger logs), rammed and split. This was one of 2 such lorries which call at centres across the country to process logs into woodchip.
- c) On the second day the party visited a school heated by a woodchip-fed 250kW boiler located in the cellar. Woodchips were delivered to an adjacent pit measuring approximately 3 x 4 x 4m every 3 weeks and these were fed from the pit to the boiler with a rotating augur. This system was very reliable and was cleaned out and routinely serviced every 2-3 days.
- d) There was then a visit to a farm in the mountains, of an average 45 acre size, where trees were farmed. The government extracts a fee from such farmers and if for example there is fallen timber, government inspections reveal this and ensure farmers deal with the timber or they will remove it and send a bill for the removal. The Minister of Agriculture and Forestry was present and it seemed of no particular note to have such a high profile guest present.

- e) The farmers make a small amount from this business and live almost at a subsistence level, with the income from trees being quite valuable to them. The countryside is being continuously reforested and the trees are mainly coniferous.
- f) There was also a visit to a village which is entirely reliant on renewables. A private company is paid to bring in timber; the woodchips fuel heating, which is very effective, paid for by residents who also sell biofuel made from rapeseed which is grown on local farms. Cooking oil is processed into biodiesel. The local industrial estate with approximately 12 factories is heated by methane from fermented pig muck.

(2) Members were given the opportunity to make comments and ask questions which included the following:

(3) In response to a question by Mrs Tweed, Mr Brazier advised that one disadvantage was that there was a certain amount of ash to be disposed of and quite a lot of smoke but the Austrians seemed unconcerned by this. (Mr Ferrin then indicated that the select committee should obtain information from Kent Highways about the biomass boiler at Ashford Depot).

(4) In reply to a question by Mr Hirst about the chipping lorries, Mr Brazier advised that they ran on diesel and had an enormous throughput, producing 20 m<sup>3</sup> woodchip in one hour. Timber is taken to biomass centres and the lorries visit the centres to produce the woodchip. The lorries were owned by an Austrian company and there were approximately 20 biomass centres.

(5) In reply to a question by Mr King, Mr Brazier advised that the underground space used for wood chip at the school basement was already there and so was utilised for the purpose, though it required some maintenance.

(6) In response to a question by Mr Smith, Mr Brazier advised that the Austrian Government was keen on sustainability and was farming trees. 16% of homes were heated by biomass and using local production this figure would increase in future.

(7) In answer to a question by Mrs Stockell Mr Brazier advised that the Austrians did not seem to make a calculation on the use of diesel versus the value of the biomass. They had the (biomass) assets and were keen to use them. Flat land areas were used for the production of food and rapeseed. The Austrian community were driven by concerns about what would happen if the Russians stopped providing the gas they were otherwise reliant on.

(8) In answer to a question by Mrs Frampton about quality assurance of the wood fuel Mr Brazier explained that at the factory they had been given detail on the calorific output of different types of fuel. Generally it was dried out to a moisture level of 50% or less. Pellets are considered to be industrial material and are quality dried.

(9) In a follow up question by Mrs Frampton, Mr Brazier said that it was possible that there was an element of steam in the smoke observed and Mr Hibberd pointed out that smoke was a sign of incomplete combustion and therefore inefficiency.

(10) In response to a question about the amount of CO<sub>2</sub> produced by oil, coal and biomass it was answered that wood was much lower in CO<sub>2</sub> per calorific unit and was defined as carbon neutral.

(11) RESOLVED that the Select Committee the verbal report by Mr Brazier on his findings on his visit to Austria be noted.

### ***Visit to Renewable Energy Systems Limited, Beaufort Court, Hertfordshire***

(12) The Chairman and Mr Prater had visited the RES site with two Officers on 16 March 2010 and gave a brief overview. The company was very busy and employed 130 people. Mr Ferrin explained that having originally been part of the McAlpine Group, it was now part of the McAlpine Family Trust. The site was originally the Ovaltine Egg Farm and had become derelict. It was redeveloped by RES and had various examples of renewable energy systems which included a biomass boiler with a hopper the size of a large MPV. RES had originally tried to use miscanthus grown on site to fuel the boiler but this had failed because it caused corrosion and now the boiler was fuelled with wood pellets.

(13) The wind turbine had been bought second hand and was used to demonstrate wind energy rather than being an economic producer of energy. The latest wind turbines produced 3MW of electricity and as the size increased so did the efficiency.

(14) There was a bank of PhotoVoltaic and solar thermal panels, the excess heat from which, in summer, was fed into an underground heat store similar to a large swimming pool so the heat could be used in winter. There was also a ground source heat pump, not of the mat variety, but a 90 metre bore hole in a closed system that provided heating and cooling.

(15) The buildings were heavily insulated to keep energy losses to a minimum. On the sunny side of the building deciduous trees had been planted so that when they were in leaf they shaded the windows and in winter when they shed their leaves they let in the available light.

(16) The Company seemed expert and to have more opportunities than they could deal with. The company representatives stated that RES had designed and installed the largest wind farm in the world in Texas.

(17) In response to Mr Ferrin's question on how much energy capacity you could take out (if wind farms were provided) it was explained that it was not possible to replace conventional power stations with wind turbines on a 1:1 basis and there needed to be conventional energy sources alongside renewables.

(18) Mr Prater added that, if the distribution of wind farms was large enough, the variability question was dealt with as the wind would always be blowing somewhere; with large offshore wind farms there would be balance. There had been a discussion at RES about PhotoVoltaics and the new Feed-in Tariff which reduced the payback time and was a 'game-changer'. A 4 kW system should now pay back in 8-10 years. There was a 2 year window before that tariff declines and there needed to be clarity, and other opinions sought by the select committee, about PV, ground source heat pumps and other technologies since KCC could get a reasonably good return on capital. The deal (on FIT) gives a fixed return for 25 years, which would repay the

capital investment in 8-10 years, giving at least 15 years of 'free money' from the extra capacity. KCC could have a role in that, obtaining grants and loans for the up front capital equipment. There is a window of opportunity with those conditions in place.

(19) Mr Hirst stated that he had observed that the wind farm at Romney Marsh had 40% of turbines not turning. Mr Prater added that the offshore wind farm at Whitstable had had problems with reliability. Mr King advised that it could be that demand may not be high enough for them all to be turning. Mr King added that though wind turbines were regarded to be 30% efficient and a nuclear power station 70%, the latter was burning fuel which had to be extracted from somewhere and paid for, and the wind resource was free and did not need to be paid for and shipped to the wind farm.

(20) Mr Ferrin stated that it was not that wind farms were unreliable. They were unavailable for 70% of the time, but reliable.

(21) Mr Hibberd said that any wind farm was subject to a wind survey and other sites having wind surveys such as airfields drew different conclusions from the same statistics. The amount of standby was proportional to the size of the network. If you used a whole network of independent suppliers you would need 100% excess capacity. Mr King stated that this was what the National Grid was designed for and Mr Hibberd agreed that this reduced the risks.

(22) Mr Prater said that RES had indicated that wind turbines pay back the carbon used in their manufacture in 6-12 months so after that they are running on 'free energy' in terms of carbon. The payback period for turbines at sea is longer, but still significantly shorter than the lifespan of the turbines.

(23) In response to a question by Mr Hirst, Mr Prater advised that the Feed-in tariff was being discussed in relation to PV systems (not wind farms) and would benefit domestic customers who could be paid for the energy they did not use. The Feed-in tariff is set initially at 41.3p per kW generated and smart metering was intended to measure the amounts produced and used.

(24) RESOLVED that the verbal report on the RES visit be noted.

## **6. Written Evidence**

*(Item 2)*

(25) Members commented on the volume of written evidence that had been sent to them and that it was difficult to decide on the relevance and authority in some cases. The Chairman reminded Members that the purpose of receiving the documents was to provide a background and to help them to identify key issues and from whom they wished to take oral evidence.

(26) Members were given the opportunity to highlight key points from the written evidence received to date which included the following:

Mr Ferrin:

- What is the available capacity of renewable energy to replace conventional sources in the UK and in Kent?
- We need an understanding of the costs and rewards
- How much can be achieved with a practical approach to the subject?
- What can be adopted and what are the hurdles for KCC (such as regulation)?
- What is the role of KCC in encouraging the development of renewable energy in the County?
- We need to identify key witnesses such as potential suppliers, Forestry Commission, NFU and seek information on wave and tidal energy.
- Mr Ferrin requested that we obtain an update on payback periods in light of the new Feed-in tariff.

#### Mr Hirst

- Like to look at the new system on wave power such as the sea snake
- We should concentrate on employment opportunities to benefit the community such as those created by wind farms and the wood fuel industry. KCC has a duty of care to its neighbours and its residents in generating employment eg coppicing.

#### Mr King

- The committee should look at renewable energy from the micro to the macro scales, from generating energy at the domestic or single plant level e.g. PV in relation to the Feed-in tariff and feeding energy back into the system
- Need to look at whether we need to promote a change in the planning process and how to use the planning system to encourage this to happen; heating using solar panels, property by property, feeding renewable energy back into the system or reducing the amount taken out of the system on our own properties – seeing returns and reductions on fuel bills.
- What can we do in Kent? Evidence showed that there could be a sustainable yield in Kent of 90,000 cubic metres of wood per year sufficient for 90MW of heating sufficient for 19 institutions the size of West Dean College. We could do the same as Austria, reinstating derelict and semi derelict coppice in Kent.
- It is important to have independent witnesses.
- Regarding wind energy, Mr King was not keen on the visual impacts but wind energy is free and so at 30% efficiency this is free electricity for 30% of the time as compared with conventional energy using a resource which is not sustainable. There is a need for a grid, but we already have that so on balance, the free source, even if available for a short time, is good.
- CHP/efficiency should have been considered at the Allington Incinerator for heating the hospital and Mr Hirst indicated it was not too late to consider this.
- KCC should be leading by example with its own estate, looking at what are worthwhile investments and how the planning process needs to be changed for example to promote PV on houses.

#### Mr Smith

- Not one type of renewable energy fits all. The ability to use conventional electricity, gas and coal for industry and to heat houses is coming to an eventual end. This needs to be supplemented with sustainable sources of energy.

- There was a good report on biomass in Austria from David – they do have more trees and woods – we tend to knock them down and build houses. The evidence from Hadlow College was of great interest.
- We should have an amalgamation of say 3 or 4 things for the residents of Kent to supplement the electricity and gas we have with ie wind, biomass, PV and ground source heat pumps.

#### Mr Prater

- Agreed with Mr King that there was a need to look at renewables from the micro to macro levels – there was no magic bullet, not much space for onshore wind in Kent and not much for Kent to do with regard to deep sea offshore wind.
- What can we do to assist the householder, at the micro level, to install their own PV, solar thermal, GSHP or turbine, encouraging the most effective ways. FIT is to be introduced tomorrow and from then on, things will have changed. What advice can we give for example if someone has £5-10,000 to invest – what should they do? We can help to provide clarity for small scale renewables and help people to understand the best systems for the greatest benefit.
- We need more evidence on PhotoVoltaics to be assured of pay back periods. Evidence indicates small scale turbines are not effective. For our own estate and for Kent residents how can we encourage and make things easier. Is it necessary for roofs to be directly south facing? Regarding planning, it is permitted development except in conservation areas. PV tiles are available that are less visible – what is the planning guidance on these? How can we simplify planning to make it quick and easy? How can we mitigate the capital requirements? We could tell schools it is worth doing – could we give loans and implement PAYS, similarly for residents. At the domestic level people need clarity.
- Regarding rapeseed and biofuels, is this a magic bullet – no! There is not a lot of space for this. Woods could be better maintained supplying woodchips to specific locations but this is not a game-changer.
- Allington could be retrofitted for CHP commercially.
- Car recharging points could have their own storage. In London they are moving towards having more electric cars and there is the opportunity for other local authorities to become involved. Could the vehicle estate be moved towards electric vehicles while also generating electricity renewably? We could look at the electric car system introduced by Westminster City Council.

#### Mrs Tweed

- Had concerns about PV and the capacity of a particular system costing £23,000.
- Coppicing has public appeal and should be explored – people like wood-burning stoves. What incentives are there for woodland owners to manage woods?
- Would like to know more about hydrogen as a fuel.
- Biomass boilers are a nice idea but too expensive, though we should take the lead where we can.

#### Mr Hibberd

- Need to look at how the population of Kent is going to develop over the next 10-20 years

- Advise County to reduce the population in Kent
- Need to have clear idea of the existing supply of energy in Kent, of the sources and how long it was going to last.
- Need to be clear on the current usage in Kent, the balance of supply and demand, and of the political risks
- Can we justify importing energy to Kent such as with hydro contracts with Scotland?
- There is a good supply of wood which used to be sent to paper mills and is now available – it is a pity to waste it.
- Forestry Commission evidence was most useful.
- We need information on demographics of Kent from Mr Peter Marsh.

Mrs Stockell

- There is a range of things – we need to think about producing a policy document, influencing planning and creating incentives such as energy grants.
- Hadlow College evidence was good. Kent is one of the best achievers on renewable energy, by 2010 achieving 92% of its 2016 target.
- All new build properties have SUDS etc., good insulation, BREEAM good standard. We need the right mix of encouragement and suggestions.
- Bringing woodlands back into coppicing is one area to improve employment. MBC have a biomass boiler though it is labour intensive and (referring to Austria) producing woodchips involves the use of diesel.

(3) RESOLVED that the Key issues highlighted in the written evidence identified by the Select Committee be noted by the Policy Overview Research Officer.

## **7. Feedback from interviews with Officers - Key Issues not already identified from written evidence**

*(Item 3)*

(1) It was identified that the Select Committee need to know more about business opportunities for Kent.

(2) Mr Hirst raised the issue regarding the huge fuel bill for journeys carried out by KCC staff and whether there were more sustainable alternatives such as provision of electric cars.

(3) Mr King commented firstly on the great value of the Freedom Pass and secondly whether it was possible to provide a grant to members of staff to assist them with installing renewable technologies such as PV in their own homes – as the biggest employer in Kent it would be good to look at some initiative involving staff as this could make a difference. What incentives could KCC offer?

(4) Mr King commented that we needed to be clear about payback and could perhaps consider micro-mortgages and an 'energy bank'. There were various possibilities which could be discussed with the Treasury Team such as whether we could purchase PV panels and householders could pay back at a lower rate than the savings they would make.

(5) Mrs Stockell raised the issue of the Regional Spatial Strategy and that there may be the option to highlight these issues in the County Plan once we knew the regime.

### **Visits**

(27) Mr Ferrin asked that Members volunteer to carry out visits, supported by an officer, to feed back to the committee in rapporteur style as Mr Brazier had done.

(2) RESOLVED that the Members comments and suggestions on gaps in the evidence and future visiting arrangements be noted by the Policy Research Officer.