Eastrington Community Owned Energy Project
First Consultation Document

Wind and Solar Options for Eastrington Parish

Early in 2014 we consulted Eastrington residents about the possibility of generating energy for community benefit. Since 78% of respondents voted in favour of further investigation we have been busy setting up a Community Interest Company, applying for grant funding and engaging consultants to carry out the necessary surveys. This report sets out the initial findings of the study to enable residents to consider the options for Eastrington in more detail.

We are also presenting the options in the Village Hall on Friday 27th March (6pm to 9pm) and Saturday 28th March (9.30am to 1.30pm). Please come along to give us your opinions or ask questions. There is also a page at the end of this document that you can return. Please make copies as required. You can download additional copies from our website - www.eastringtonenergy.co.uk

We welcome the opinions of **all** residents – however young or old.

Read on to find out

- Why we might want a community energy project?
- Sites we have identified for possible wind turbines and solar arrays
- Size of installations and the energy they generate
- Financial implications
- Ways residents can benefit
- What you can do
- What will happen next?

This information will be presented at the Village Hall event in a much more visual format – please join us if you can.

There is also a list of Frequently Asked Questions which can be viewed on our website (or posted to you on request). Our lead consultant's initial report has also been uploaded to the website – www.eastringtonenergy.co.uk

Why might we want a community energy project?
We have many wind farms in the East Riding. They turn mostly for the benefit of distant investors and attract some vocal opposition. However, most people recognise the importance of renewable energy to help reduce carbon emissions, combat climate change and secure a local energy supply - rather than relying on imported fuels from around the globe.

A community energy project will give Eastrington residents the opportunity to take positive action by supporting a local, clean energy future whilst retaining the financial benefits in the local area. We have two abundant sources of renewable energy in Eastrington – wind and solar.

Possible sites to generate electricity in Eastrington Parish
Our community cannot have a large energy project without a willing landowner. We wrote to 34 landowners in the Parish and received two helpful replies – from Mr Longthorp at Burland and Mr Wilcocks at Filbert Grove.

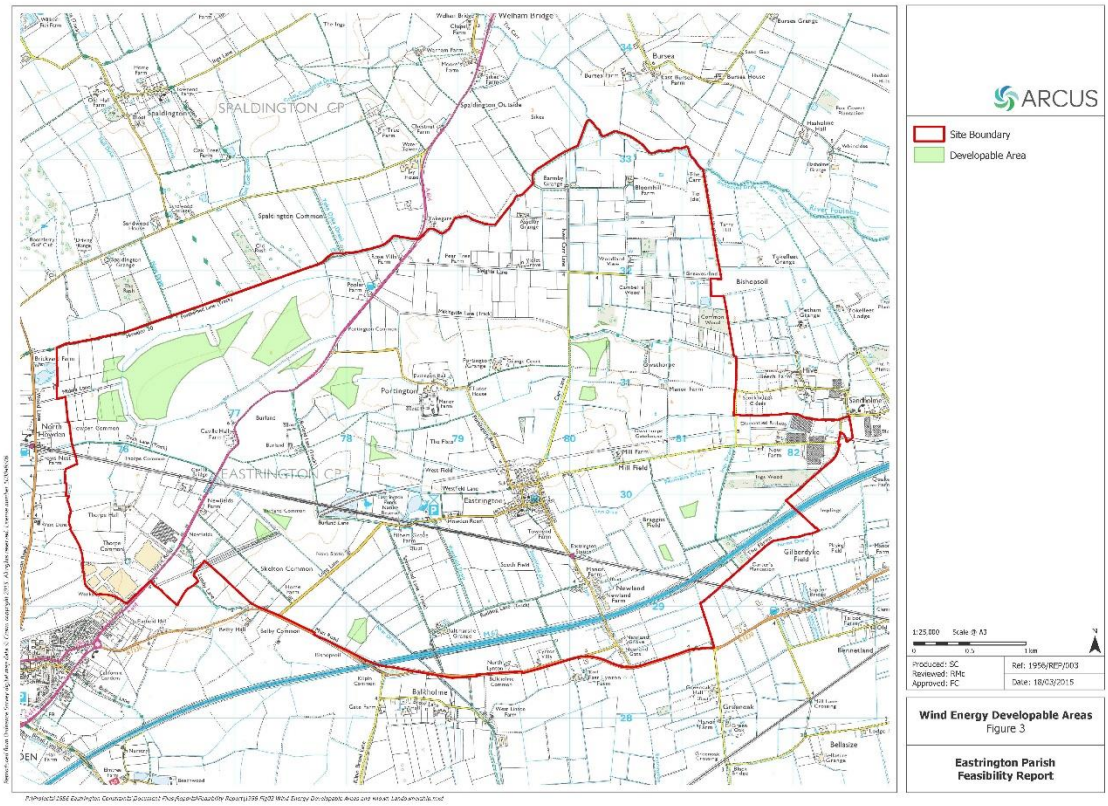
The main stumbling block has proved to be grid connection costs because of the high number of renewable energy projects already operating in the area. There is absolutely no spare grid capacity at Filbert Grove. Any significant installation here would require a completely new grid connection at a cost in excess of £2 million – making any project at this location highly unlikely.

It may be possible to connect a project on Mr Longthorp's land at a cost of approximately £600,000. This is still a high cost to recoup and will mean a fairly large installation.

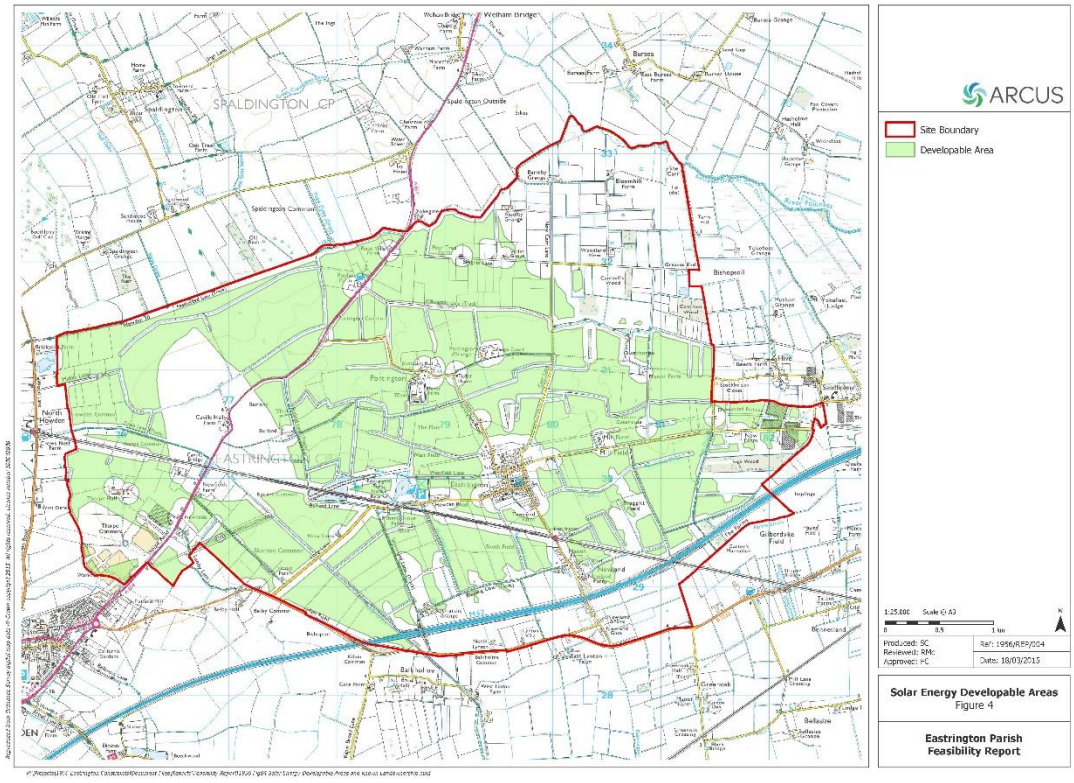
Consultants have mapped Eastrington Parish with regard to wind and solar possibilities. In the maps on the next page, Eastrington Parish is outlined in red. The village itself is fairly central.

The first map shows that there is very little land on which it would be possible to construct a community wind turbine. When the consultants allowed safe distances from property, overhead lines, roads, waterways, public rights of way and underground pipelines for example, there were not many possible sites remaining.

Fortunately, as most of the possible sites (shaded in grey) in the North West corner of the Parish belong to Mr Longthorp, we do have sites that we can explore further.



There are many more options for land based solar arrays – as highlighted in grey below;



Our funding body, however have indicated that they would be unlikely to support ground mounted solar arrays. We don't necessarily agree with this because sheep or poultry can graze beneath panels so that land is not lost to food production - and when combined with wild flower meadows for example, additional environmental benefit can be obtained.

Size of installations, costs and energy generated

The table below illustrates the physical size and generating power of 3 possible wind turbines.

Rated output	500 kW	500 kW	1.5 MW
Height to tip	78m	103m	100m
Energy pa	1.4 MWh	1.7 MWh	3.8 MWh
Homes equivalent	350	420	930
Cost to install	£1.8m	£1.9m	£3m

Notes

- average electricity usage per UK home of 4,170 kWh in 2013
- there are approximately 420 households in the Parish of Eastrington
- more height = higher wind speed = more electricity generated
- based on a grid connection cost of £600k

The table below illustrates the equivalent south facing, ground mounted solar photovoltaic arrays on farmland.

Energy pa	1.4 MWh	1.7 MWh	3.8 MWh
Area – acres	8	9.5	21
Area - pitches	5 football pitches	6 football pitches	12 football pitches
Cost to install	£1.8m	£2m	£3.7m

To compare with roof mounted potential - if every house in the parish had a south facing roof and was fitted with a 16 panel, 4 kWp photovoltaic (PV) system we could generate 1 MWh of electricity per year from our roof tops. Installation would cost approximately £3.8m at most – perhaps £2.5m with a bulk buy discount? The high cost of installing many small systems makes this a very expensive option at this scale – but the electricity would be generated close to the point of use.

Our consultants have built a 3D computer model of roofs and solar incidence which can be seen at the open event. Although there is a fairly high proportion

of south facing roofs in the parish, fitting PV panels to 420 roofs is a highly unlikely scenario.

Financial implications

For the 3 wind turbines illustrated above the estimated financial returns could be as follows:

Rated output	500 kW	500 kW	1.5 MW
Height to tip	78m	103m	100m
Cost to install	£1.8m	£1.9m	£3m
Income over 20 years	£6.2m	£7.5m	£11.3m
Total residents share	20% £1.2m	29% £2.1m	22% £2.5m

For the 3 comparable solar PV installations the estimated financial returns could be as follows:

Cost to install	£1.8m	£2m	£3.7m
Income over 20 years	£3.7m	£4.5m	£10m
Residents share	nil	nil	Nil

A stand-alone PV system will not pay for itself over a 20 year period because of the very high grid connection cost in Eastrington. This cost could be reduced by sharing the wind turbine connection cost or by installing a system less than 190 kW (just over 1 acre). The payback also improves when the electricity generated can be used rather than sold so there may be a number of smaller options that we could explore further.

The above figures are based on current Government guaranteed payments for electricity generation which have been reducing steadily over the years and could change significantly after the General Election. At this stage we have assumed that the cost of installation will be repaid as soon as possible to minimise interest cost.

There are many estimates and calculations behind these headline figures. We have tried to err on the side of caution. If a project goes ahead, it will be the duty of the resultant management team to negotiate the best deal possible in every aspect of income and expenditure.

Ways in which Eastrington residents will benefit
The community share tabled above can be distributed in two ways;

1. an annual dividend to each household
2. a community fund for the benefit of villagers

At the moment, we envisage that each household or other premises in Eastrington Parish will be entitled to purchase a share in the Community Interest Company for £1. For a wind turbine project, they would then receive a tax paid dividend for the next 20 years. This may start as low as £20 per year, rising to £500 in the last 5 years of the project as the capital cost is repaid.

We feel that an equal share per property is the fairest way but welcome your suggestions in this regard.

The value of the community fund over the life of the project will be in excess of £200,000. We welcome ideas on how this could benefit the village. So far, the following have been suggested;

- superfast broadband
- domestic energy saving schemes
- domestic scale renewable schemes
- community resilience project
- allotments
- support for sports clubs and other village associations

Our funding body particularly want to see a lasting legacy from the project. Please let us know if you have any ideas.

In addition there could be savings on electricity prices. This will involve residents switching to a supplier with whom we can negotiate a good price through the sale of our electricity. This would be a new, ground breaking arrangement but an added bonus and not impossible to achieve.

Residents with cash to invest can also benefit from the very competitive interest rates that the project will need to offer to raise the capital required – see below.

How can we raise the money needed?
The Government is actively encouraging communities to generate their own energy. They do this by offering a fixed price for every unit of electricity produced and they guarantee to pay this for 20 years. This means that community groups can buy a wind turbine, confident that they can repay the cost of the turbine over its working life. The guaranteed income means that banks and financial institutions are willing to lend. However – the more we can borrow locally, the more interest we pay locally and thereby we increase the local "share" of the total income generated.

It will probably not be possible to borrow up to £3m from residents of Eastrington Parish! We may need a 5 mile or 30 mile radius? We may need to raise the balance from an ethical bank that supports community projects.

There is still some research needed with regard to raising the finance. Can we offer higher rates to Eastrington residents? What rates will we need to offer for longer term commitments? Will we have the resources administer small loans so that we can include a wider range of local savers? Could there be tax advantages from lending to a community project?

What you can do
Now – come to the open event or send in your feedback
Late April – vote!

If we get a majority vote to proceed then we will need you to actively support the planning application – people power can get it through!

Currently we have a team of 6 volunteers on the CIC committee. If you would like to be involved or feel you can help in any way, please get in touch.

What will happen next?
In early April we will assess the feedback from this initial consultation. We will summarise the discussion and put together final proposals which will be circulated to all residents together with voting papers.

By mid-May we will publish the result of this vote which will then be included in our consultant's summary report to our funding body. If the vote is in favour of proceeding with a community energy project we can then apply for further funding to take us into the planning phase. If the majority on Eastrington residents vote against the final proposal, the project will end there.

Feedback Form

Wind and Solar Options for Eastrington Parish

Every member of every household in the Parish of Eastrington is entitled to a say on any aspect of these proposals for a community owned Energy Project. **Please return by 31st March 2015**. Copy additional sheets as required or download from www.eastringtonenergy.co.uk

- post to C Atkinson, Barmby Grange, Eastrington
- post to J Irisa, 8 Pinfold Street, Eastrington
- bring to the village hall on 27th/28th March 2015
- e mail to Eastrington.energy@gmail.com

Name	
Address	
Age (if under 18)	
Contact details	
Comments/questions	