

Hockerton Housing Project Trading Ltd



REPORT ON THE VILLAGE SURVEY REQUESTING OPINIONS ON WHERE TO
SPEND THE VILLAGE WIND TURBINE MONEY
For
The Directors of Sustainable Hockerton Limited

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1. Village Survey December 2012

1.1. Summary

A village survey was carried out in December 2012 to find out parishioners' opinions on where the money allocated from the village wind turbine to the parish of Hockerton should be spent. Basic analysis of the survey showed three popular ideas. Combining these with the relative carbon savings and cost shows two actions which meet the criteria of; good value and popular. These are:

"Arrange for electricity from the turbine to be sold cheaply to residents"
(This assuming 14 house holds switch away from non renewably sourced electricity.)

"Open space in village for walking/sitting, children's' play area, food growing etc, Community orchard and Allotment space"
(This assuming 12 people are fed from the food grown.)

The practicality and achievability of these ideas still needs to be assessed and may lead to one or more of the other ideas being more appropriate to implement.

Many assumptions had to be made to carry out this analysis which ideally could be refined with further work and research.

Although these two actions above are described as good value, qualitative assessment may make other choices appropriate - it is hard to determine sustainability in an analytical way.

1.2. Introduction

Sustainable Hockerton Limited (SHL) has generated over £11 000 to spend on improving the sustainability of the parish of Hockerton and reduce its green house gas emission. It is anticipated that this money is set to increase over the next 15 years by about £10 000 per year. The directors of SHL want to know the wishes of the village in order to help decide how best to spend this money. To guide this decision a survey was hand delivered to all the domestic and commercial premises in the Parish of Hockerton in early December 2012.

The total number of surveys delivered was 68; each package contained a two page questionnaire, a letter explaining the request and a self addressed envelope. Three prizes were offered to encourage people to return the form. The prizes were OWL energy monitors. The draw was held on the 22nd December 2012. Of the 68 delivered forms 20 were returned by the 23rd January. That is 29% returned. The request was for feedback on possible expenditure of SHL money. A list of ideas received previously collected from village events was given to comment on as well as space for people to add more ideas if they wished.

The popularity of ideas is combined with other criteria in this report. These criteria include carbon reduction and cost.

1.3. Basic analysis of responses to survey excluding carbon reduction and cost

The three most popular suggestions are below. Please note the categories of open space, orchard and allotment space were combined as they are clearly linked ie one project could achieve all three of these.

"A footpath to Southwell"

"Arrange for electricity from the turbine to be sold cheaply to residents"

"Open space in village for walking/sitting, children's' play area, food growing etc, Community orchard and Allotment space"

Additionally there was relatively strong support for:

- Another village wind turbine
- Buy a couple of environmentally friendly vehicles and have a car share type Scheme
- More village community events

Offers of help with implementing ideas were also received and these correlated quite closely with the most popular ideas. See table below.

The results are ranked in order of "strongly wish to see" happen in the table below. This figure is the total of "ticks" in that box not the number of people voting. Other ranking was carried out taking into account other scores but this made little difference to the order. (Except for the village community event which rose up the list as it scored well in the Moderate category)

A total of nine people offered help with various actions.

More ideas were added to the form. These ideas were very varied with only a few people suggesting the same thing. The suggestions with 2 or more repeats were:

- Ideas around improving road safety including purchase speed cameras to slow cars down (four people)
- Upgrade broadband to village (two people)
- Energy monitors for village residents (two people)

Table of Survey results (Most Popular first)

Proposal for money to be spent on:	Strongly wish to see happen (4 ticks max)	Moderately wish to see happen	Natural	Moderately wish not to see happen	Definitely don't want to happen	Willing to Help/ Lead please indicate which
Footpath from Hockerton to Southwell (problematic and ongoing)	20	1	1			5 People
Arrange for electricity from the turbine to be sold cheaply to residents	10	4	3	2	1	
Open space in village for walking/sitting, childrens' play area, food growing etc. (Waiting for land.)	4	7	3	1	1	2 People
Community orchard	4	5	3	1	2	1 Person
Allotment space	4	4	5	2	2	2 People
Another village wind turbine	4	3	3	2	2	2 People
Buy a couple of environmentally friendly vehicles and have a car share type Scheme	4	1	4	1	3	2 People
More village community events	3	9	3	2		4 People
Grants for individual house holders towards eco projects eg Energy surveys, loff insulation, low energy lights	3	4	3	2	1	1 Person
Village shop to supply local produce	3	4	3	2	1	1 Person
Footpath to destination other than Southwell	3	3	4	1	1	
Subsidised organic vegetable box for parish residents	2	4	3	2	2	1 Person
Support for personal energy reduction / environmental pledges	1	6	6		2	
More renewable energy installations eg PV possibly on parish houses or wood burning boilers for household heating.	1	5	3	2	2	
Thermal imaging surveys (in the winter) to identify high heat loss properties	1	4	3		2	
Helping people access Feed In Tariffs and Renewable Heat Incentive	1	4	7		2	
In-depth survey of current carbon footprint of people living/working in the parish.		4	8		2	
Something around Anaerobic Digestion		2	7		3	

1.4. Further analysis including carbon impact and cost

Guidance on how best to proceed with the survey information follows.

In order to meet SHL's aims for dissemination of funds to the village information on the popularity of ideas should be combined with an assessment of the benefits in terms of sustainability and carbon reduction, This analysis should then indicate the best way forward for the local environment and have a high relative popularity. Further analysis will also assess the cost effectiveness of actions proposed. In other words we need to maximise the benefit of spending the money taking into account the environment and peoples wishes. We then also need to consider achievability and practicality of ideas which might rely on people volunteering to help or championing an activity.

For example: A very popular cheap idea that saves a lot of carbon may be thought more appropriate to promote compared with a popular cheap idea that saves little carbon. Unfortunately assessing the sustainable benefit or carbon reduction is not easy as it depends on many varied factors.¹

Further complications arrive when looking at value for money. A cheap idea that is popular and highly sustainable and reduces carbon emissions is the ideal! However the total money available over time needs to be considered.

Carbon emissions are easier to estimate and analyse numerically than sustainability. With this in mind an estimate of the relative impacts is made below. The reader should take into account the above comments when using this data to make decisions. Finally this information will be combined with cost estimates to give the best value action.

The top 8 ideas will be analysed with the three "open space" ideas combined as one. The final output is a value for money and value for the environment figure the bigger the number the better (More kg CO2 saved per pound spent)

In addition to this analysis how achievable and practical a development is needs to be taken into account. For instance quick wins may be as important in the initial stages of the project to demonstrate that funds are having a visible impact!

The results show that open space offers very good value for money and the environment. This assumes some community space is used for growing food which is then consumed in the village. It also assumes the cost of land is similar to allotment rates which might be a large under estimate.

¹ The difficulties explained... A footpath to Southwell may reduce the number of car journeys by a certain number saving carbon emissions each time. These savings could then be estimated numerically however it may also improve the health of the people walking, making people live longer in a healthier way. Another aspect to sustainability is the need for people to change behaviour towards a less impactful life style. The motivation for this may manifest its self in many ways. For instance the feeling of a group all working toward a joint aim may have significant spin-offs in a persons private life choices that may be quite disproportionate to the actual activity of the group. (For instance; A group working on growing herbs for sale to the local community may motivate people, through the social intercourse, to fly less often on holiday. This unforeseen action would have far more benefit than the herb growing.) Unfortunately it is very difficult to numerically estimate these effects on sustainability or GHGE. So the figures given below should be assessed with this in mind.

Arranging for electricity from the turbine to be sold cheaply to residents is also good value.

The table below summarises the results of the analysis. The details of the calculations are in appendix 2.

Table of “Value” analysis

Suggested Action	Value for money and environment	Unit
Footpath from Hockerton to Southwell (problematic and ongoing)	4	kgCO2/£ spent
Arrange for electricity from the turbine to be sold cheaply to residents	10	kgCO2/£ spent
Open space in village for community activities. Including allotment space.	55	kgCO2/£ spent
Another village wind turbine	4	kgCO2/£ spent
Buy a couple of environmentally friendly vehicles and have a car share type Scheme (Diesel)	4	kgCO2/£ spent
Buy a couple of environmentally friendly vehicles and have a car share type Scheme (Electric supplied from renewables)	3	kgCO2/£ spent
More village community events	Difficult to calculate	

2. Appendix 1 Further Suggestions Made on Forms

The full list of suggestions made on the bottom of the forms

Something to help with the village hall. 14

Upgrade broadband to village to facilitate home working 1

Help to set up fast broadband. 10

Ask farm shop to do a village delivery 4

Group energy purchase scheme for green energy. Pay for admin from turbine. 4

Any measures to reduce carbon fuels and or emissions. 4

Bus service to Newark and Southwell 6

Mains sewage for Hockerton. 6

Energy monitors to all village residents -cost effective fair and easy way to benefit the whole village and involve every one in carbon reduction. 7

Energy monitors for those that want them in the village. 10

Something to help with road safety 14

Traffic safety measures, installing speed cameras and by paying for these we would get any fines paid. Very fast road needs attention before a walker is killed!16

What about some help with providing safety measures on the A617? One takes ones life into your own hands when on the pavement. The speeding issues are massive and it is at times terrifying. May be installing a gatso (Speed camera) which we could buy and take the profits from? 17

The lack of gritting on main route into Southwell - major hazard. 5

Footpath to Southwell is the most important we should concentrate on this. 15

Way to access reduced rate electricity would be wonderful. We would support a second wind turbine. A community orchard/community allotment which may produce veg. boxes would be wonderful.

Could funding be available for post graduate study in the field of sustainability and rural issues?18

Energy efficiency advice. 20

3. Appendix 2 Carbon Saving Calculations

Numbers of people taking up ideas and used in the calculations below are taken from the numbers saying they are either strongly or moderately in favour on the survey form.

Footpath from Hockerton to Southwell (problematic and ongoing)

		Assume people voting for all walk once per day
Trips per day	21 t/d	
Trips per year	7665 t/y	
Miles one round trip	4 miles	
Total miles pa	30660 miles	
mpg	35 mpg	Assume typical car cold
Fuel saved Gallons	876 g	
litre	3942 lt	
		ref: http://www.defra.gov.uk/publications/files/pb13773-ghg-conversion-factors-2012.pdf
Carbon Dioxide impact	3.2 kgCO2e/lt	
Carbon Dioxide saving per year	12614 kgCO2	Assume needs replacement at 20 years
Footpath life	20 y	
Project Carbon Dioxide saving	252288 kgCO2 pa	
		Assume same cost as turbine track per meter.
Cost estimate	£ 72,000	
Value for money and environment	3.50 kgCO2/£ spent	

Arrange for electricity from the turbine to be sold cheaply to residents

		Electricity from the turbine to be sold cheaply to residents
		Assume people signing up switch from a non renewable supplier thus increasing the use of Renewable energy and the number switching equals the number of people suggesting idea.
Houses switching	14	
Yearly electricity use kWh	3300 kWh	
Total kWh now renewable	46200 kWh	
		Ref: from sep 2012 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47819/6112-cca-interim-guidance-gp3-5.pdf Subsidy is about 50% i.e. 5 pence per kWh
CO2 saving per kWh	0.520 kgCO2/kWh	
Subsidy £/kWh	0.05 £/kWh	
Project Carbon Dioxide saving	24024 kgCO2 pa	
Set up cost	£ 1,000 £	
Running Cost estimate	£ 2,310 £	
Project life	20 y	
Total annual costs	£ 2,360	
Value for money and environment	10.18 kgCO2/£ spent	

Open space in village for community activities.

Community open space with food growing area.

People fed for year from local food grown	12	
Persons food impact currently	2200 kgCO2 pa	http://www.carbontrust.com/news/2012/03/food-the-carbon-story
Total possible saving	26400 kgCO2 pa	
Likely saving	0.5	Assume half total saving possible
Total saving	13200 kgCO2 pa	
Cost of allotment rent per year	£ 40 £ pa	http://www.bbc.co.uk/news/uk-england-hampshire-19082290
total cost	£ 480 £ pa	High variation possible!

Value for money and environment **55.00 kgCO2/£ spent**

Another village wind turbine

Another village wind turbine similar to current Vestas V29

Average carbon saving to date	152000 kgCO2 pa	Assume similar to Vestas V29 first 3years
Cost of turbine	£ 235,000 £	Assume similar to Vestas V29
Running costs	£ 22,000 £ pa	Assume similar to Vestas V29
Project life	15 y	Assume similar to Vestas V29
Total annual costs	£ 37,667 £ pa	Assume similar to Vestas V29

Value for money and environment **4.04 kgCO2/£ spent**

Buy a couple of environmentally friendly vehicles and have a car share type Scheme (Diesel)

Car share of 2 diesel cars displacing 2 cars

Embodied energy saving per car	76000 kWh	Ref: http://www.inference.phy.cam.ac.uk/withouth and 4 people take part in the car sharing saving two cars each car lasts 15 years Assume 15 year car life
Number of cars not on the road	2	
Typical car runs for 15 yrs	15 y	
Embodied energy saved per year	10133 kWh pa	Ref: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47819/6112-cca-interim-guidance-gp3-5.pdf
CO2 saving per kWh	0.520 kgCO2/kWh	
CO2 saving per year	5269 kgCO2 pa	
Cost of one car	£ 10,000 £	Assume cheap small car.
Number of cars	2	
Cost two cars	£ 20,000 £	
Life of car	15	
Annual cost	£ 1,333 £	

Value for money and environment **3.95 kgCO2/£ spent**