

# **Who's For Renewable Energy and Why? Answers from a Sample Survey in Reading**

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## **Abstract**

Conducting an urban residential survey in a large town such as Reading was seen as an important public opinion survey, and a useful mechanism for exploring attitudes and perceptions of Reading residents towards environmental awareness, energy efficiency and renewable energy acceptance in the Borough.

## **Background**

Reading is a busy prosperous town. Once renowned for its brewery, biscuit and seed factories, it is now the principal commercial and retail centre of the Thames Valley region. The proximity to London and excellent communication network along with a extremely skilled labour force and high quality of life in the area make Reading a key business location on the M4 corridor and the South East region. Over the last twenty years, economic growth has transformed the town into the regions service and financial centre and headquarters to one of the largest concentrations of Information, Communication, Technology companies in the UK.

Managing this economic growth in a sustainable manner, led to an environmental strategy by Reading Borough Council in 1991 which aims to raise awareness of environmental issues, promote efficient use of energy and encourage the use of environmentally sound and sustainable resources. Since then the Council has made a formal commitment to Local Agenda 21 to make sustainability a priority for Reading by improving the quality of life for its residents and protecting the environment in balance with the local authority for now and future generations. With these factors in mind, coupled with the economic and population growth in the town, Reading was an interesting topic for a public opinion survey on new renewable technologies.

## **Objectives**

This study forms part of a bigger project that focuses on individual and organisational choices related to energy consumption and its environmental consequences in the South East of England. The research was made possible through the support given by GOSE (Government Office for the South East) under the regional renewable energy programme for the South East and supported by the Countryside Agency under their Community Renewables Initiative. As part of this remit, TV Energy is involved with the regeneration of Bracknell town centre which aims to establish the town's capacity to provide for its own energy requirements. This is the first project of its kind in the UK and its implementation will serve the needs of local community in terms of housing, work, leisure and transport with the opportunity to work with local communities and businesses.

Previous surveys have been carried out that report attitudes to energy consumption but these tend to be policy orientated without empirical evidence to support their arguments. Whilst they may show percentages of support or opposition, more rigorous research techniques such as statistical modelling have not been used to analyse links between attitudes and behaviour. With this in mind, our study attempts to go beyond other studies to date by adopting a more integrated approach and by doing so hopes to address this void in current research.

## **Sampling**

How well a sample represents a population depends on the availability of a sampling frame, the sample size and selection procedures. When the aim of the sample as in our study, was to produce data that could be subjected to a variety of statistical techniques, probability sampling was considered to be the most effective method.

A sample frame is a set of people that has a chance to be selected, given the sampling approach that is taken. In statistical terms a sample can only be representative of the people included in the sampling frame. Using probability sampling procedures, each person should have a known chance of selection by the sampling procedure (Fowler, 1993). Our study as in most sampling approaches, targeted a specific population, leaving out those that we did not want to survey. Thus we took households as our unit of analysis as opposed to commercial properties. The sample size was calculated from a total population estimated to be 140,000 in the borough of Reading. An ultimate valid sample size would be 700 minimum, given 80/20 split of the population, 5% standard error. However, we increased our sample to 1000 in keeping with other industrial surveys so that our results could be compared with them at a later date.

To extract a sample of the population, a definitive population set or sampling frame needs to be accessed. For our study, this proved problematical. We could have either used a complete list of households in the Borough of Reading, or a list of all telephone numbers. As discussed below, telephone sampling would exclude a large number of the population, yet access to a complete list of all households in the Borough was also not available. Until recently the voters register or electoral register, listing the names and addresses of everyone registered to vote was available for public use. However, recent government legislation has meant that people now have the choice as to whether they want their details to be made publicly available. There is a still officially a full register, but copies can only be supplied for certain purposes such as elections and law enforcement. An edited version can be purchased but it is estimated that nearly 50% of people have not disclosed their names or addresses, rendering this method as non-representative.

With this in mind several methods of selecting individual units to be included were discounted. For example, simple random sampling necessitates a definitive list of the population to be sampled with members being selected one at a time, independent of one another and without replacement; once a unit is selected, it has no further chance of being selected. Systematic sampling of selecting every 'th number was also of no use, as was stratified sampling of grouping certain types of people together.

It was agreed therefore to create our own sampling frame by using a type area probability sampling technique, generally perceived as being a useful multi-stage strategy as it can sample any population defined geographically. This suited our purposes given our situation. As there was no direct sampling source, we needed to devise a strategy to link population members to a particular grouping which could then be sampled. First we took the population of the Borough of Reading, estimated to be about 15,000 and then grouped them by election ward, the allocation of units to be surveyed was determined by calculating the percentage of households in each ward from the total number of households in Reading. Each percentage was multiplied by 1000 (sample size), to calculate the number of households to be surveyed. The more heavily populated wards were surveyed more than those with fewer households.

Ward Name	Total Population	Private Household Population	Total Households	Average Household Size	Population Percentages	No. of Household Units to be Sampled
Abbey	12,096	11,862	5,569	2.13	9.8	98*
Battle	9,467	9,366	3,729	2.51	6.6	66
Caversham	11,895	11,881	4,736	2.51	8.4	84
Church	8,029	7,983	2,845	2.81	5.0	50
Katesgrove	8,613	8,507	3,494	2.43	6.2	62
Kentwood	9,395	9,341	3,283	2.85	5.8	58
Minster	9,99	9,636	4,496	2.14	7.9	79
Norcot	10,043	10,041	3,717	2.70	6.6	66
Park	9,352	9,269	3,645	2.54	6.4	64
Peppard	9,815	9,742	3,681	2.65	6.5	65
Redlands	10,152	9,524	4,114	2.32	7.3	73
Southcote	7,926	7,796	3,166	2.46	5.6	56
Thames	9,265	9,162	3,463	2.65	6.1	61
Tilehurst	8,814	8,784	3,233	2.72	5.8	58
Whitley	10,101	10,086	3,439	2.93	6.0	60

\* 98 was later raised to 120 at the second attempt of distribution

Source: Joint Strategic Planning Unit, Population in Berkshire 200 Review

Before streets could be selected, each Reading street was put into a database from which, they were categorised into large, medium and small. This is a reasonable but not 100% accurate procedure yet necessary due to time and financial constraints that would be needed to carry out the required fieldwork. Such a task would have involved each street to be visited to ascertain the number of residences. For example some streets appeared to be large from our map, but could in effect contain more businesses than households. If these figures had been available our sampling would have been more accurate, but in our survey we can only say that our calculations were reasonable assumptions. Once each ward had its allocation, the sample was stratified as follows: In each ward 50% of large streets were selected unless the number of large streets was 3 or less in which case 100% was chosen. For medium streets 20% were selected and 10% of small streets. As an example, Abbey ward had a designation of 100 households, so 50 of them would include large streets (in this case 4), 30 medium streets (2) and 20 small streets (8 out of 80). As the size of a street is in reverse proportion to the total number of streets of the same category, so is the probability of being selected, which is why we over-sampled the larger streets. Houses were randomly selected in the streets specified until the quota was complete.

## Data Collection Methods

Several data collection procedures were discussed in detail weighing up the advantages and disadvantage of each method of each as follows:

### Telephone Interviewing

The main advantage of telephone interviewing is that it enables data to be collected from geographically scattered samples in a more cost effective and efficient manner than would be done by face to face interviews and avoids the limitations of response rates of postal surveys. Other advantages are that interviewing from a central telephone unit such as CATI (Computer

Assisted Telephone Interviewing, permits the interviewer to spend more time interviewing. The respondent is usually unaware that the interview is being driven by a computer and careful questionnaire design allows the interview to flow as an interactive conversation. However, one of the problems associated with this method is of obtaining representative probability samples. It is estimated that 10% of the UK population do not have a telephone in their home (Family Expenditure Report 2001/2 – Office of National Statistics) and about 25% of those with a telephone have ex-directory (unlisted) numbers which is on the increase. Therefore a complete listing of domestic telephone numbers does not exist and is unlikely to do so in the future. It is also possible that those who have unlisted numbers represent a particular proportion of the population that may be larger than those who do not and therefore the scope for bias would be substantial. The Centre for Social Research at the time of our survey was planning to install a CATI (computer assisted telephone interviewing) system, but it was not in place at the time of the survey so an alternative data collection method was agreed.

### **Mail Surveys**

A mail survey is one of the most cost effective means of data collection and allows coverage of a wide geographic area, but is more likely to incur a higher non-response rate than other methods. With regard to human resources, mail surveys require very little manpower. It is possible for one person to conduct a mail survey, whereas the time needed to conduct the same number of telephone or face-to-face interviews is not feasible for a large study. This type of data collection method also keeps costs down with the estimated cost of a telephone survey at 50% more and face-to-face at 150% more respectively (American Statistical Association, 1997). This is primarily because postage costs are relatively low regardless of geographical area being covered. However, problems include; the wording of questions, as there is no opportunity for explanation or follow up questions, questionnaire length and inducement of the respondent to fill out the questionnaire. Yet, the major difficulty for our survey was the procurement of an accurate list of people in the population from which to draw the sample.

### **Face-to-face Interviews**

Interviews are a far more personal form of research than self administered questionnaires. The research can work directly with the respondent and unlike mail surveys, the interviewer has the opportunity to probe or ask follow-up questions. For the respondent, interviews may be easier, especially when asked about sought opinions or impressions. However, interviews are time consuming and resource intensive with highly trained interviewers needed to respond to any contingency. In the Reading Study, due to limited finances and time constraints this method was ruled out as the method to conduct our survey.

### **Household drop-off**

With all the above methods discussed for their merits and inadequacies, it was decided to compromise our data collection process by the 'household drop-off' method. Using this approach, a researcher visits the respondent's home. They will then briefly explain the content and purpose of the survey, ask the respondent if they will be willing to take part in the survey and if they agree arrange for a convenient time to collect the questionnaire. By using this approach, we attempted to blend the advantages of a mail survey and some of the personal contact of a face-to-face interview. The respondent would be able to answer the questionnaire in their own time and have the opportunity to ask the interviewer about the study and clarification of what is to be done. Using this method, we aimed to increase the percentage of people willing to respond.

## The Questionnaire

Our study was an attempt to understand Reading residents' knowledge, attitudes and behaviour towards energy consumption and renewable energy technologies. In order to discover the strength of public support, level of knowledge, which groups are more supportive than others and whether a clear pattern emerged between attitudes and behaviour, our questionnaire was divided into several sections with various types of question design.

The first section asked some general awareness questions about environmental issues and was designed to assess the level of knowledge that people possessed about concepts such as sustainable development, energy efficiency and renewable energy. Respondents were asked where they had heard of these ideas, how concerned they were about change in long term weather patterns and which factors did they think increased risk of climate change. The first section ended with a question about levels of trust of various groups regarding environmental decisions.

The second section asked some specific questions about renewable energy such as whether the respondent felt that renewable technologies could replace fossil fuels, who they felt should be responsible for its implementation and whether in fact renewable energy should be increased. Questions following included the type of renewable technologies that respondents might like to include in their homes, whether they had heard of government grants to assist in their implementation and if looking to move house how those with existing renewable installations would influence their decision.

Following this section, respondents were asked about energy efficiency and practice in their homes. The type of fuel they used and estimated costs per annum were asked as well as actions taken to reduce energy consumption such as use of energy saving light bulbs and purchasing of eco-friendly appliances.

Attitudes and opinions about environmental issues were sought in the next part of the questionnaire and within this section we were particularly interested in the level of support for renewable technologies over existing fossil fuels and the level of concern of the need to save energy. Other questions included the level of importance given to environmental concerns and whether the respondent would be prepared to give up their time or financially to a local environmental project.

The final section contain information about the respondent and their household such as gender, age, ethnicity, level of education attained, income, property type, children and whether they had access to the internet.

The questionnaire construction was composed of closed, pre-coded questions to give structure to the information gathered and included a mixed question format. Single answer questions requiring the respondent to choose a single reply from a pre-selected list of options were incorporated, such as demographic information and in Q7.2 (see appendix 1) where respondents were asked about major responsibility for use of renewable energy. Multiple answer questions also featured, where more than one answer was sought for questions such as Q11.1 asking about the types of renewable installations that respondents might wish to introduce into their homes. Some questions asked for numeric data such as the amount of money spent on petrol (Q23) and others were based upon 'likert scale' formats whereby respondents were invited to indicate their strength of agreement or disagreement with various statements. As an example, Q2 sought information regarding the level of concern about climate change. For a list of all questions asked see appendix 1.

## **Data Collection**

### **Recruitment**

The method of collecting data was to recruit students from the University of Reading to deliver questionnaires in person with collection to be carried out at an agreed time with the respondent. Students were enlisted by placing a flyer around the University campus and by e-mail through each departmental secretary.

Response from the flyer was overwhelming with twice as many students as wards to be covered, yet when the full implications of the task was explained to them, fewer students were keen to participate. A briefing meeting was arranged for those wishing to take part where they were given instructed about fieldwork. The nature of the survey was explained to them in detail, so that they could give the potential respondents an overview of the type of data to be collected and the reason for the study. The importance of explaining who they were when knocking on people's doors was outlined and students were required to carry their University ID cards for that reason. Also students were given some preliminary training about how to approach potential respondents and methods of persuading them to take part in the survey. It was felt that householders might be more sympathetic to a student than perhaps someone from a commercial market research organisation.

Each fieldworker was given a map of the ward area they were expected to cover a list of street names with the specified number of questionnaires to be delivered, the ward quota of questionnaires and a letter to respondents explaining the nature of the study. They were to select houses in those streets at random until they reached their quota agreeing dates and times to collect the completed questionnaire. Students were remunerated according to the number of questionnaires they collected, at £1 per questionnaire.

### **Data collection procedure**

Success rates of distributing and collecting questionnaires varied by ward, with Abbey and Whitley particularly problematical. The student who delivered the questionnaires to Abbey related of the difficulty in collecting them due to the absence of residents at the agreed time of collection. This was rectified by redistribution and collection to the ward, generating a good response rate. The student responsible for the Whitley ward described difficulties in delivery, with a negligible number of people willing to take part in the survey. Redistribution of this ward also took place with different students yielding a favourable rate of response.

## **Data Analysis**

### **Data Entry and Cleaning**

The data from the questionnaires was transformed from its non-computerised form into a SPSS for Windows spreadsheet. This is a computer software package specifically designed to perform statistical operations and facilitate data analysis. Each answer for every question (variable) was given a label and coded with a codebook to provide a comprehensive description of the dataset. This is a document that systematically records the decision making process associated with the coding of the responses to each question within the questionnaire.

Before analysis could take place, errors were removed and missing values filled in by using an aggregated figure for each variable, usually the mean or sometimes median value.

## Report of response rate per ward and per ward cluster

The response rate for the Borough was calculated at 58%. Abbey, Caversham, Kentwood, Norcot, Park, Southcote all achieved a high response rate of over 70%. Of medium responses were Whitley, Thames, Peppard and Church, but poor responses came from Battle, Katesgrove, Minster, Redlands and Tilehurst. It is not certain as to why these wards performed particularly badly, but interviewer error may have played a part with some students more willing or conscientious than others.

Ward	Number of Q Delivered	Number of Q Collected	Number of Q Valid	Rate of Collection	Rate of Valid Q Collected	Rate of Valid Q Delivered
Abbey	120	81	80	0.680	0.670	0.46
Battle	66	62	19	0.939	0.290	0.27
Caversham	84	72	72	0.857	0.857	0.73
Church	50	28	28	0.560	0.560	0.31
Katesgrove	62	16	16	0.258	0.258	0.06
Kentwood	58	43	40	0.741	0.741	0.54
Minster	80	34	34	0.430	0.430	0.18
Norcot	66	58	50	0.879	0.760	0.67
Park	64	46	46	0.719	0.719	0.51
Peppard	66	43	36	0.652	0.550	0.36
Redlands	67	49	29	0.731	0.430	0.31
Southcote	55	43	43	0.782	0.782	0.61
Thames	62	34	34	0.550	0.550	0.30
Tilhurst	58	50	19	0.862	0.330	0.28
Whitley	50	39	32	0.780	0.640	0.50
<b>Total</b>	<b>988</b>	<b>688</b>	<b>569</b>	<b>0.580</b>	<b>0.580</b>	<b>0.34</b>

## Representativeness of sample vs Reading Population

To compare how representative our sample was from the total population, we cross referenced figures from the 2001 Census with demographic variables from our study in the following areas:

### Gender

Figures from the 2001 Census show that about 50% of men and 50% of women reside in the Borough of Reading. Our survey was responded by 44% of women and 55% of men. This should be considered as fairly representative, yet slightly skewed as in many households it can be presumed that men take more responsibility for paying energy bills than women.

### Car Ownership

Comparing our result with the census data, for those with one or three cars we reported almost identical percentages with slightly more claiming to have four cars in their household. The discrepancy in those that did not possess a car may be due to the part of the population not eligible in our survey such as the large number of students living within the Borough. Acknowledging the non participatory sector, it would appear overall that our findings were representative of the population as a whole.

### Age

The age structure of the general population of Reading is that a large proportion fell between 20 and 39. In our study, we reported that the majority of those answering the questionnaire were

between 30 and 49. Several possibilities could explain this skewness towards older people. First, all those under 18 were discounted as we were interested in the person who paid household bills and secondly we can assume that home owners or those responsible for fuel bills would tend to be older working people.

### Education

Representativeness in level of education was fairly constant for those with degree level qualifications, we reported fewer at GCSE standard, but more people with A Levels or equivalent. There was a discrepancy of those with no formal qualifications, but the Labour Force Survey included other qualifications that may not be formal. If we had asked that question it is possible that the result might have been different.

### Ethnicity

The population of Reading is estimated to be composed of 87% white British nationals with about 13% representing ethnic minority groups. Our survey was closely representative of this pattern with 84% reported white UK and 16% of other ethnic groups.

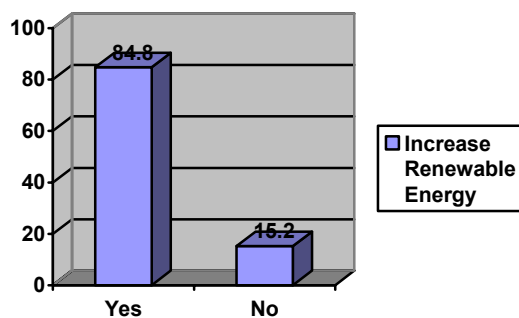
These comparisons show that in the main our survey was fairly representative of the general population in Reading.

### **Level of Support for Renewable Energy**

Our first model in analysis was to look at variables that measured the level of support people had towards renewable energy. Several variables were extracted, first by running a frequency table and then by bivariate correlations using Pearson's product-moment correlation coefficient ( $r$ ). A single variable was then created which showed the level of total support from the sum of the variables selected.

### Frequencies

Respondents were asked whether they felt that renewable energy should be increased. Our results showed an overwhelming positive response rate of 84.8% in agreement to increased renewable energy, 15.2% of the sample opposed to the increase.

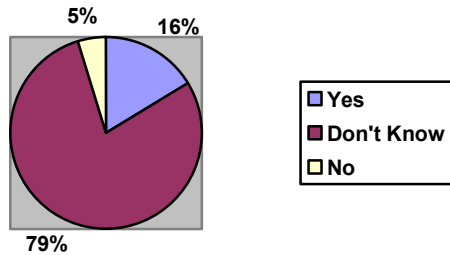


Whether people would like to install renewable technologies into their homes was asked and to take the variable of wishing to install solar PV systems, 66.8% of the population responded that they would like to have solar PV electric panels in their homes. When asked if priority was given to the environment, even at more expense however, 37% disagreed, 40% were indifferent and 22% agreed. Levels of green waste recycling participation were asked which yielded a result of 30.3% of the population 'very likely' to participate but 27% replied that they would not be at all likely to participate in the scheme if provided by the local authority. Questions about level of support for particular technologies were also included in this model. Support for wind energy was

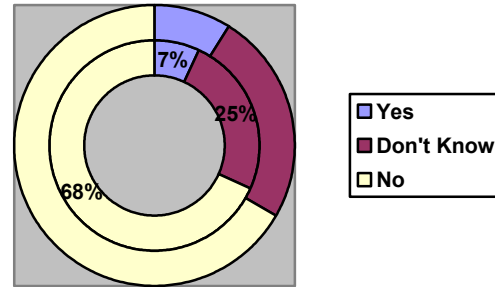


at 72% with only 2.4% opposing, this was a similar statistic for solar energy at 74.7 with 1% in opposition and to an extent for hydro at 63% in support and 2.6% opposing the technology. However, biomass received less support at only 16% with 4.8%. For this variable the majority replied as don't know, which could be as result of misunderstanding of what biomass meant.

### Support for Biomass



### Wood fuel can replace fossil fuels



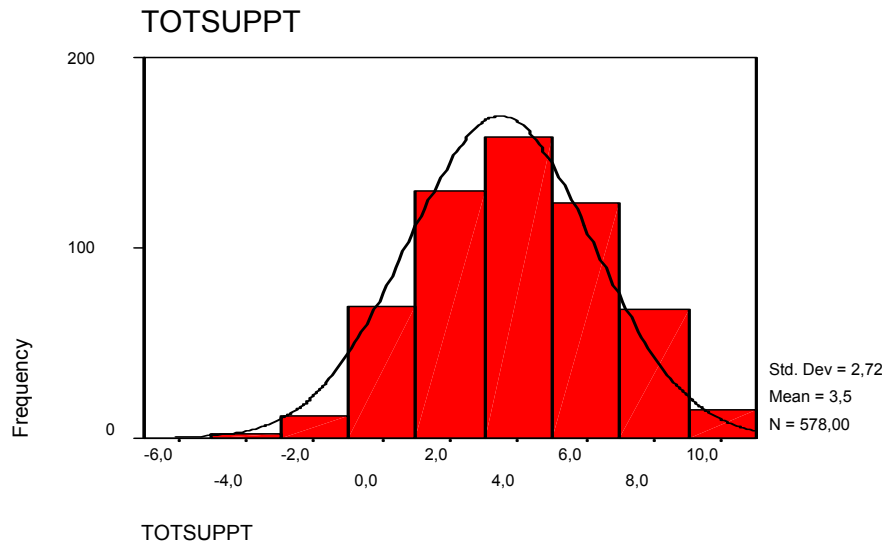
Respondents were also asked whether they thought wood fuel could replace fossil fuels and here 68% were unsure, also an indication of perhaps lack of understanding of the carbon cycle.

The last variable chosen for this model was support for waste incineration which received the most opposition at 16.4%, but unlike for biomass 24% support and a large number of people with 'no real opinion'.

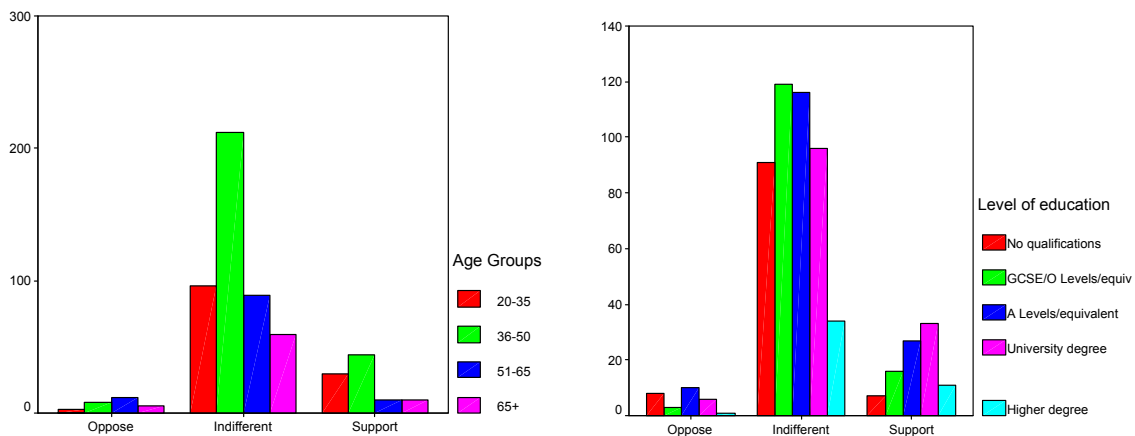
Finally we looked at the combined support for each of the above variables by constructing a single variable for support. The histogram created below shows a normal distribution, that is people who reported support on more than one variable also support others as can be seen from the mean which is set at 3.5.

**TOTSUPPT**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid -5,00	2	,3	,3	,3
-3,00	6	1,0	1,0	1,4
-2,00	6	1,0	1,0	2,4
-1,00	28	4,8	4,8	7,3
,00	41	7,1	7,1	14,4
1,00	52	9,0	9,0	23,4
2,00	78	13,5	13,5	36,9
3,00	82	14,2	14,2	51,0
4,00	76	13,1	13,1	64,2
5,00	63	10,9	10,9	75,1
6,00	61	10,6	10,6	85,6
7,00	45	7,8	7,8	93,4
8,00	23	4,0	4,0	97,4
9,00	8	1,4	1,4	98,8
10,00	7	1,2	1,2	100,0
Total	578	100,0	100,0	



Yet we wanted to find out whether a particular type of person was more likely to support a particular technology.



Although support for biomass is limited, those of the 36 to 50 age group are more supportive. This could be due to the education that their children have received at school with sustainability and renewable technology information now included in their curriculum. The level of education shows that those with a higher attainment tend to favour biomass over those with no formal qualifications.

### Bivariate Correlations

We used Pearson's correlation model to look for similarities and relationships between two variables. This is a technique of linear association designed to produce coefficient values between a maximum positive value of +1.00 and a minimum negative value of -1.0. A calculated value of +1.0 would display a strong positive correlation and -1.0 a strong negative correlation.

Pearson's Product Moment Correlation Coefficient is a parametric test. We used hypothesis testing criteria and confidence levels in order to determine whether a significant correlation occurred between the variables chosen, and whether the direction of this correlation was +ve or -ve. Or the values were +1.00 through 0.00 through -1.00. For example +1.00 would signify a 'perfect' positive relationship, 0.000 – no relationship and -1.00 – a 'perfect' negative relationship.

We computed this statistic using a 2-tailed test because it was not known whether there would be a positive or negative correlation. Using all the variables selected, we created a correlation matrix to find out the direction of the +ve or -ve correlation, whether the relationship was significant and the strength of the relationship.

### Correlations

		SUPBIO2	SUPSOLA2	SUPWIND2
SUPBIO2	Pearson Correlation	1	.129**	.137**
	Sig. (2-tailed)	.	.002	.001
	N	578	578	578
SUPSOLA2	Pearson Correlation	.129**	1	.579**
	Sig. (2-tailed)	.002	.	.000
	N	578	578	578
SUPWIND2	Pearson Correlation	.137**	.579**	1
	Sig. (2-tailed)	.001	.000	.
	N	578	578	578

\*\* . Correlation is significant at the 0.01 level (2-tailed).

From our matrix, some correlations showed significant relationship between two variables. Support for wind energy was correlated with support for solar energy. The Pearson Correlation (r) is 0.579, the sig (2-tailed) is 0.000 and N (population) =578. Correlation is positive and with a significance level of 0.000 means that the probability of the correlation not being statistically significant is below the 0.01 confidence level. The correlation is 0.579 with  $p < 0.01$ . Therefore we can conclude that there is a significant relationship between the two variables. People who supported wind also supported solar energy. This is a fairly strong positive relationship and the findings were consistent with what we expected to discover.

The square of the correlation coefficient ( $r^2$ ) provides an indication of the amount of variance in one variable that may be considered to be linked to the values of the other variable in a correlation pair. So for example, the correlation of 0.579 means that one third (33%) of variance in support of solar can be linked to support of wind. Whereas 0.07% of the variance between increase of renewable energy and support of solar respectively is weak correlation and such statistically significant results would be of doubtful substantive importance.

With Pearson's Product Moment Correlation, we can examine the association between variables. However, this does not show that one causes another. Such a causal relationship needs to be examined by regression statistics. Initial regression analysis has shown that patterns do emerge between age, gender and support, with females less sure than males the older the respondent becomes.

### Next Steps

The above data has generated preliminary findings, yet does not identify a particular group of people who consistently support each selected variable. Running further regression models will demonstrate if any patterns emerge, thus we can extrapolate the type of people most likely to

support renewable technologies. We will also look at network effects and lifestyle implications on this data, both of which has received a growing interest.

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## Appendix – Questionnaire for Reading Area Study - 2003

<b>Section 1 – environmental issues</b>
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**1 Which of the following terms are you aware of? Tick as many as apply.**

- Global warming
- The greenhouse effect
- Climate change
- Sustainable development
- Energy efficiency
- Biodiversity
- Renewable energy
- None of above

*If none of above go to Q2*

**1.2 Generally where did you hear of them? Tick as many as apply.**

- TV
- Newspapers
- Radio
- Energy Advice Centres
- Internet
- Word of mouth
- Other, please specify

**2. How concerned are you that the earth's climate and long-term weather patterns are changing?**

- Not at all concerned
- Not very concerned
- Indifferent
- Fairly concerned
- Very concerned
- Don't know

**3.1 In your view, which of the following generate electricity in ways which significantly increase the risk of climate change? Tick as many as apply.**

- Coal (or coal fired)
- Oil (or oil-fired)
- Incineration (waste burning)
- Gas/natural gas (or gas-fired)
- Nuclear
- Biomass (burns wood, straw etc)
- Solar
- Wind
- Hydro-electric
- None of above

**3.2 Which of the following do you feel may be the consequences of climate change? Tick as many as apply.**

- Rise in temperatures
- Increased risk of flooding
- Change in weather patterns
- Drought and water shortage
- Increased risk of disease
- Loss of habitat
- None of above

**4. How much trust do you place in the following groups to make the right decisions about the environment?**

- |                         | None                     | Some                     | A lot                    |
|-------------------------|--------------------------|--------------------------|--------------------------|
| Scientists              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Businesses and industry | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Environmental groups    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The government          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ordinary people         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Section 2 – some specific questions about renewable energy**

**5. Do you agree that energy generated from the following resources can replace the use of fossil fuels (Oil/gas/coal etc)?**

	Agree	Disagree	Don't know
Wind energy			
Solar energy			
Wood fuel			

**6.1 Do you feel that you need more information about renewable energy?**

- Yes  No

*If yes, go to Q 6.2, if no go to Q 7.1*

**6.2 If yes, where is the most useful place for such information to be made available? Please tick one.**

- Newspapers
- TV
- Radio
- A website
- Public buildings/libraries
- Other, please specify.....

**7.1 Do you think that we should increase the use of renewable energy?**

Yes  No  Don't know

**7.2 Who do you think should take the major responsibility for increasing our use of renewable energy? Please tick one**

National Government   
Government Office of the South East   
Reading Borough Council   
Private businesses   
People like you

**8.1 Have you heard of a 'renewables' or 'green' tariff from your electricity supplier?**

Yes  No

*If yes go to Q8.2, if no, go to Q9*

**8.2 Is your household on such a tariff?**

Yes  No

*If yes go to Q9, if no go to Q8.3*

**8.3 Under what circumstances would you be interested in having such an energy tariff? Tick one.**

Interested regardless of cost   
Interested at above the cost of my current tariff   
Interested if it was the same cost as my current tariff   
Interested if it was cheaper than my current tariff   
Not interested   
Other, please specify .....

**9. Do you have any of the following for your home? Tick as many as apply.**

Solar panels/PV   
Solar hot water heating   
A wood burning stove/fire place   
Other renewable energy forms, please specify  
.....  
None of above

**10. Are you aware of government grants to help you to invest in renewable energy such as solar panels, small wind turbines, wood fired boiler systems?**

Yes  No

**11.1 Would you like to install the following technologies into your home? Tick as many as apply.**

	Yes	No	Don't
know			
Solar electric PV panels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solar water heating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Small wind turbine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Small hydro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ground source heat pumps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood fired boiler system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood pellet stoves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of the above	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*If no to any of above, go to Q11.2, if yes to any of above, go to Q12*

**11.2 If you do not plan to install renewable energy technology in your home, which of the following reasons apply? Tick as many as apply.**

- They are unattractive
- I think that installations would be too expensive
- They are noisy
- They would not produce enough electricity for my home
- My current supply of energy is adequate
- I don't understand how they work
- Other, please specify

**12. Do you know of anyone personally (i.e. friends, relatives or colleagues) who have used renewable energy?**

Yes  No

**13.1 If you were looking to buy a home would you be more likely to buy one with renewable energy installations?**

Yes   
 No   
 Don't know

**Section 3 – Energy efficiency and practice at home**

**14.1 What type of fuel do you use in your home? Tick as many as apply.**

- |                       |                          |            |                          |
|-----------------------|--------------------------|------------|--------------------------|
| Gas                   | <input type="checkbox"/> | Oil        | <input type="checkbox"/> |
| Electricity           | <input type="checkbox"/> | Coal       | <input type="checkbox"/> |
| Wood                  | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |
| Other, please specify | .....                    |            |                          |



**14.2. What is your estimated annual fuel bill (this can be calculated from bills).**

Gas	£.....	Oil	£.....
Electricity	£.....	Coal	£.....
Wood	£.....	Don't know	£.....
Other, please specify	£.....		

**15. Do you try to conserve energy in your home by the following? Tick as many as apply.**

Turning off electric appliances when not in use	<input type="checkbox"/>
Wash full loads when using dishwasher/washing machine	<input type="checkbox"/>
Showers instead of baths	<input type="checkbox"/>
Use energy saving light bulbs	<input type="checkbox"/>
Keep temperatures at home between 18C – 21C	<input type="checkbox"/>
Buy eco-friendly appliances	<input type="checkbox"/>
Other, please specify	<input type="checkbox"/>
None of above	<input type="checkbox"/>

**16.1. If your local authority were to provide you with containers and a collection service for green (organic) waste, how likely would you be to participate?**

Not at all likely	<input type="checkbox"/>
Fairly unlikely	<input type="checkbox"/>
Indifferent	<input type="checkbox"/>
Fairly likely	<input type="checkbox"/>
Very likely	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

**16.2 Do you have a recycling box provided by Reading Borough Council?**

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

**17. Do you have any of the following in your home? Please tick as many as apply**

	Yes	No	Don't know
Double-glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loft insulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cavity wall insulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy saver light bulb/s	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (energy saving device)			
Please specify .....			

**18. How many cars are there in your household?**

.....

**Section 4 – Attitudes and opinions about environmental issues**

**19.1 Would you be prepared to make a financial contribution to local environmental projects?**

Yes  No  Don't know

**19.2 Would you be prepared to make a voluntary contribution (give your time) to local environmental projects?**

Yes  No  Don't know

**20. Has anyone in your household...**

Yes No Don't know

- Signed a petition about an environmental issue?
- Given money to an environmental group?
- Taken part in a protest or demonstration about an environmental issue?

**21. Do you agree with the following statements?**

	Agree	Indifferent	Disagree	Don't know
I give first priority to the quality of the environment, even if it cost me more money				
Renewable technologies can help to improve the local environment				
Renewable energy is too expensive for me to consider for my home				

**22.1 Which main mode of transport do you use to travel to work/study? Please tick one.**

- Car
- Car share
- Train
- Bus
- Taxi
- Bicycle
- Walk

If main mode of transport is by car, go to Q22.2, if other go to Q23

**22.2 Do you agree that many of the journeys that you take using a car can be avoided?**

Yes        No        Don't know   

**23. What would you estimate your household monthly petrol bill to be?**

.....

**24. How concerned are you about the following issues?**

	Very concerned	Fairly concerned	Not concerned
The need to save energy			
The need to recycle			
The development of renewable energy			
Household waste disposal			
Traffic congestion			
Traffic fumes emissions			
Pollution of waterways			

**25. What is your opinion on the following forms of energy sources?**

	Support	No real opinion	Oppose
Wind energy			
Solar panels			
Hydro			
Nuclear power			
Biomass plants			
Waste incineration			
Fossil fuel power			

**Section 5 – About you and your household**

**26. Gender**

Male  Female

**27. Age**

.....

**28. Ethnic background**

Bangladeshi   
Black-Caribbean   
Black-Other   
Chinese   
Indian   
Irish   
Pakistani   
White UK   
White Other   
Other

**29. Please tick the box which corresponds to the highest level of education you have completed.**

No formal qualifications   
GCSE/O Levels or equivalent   
A Levels or equivalent   
University degree or equivalent   
Higher degree

**30. Please tick the household income bracket that corresponds to your total household income in 2002.**

Under £10,000  £10,000-£20,000   
£21,000-£30,000  £31,000-£40,000   
£41,000-£50,000  £51,000-£60,000   
Over £60,000

**31.1 What type of property do you live in?**

Detached   
Semi-detached   
End terrace   
Mid terrace with passage   
Mid terrace   
Ground floor flat   
Middle floor flat   
Top floor flat

**31.2 In what year was the house you occupy built?**

- Before 1900
- 1900s
- 1910s
- 1920s
- 1930s
- 1940s
- 1950s
- 1960s
- 1970s
- 1980s
- After 1990
- Don't know

**31.3 How many bedroom & reception rooms are there in this property (not including kitchen/bathroom/utility)?**

.....

**32.1 Do you have children under 18 years?**

- Yes  No

**32.2 If yes, what are their ages?**

Child one ..... Child two .....  
Child three ..... Child four .....  
Others .....

**33. Do you have access to the Internet?**

- Yes  No