

MARSHFIELD ENERGY PROJECT

RURAL COMMUNITY ENERGY FUND STAGE 1 STUDY

FINAL REPORT - NOVEMBER 2016

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1 Objectives of Study

Marshfield Village, in rural South Gloucestershire, has a history of energy activism which has included a wind turbine at the local primary school, PV panels on the Church and Community Centre, the implementation of investigations under a LEAF grant awarded in late 2011, and participation in the EU Energy Neighbourhoods Competition.

The responses to preliminary enquiries for the Parish Plan showed that energy conservation and renewable energy generation was second only to traffic issues in order of importance for attention through the village plan. As a consequence a sub group was formed to explore taking forward energy studies. This group determined that a second phase of the energy project (LEAF being phase 1) should be directed to “create the mechanisms to set up a community fund which derives its income from energy generation, that will enable Marshfield to implement its Parish Plan”. This objective shows a subtle shift from energy generation per se, to community fund generation via renewable energy projects, based on the assessment that more of the community would be likely to support village projects for which there was a downstream community benefit, than would support a purely energy generation project.

The availability of RCEF grants from mid 2013 coincided with the Parish Plan process and the LEAF sub-group was reconvened to take forward an application.

2 RCEF Grant Application

The LEAF study had conducted a limited investigation into options around wind turbines and solar PV based on prevailing FiT thresholds and the area of a field owned by the Parish. The RCEF study was designed to update the findings for the LEAF options and to extend the investigations by:

- the addition of Anaerobic Digestion as a technology option
- for all 3 technologies, to work from an upper limit being the plant required to make the village self sufficient in electricity. (4.5MW PV, 2MW Wind turbine, 500kW AD)
- For all 3 technologies to analyse performance over 4 levels of output related to FiT thresholds

This was intended to provide, in the first part of the study, robust baseline data from which decisions could be made about the scheme to be taken forward, with a broad appreciation of its financial outputs and environmental impacts.

The Diagram of Process was developed to identify the elements of a study, including pauses for public engagement, the need to identify potential sites and partners, and the parallel need to explore business models for delivery of the energy project and for distribution of any arising community funds. (Included as Appendix 1)

South Gloucestershire Council had been supportive of Marshfield efforts and was identified as a partner. The Parish Council agreed to “host” the study, provide accounting services, and provide a degree of oversight. Two external consultants were required to provide specialist skills not available within the local tem. These were for assessment of Anaerobic Digestion as an option and for

updating the PV and Wind Turbine. A tender process was applied for the first appointment and Farm Renewables Ltd appointed on the basis of their tender offer.

The project decided to negotiate terms with the previous LEAF supplier for the updating work, and Bath and West Community Energy were identified in this role. BWCE are active in the region and had provided ad hoc advice through the post LEAF period.

The RCEF application was submitted on 31 March 2014 and the Stage 1 award of £20,000 was confirmed on 8 May 2014 and funds were in the project bank by 10 August 2014.

The first consultants briefing and inception meeting was held on 28 August 2014.

3 Part 1 Study Process

The RCEF Stage 1 study had been designed to follow in steps, with Part 1 taking 4 weeks. The staging was to allow review and consultation before committing further public money, with the objective of avoiding spending where there appeared to be no prospect of a viable scheme. For example, we would not pursue a wind turbine if it became apparent that its impact in the AONB was unacceptable.

In parallel with the external consultants work on the generation technologies, the MEP team embarked on exploration of the nature of the organisation which would both deliver the project and manage the distribution of surplus earnings through a community fund. This organisation had to fit within the various requirements of community interest “businesses” and be eligible for grants, incentive payments and tax relief. Partner SGC provided £1000 additional funding for this study as it would be the first comprehensive analysis of this issue in the district and was to be made available to other community groups.

A further review, also with the benefit of introductions by SGC, was to Western Power Distribution to establish any limitation the local grid distribution network might place on the scale of the local electricity generating installation.

For the AD study a list of local farmers was drawn up, for initial contact, to establish their capacity and willingness to provide feedstock, in return for a clean digestate fertiliser from the AD plant.

4 Part 1 Study Findings

Farm Waste

The farm interviews established that all farmers run very efficient businesses and no longer have “waste” for which they are seeking a means of disposal. For example, the farm of the only significant milking herd in the area, had already installed 140kW of solar PV (with FiT income), and woodchip burner (and RHI benefits), a slurry tank with umbilical distribution, and a domestic well for water supply, thus already cushioned from future electricity price increases, maximising FiT income and using waste to fertilise fields. Two other concentrations of animals offered potential, chickens and pigs. The chicken farm was very apprehensive of external contacts due to bio-security considerations and produced waste only once per year. The pig farm already had arrangements in place for disposal of around 5 tonnes of manure per week.

Comparison - Technology performance

The consultants' technology investigations are summarised in the following table applying costs and FiT for mid 2015. A common reporting agreement provided assurance that the financial models for each technology made comparable allowances for interest, depreciation, debt financing, etc.

MARSHFIELD ENERGY PROJECT

Summary of generator model outputs

Plant	Capex £000	Grid cost £000 (incl in capex)	Annual MWhrs	IRR %	Available Heat (MWhrs Thermal)	Community fund, 20 years, £000
50kW AD	622	5	416	8.62	427	466
100kW AD farm	894	20	832	13	853	1,496
100kW AD food	926	20	832	12.81	853	1,346
250kW AD food	1,831	120	2,081	14.48	2,133	3,095
500kW AD food	2,603	120	4,161	17.61	4,265	6,320
100kW PV	119	0	90	10		64
250kW PV	300	25	238	9.4		116
2,000kW PV	2,036	100	1,900	8.6		406
4,500kW PV	4,469	225	4,275	9.5		1,469
55kW Wind	322	0	158	4.2		10
100kW wind	415	25	241	6.5		35
500kW wind	1,750	150	1,577	11.8		1,199
1,500kW wind	3,375	75	4,044	9.9		1,377
2,050kW wind	3,920	150	5,382	4.1		21

Note: the grid costs allowed in the table above are the consultants' estimate and were included before the results of the WPD enquiry were known.

Grid availability and cost

The Grid investigation revealed that the village of Marshfield is at the extreme end of a 15km 15kV supply loop. Estimates for connections were provided by WPD as follows:

Up to 100kW generator £20,000

Up to 500kW generator £1.4m for 8000m of reconstructed overhead line and 2,500m of underground cable

Up to 1MW generator £4m for 13,500m of cable to primary substation

Business models

The business organisation options were reviewed and concluded that a Community Benefit Company satisfied the requirements. This arose from a detailed examination of options including Community Interest Company, Charity, Provident Society, Co-op, Community/Private Joint Venture, and Community Benefit Society, Community Organisation. This analysis was prepared in conjunction with

South Gloucestershire Council and with oversight from Bath and West Community Energy. Appendix 3 of the analysis is included as Appendix 2 of this report.

Discussions following this review led to the conclusion that MEP would be able to enter into a “management” agreement with BWCE, whereby BWCE, for a fee, would provide all bookkeeping and accounting services for the BenCon set up to fund, build and operate the MEP project.

Community engagement

A progress note was inserted in the local quarterly newsletter All Around Marshfield, and a progress report given to the Parish Council.

5 Analysis of Part 1 Study Findings

In the output table above the final column is a measure of the potential surplus after all costs of procurement, construction and financing had been taken into account, and was therefore the potential sum accruing to the community fund. This sum, divided by the capital cost, gives a measure of the “efficiency” of investment and is summarised in the table below. This efficiency factor is also a comparison of the effort to raise capital against the return to the community fund, which is significant for appraising local effort required. Finally the factor reflects the fact that AD plant produces electricity output continuously whereas the others are intermittent generators.

Efficiency of Investment

Generator capacity	Anaerobic Digestion	Solar PV	Wind Turbine
50kW	0.75		0.03
100kW	1.45	0.54	0.08
250kW	1.69	0.39	
500kW	2.43		0.68
1000kW			
1500kW			0.41
2000kW		0.20	0.005
4500kW		0.33	

The Grid limitation of 100kW output is significant, as the results demonstrate that the higher output installations could not fund the grid upgrade without depleting the potential community fund.

On this basis the only realistic option to pursue is Anaerobic Digestion at 100kW output. This has the potential to provide £1.3M to the community fund, or £65,000 per annum. This is a significant sum and would justify community efforts to deliver such a scheme.

6 Part 2A Study Process

Whilst the study had been planned in 2 steps, the findings from Part 1 indicated that there were limited opportunities to secure the preferred AD scheme. In particular a host site and feedstock supply agreement would need to be secured before developing the detailed business plan. As a consequence it was agreed with WRAP that a Part 2A would be instigated to explore these limited questions. It should be noted that whilst no farms had been identified as potential host or feedstock suppliers, a private company had been identified as having potential to meet these needs. As the

expression of interest came from a private company it was agreed not to include the community at this stage. The private company included a waste collection operation from households and retail outlets with options to balance collections to meet the needs of the AD plant.

Farm Renewable Ltd were appointed to investigate the nature of the feedstock the private company had access to and its utility for an AD plant, and to advise on modifications to the AD plant to deal with such feedstock. The principal concern was in responding to animal by-products regulations (ABPR) as it was likely that the feedstock might contain some animal origin kitchen waste.

7 Part 2A Study Findings

Pretreatment/Pasteurisation equipment

Pre-treatment pasteurisation prototype equipment was examined at C-TECH Innovation of Capenhurst, Cheshire. This equipment, using their patented Ohmic heating units, had been operated as the front end of an AD plant for a month, at a comparable scale to that required for a 100kW plant, and achieved confirmation from both Midlands Animal Health Veterinary and Environment Agency that the process satisfied requirements. Power consumption is in the order of 30kW, the plant involves a macerator which has the effect of increasing the output of gas in the down stream AD plant, and heat recovery is possible to preheat all of the AD feedstock thus accelerating the digestion process.

A budget cost of £200,000 was agreed with C-TECH for this additional plant to be used in re-running the financial model.

Financial model

The Financial model was re-run with increased capital and at 80% of original model FiT to accommodate tapering of rates to a later construction date.

Other financial models were run to investigate the effect of selling only part or none of the heat output of the AD plant. Whilst the potential host organisation had indicated a possible use for the heat in drying aggregate recovered from recycled building materials, no consideration had been given to the cost of the infrastructure required to capture and utilise this heat.

Only by adding a gate fee for all feedstock, was the project found to continue to offer a community return of over £1m over 20 years.

The results of these further financial model runs were as follows;

Gate fee	FiT	Heat sale		FiT	Heat sale	50% heat sale	No heat sale
£/tonne	£/kWhr	Return 1		£/kWhr	Return 2	Return 3	Return 4
		£000			£000	£000	£000
0	0.10	1041		0.08	758	425	91
15	0.10	1677		0.08	1394	1061	728
20	0.10	1878		0.08	1595	1262	929

This assessment indicates that the project would provide a return to the community fund of £929,000 over 20 years in the condition where none of the heat was sold, but where a Gate Fee of £20/tonne was charged for the waste material processed in the AD plant. This Gate Fee rate was

about half of the current market rate for such waste, so should have been an attractive opportunity for a waste contractor. This combination met the expectations of MEP and represented a set of conditions which was likely to be acceptable to the potential host operator.

8 Negotiations with Third Party

Armed with these financial results a series of meetings were held with the potential host organisation including their Operations Manager and ultimately the founder/owner of the business. The objective of these meetings was to establish that each organisation could meet its expectations through a joint AD project.

It slowly became clear that the potential host waste operator was looking for a means of treating the material they were currently shipping to Germany for incineration. They were carrying out parallel investigations into small scale Pyrolysis plant which might have met their needs. It also became clear that currently they were simply a food waste transporter and that disposal costs did not feature in their business considerations. The agencies with whom they had contracted collection and transport services, had disposal agreements at large scale incinerators and AD plant in the region.

Enquiries to South Gloucestershire Council revealed that they too had entered into long term collection and disposal agreements with national operators and there was no option to divert village waste to a local AD plant. Besides, the village did not produce sufficient sorted suitable waste to feed the plant, so wider collection agreements would be needed.

Whilst the negotiations were friendly and thoughtful, a particular effort was required to bring the discussions to a conclusion, with a decision by the potential host to confirm whether or not there was a basis for continuing together.

9 Draft Third Party Agreement

In order to proceed to a conclusion it was resolved that a draft agreement for the relationship between MEP and the Third Party should be prepared and discussed. This would help determine whether the project offered value for both parties to continue exploring this private sector partnership.

The draft agreement reflects the relative competencies of the two specific parties to the agreement. (Included as Appendix 3). The potential host operates a fleet of vehicles and thus a maintenance workshop with fitters, on the site under consideration. The host also had earthworks and civil engineering construction capabilities which could efficiently be used for the project.

The draft agreement recognises that an AD plant requires regular attention to monitor the condition of waste, to load feedstock hoppers, and to be able to respond quickly to blockages and process imbalances. Whilst this is not a full time operator requirement it does require rapid access to a range of skills which this operator already employed, indicating a potential good fit.

In the agreement it was important to show benefits to the host, a commercial operator, with an eye to good neighbour relations, but essentially seeking to enhance or expand business, without introducing unreasonable risk.

10 Response to Draft Agreement

The potential host invited MEP to a meeting to discuss their reaction to the draft agreement proposal. In summary their research had indicated that AD plant required much more labour than was admitted by equipment suppliers, and ran considerable risk of break down when food refuse rather than farm waste feedstock was used. Furthermore the proposed AD plant did not meet their objective of treating the non recyclable waste which they currently back loaded to European plants. This potential host is seeking an economic pyrolysis type process scaled to the size of their local operation.

Agreement to host the community AD plant would require that 0.5ha of site was set aside for 20 years. The site is dynamic, stockpiles of recycling materials change on a regular basis, depending on the currency of contracts, and this was not consistent with protecting the AD plant site and its access.

It was agreed that there was insufficient common ground to continue exploration of the option for this party to host the Marshfield Community Energy Anaerobic Digestion project. The text of the close out communication is included as Appendix 4.

11 Follow on Studies

MEP have maintained contacts with South Gloucestershire Council, Regen SW, Community Energy England, and Bath and West Community Energy and their offshoot Mongoose Energy. MEP have also noted government changes to investment support for Community Energy in terms of Feed In Tariff tapers, EIS conditions, and Preregistration of projects to lock in a FiT rate. In combination these changes alter the investment climate from encouraging to very difficult.

MEP has started a conversation with the landowner of the Golden Valley Quarry and Nature Reserve, where a weir on the Boyd River offers potential for a hydro project. The height of the weir offers a head of around 4.5m. The stream flow is monitored by the EA and is thought to amount to minimum of 0.35 cum/sec. The weir was built as part of the Ochre works in the valley and a mill stream was taken off to power crushing plant. Some damage to the weir occurred during floods in the 1980s, and a significant part of the flow now bypasses the weir. The landowner has indicated that once installation costs had been recovered further proceeds from the turbine output could be directed to funding the community forest and nature reserve in the adjacent valley. The Nature Reserve managers are already in liaison with the landowner, and were both met on site for a preliminary project review.

Initial calculations indicate potential for an 8 -10kW turbine producing nearly 30,000 kWhr per year. At a FiT of 7.53p this would provide a return of £2,250 - £3600/year. At an interest rate of 5% this would support a loan of £45,000 - £72,000 to fund construction. Website guidance indicates that at around 25kW Archimedes Screw turbines become economic but at a cost of £7000/kW installed. Below this scale of installation the costs are usually proportionately higher. There is an electricity substation on site with capacity to serve the quarry crushing equipment. On the basis of this very preliminary appraisal there is some potential for a turbine to be viable.

All of these figures should be confirmed by more detailed investigations. One of the first should be a condition survey of the weir as a long term foundation for a turbine, and the cost of plugging the weir bypass channel. If significant civil engineering works are required then the scheme would quickly be found to be unviable.

12 Conclusion and Next Steps

MEP consider that the potential for a viable Community Energy project within the Parish has been explored with the benefit of the RCEF Stage 1 grant.

The grid capacity is significant and would limit both Wind and Solar PV to small scale installations, which would provide such a tiny surplus that it would make no impact in the parish. AD at 100kW has the potential to provide a significant return. None of the local farms is eligible to host the plant, and none would offer a reliable supply of sufficient feedstock.

The potential of a local waste operator to source food waste as feedstock has been investigated. The conclusion of this potential host has been to not proceed, as the project raises complications, risks, expense and commitment they are not prepared to make.

MEP will not be making an application to proceed to Stage 2.

A new project in the adjacent parish appears marginal on first investigations but is considered worthy of further exploration.

Appendix 1 - Diagram of Process – included with RCEF application
Marshfield Energy Project – Diagram of Process to end of RCEF Stage 1 (Revised 9/3/14)



Appendix 2 - Business Models Review

Appendix 3: Legal Structures and Forms of Organisation

Community Benefit Society (BenCom):

A community benefit society is run primarily for the benefit of the community at large, rather than just for members of the society. This means that it must have an overarching community purpose that reaches beyond its membership. An applicant enterprise must also have a special reason for being a community benefit society rather than a company, such as wanting to have democratic decision-making built into its structure. Although a community benefit society has the power to pay interest on members' share capital, it cannot distribute surpluses to members in the form of dividends. A community benefit society can opt to have a statutory asset lock, which has the same strength as the asset lock for a charity and for a community interest company.

Some key characteristics of BenComs are as follows:

- They are set up with social objectives to conduct a business or trade.
- They are run and managed by their members.
- They must submit annual accounts.
- They can raise funds by issuing shares to the public.
- They can be established as charities, providing they have exclusively charitable objects that are for the public benefit, allowing them to raise capital through public grants and charitable trusts. If approved, they're known as exempt charities – reporting to the Financial Services Authority (FSA), not the Charity Commission.

A Community Benefit Company (regulated by the FCA) can also be a charity, and may apply to convert to a CIC.

Community: In order to be registered by the FCA, a BenCom must be able to show who are the community the society benefits and how it benefits that community. When sending its annual return it must show how it used any surplus/profit for the benefit of the community. In a BenCom the community and members need not be the same, unlike a Cooperative Society where they must be the same.

Asset Lock and Dividend Cap: BenComs can include provisions for these in their rules. For more information see the entries under CIC, as they are mandatory features of that form.

Governance: The BenCom's governing document is its Rules, and is governed by a Management Committee (Board of Directors) which would normally include a Chair, Treasurer and Secretary (responsible for filing the annual return at the FCA). The Directors manage the business of the society and may or may not be members of the Society. There must be an Annual General Meeting (AGM) with all members/investors invited, at which Directors are elected. Board members may be paid.

Members: Members are those who hold shares in the society. BenComs operate under the principle of one-member-one-vote (OMOV), therefore every member has one vote regardless of how many shares he owns. Shares are non-transferrable. The society may pay interest on shares.

Annual Returns: An annual return must be sent to the FCA within seven months of the date of the society's financial year end, along with a set of accounts. These accounts may be unaudited, accompanied by an accountant's report or fully audited, depending on turnover and assets and/or provisions in the society's rules.

Incentives and sources of finance: FiTs and CfDs are available, as are EIS and SISR - although CfDs and SISR are unlikely to be used for reasons explained in Section 3. Finance may be in the form of share schemes, grants and debt finance.

Community Interest Company (CIC):

A CIC is first and foremost a limited company carrying on a social activity and must be viable as such. A CIC carrying on a business will need to generate surpluses to support its activities, maintain its assets, make its contribution to the community and in some cases make a limited return to its investors. Other CICs may well depend on grants or funding to achieve these ends. As a limited company a CIC must act as such and comply with company law generally as well as the special CIC legal requirements.

A CIC may convert to a BenCom.

Community Interest Test: The primary purpose of CICs is to provide benefits to the community, rather than to the individuals, who own, run or work in them. In the legislation, this core principle is set out in terms of the "community interest test". A company satisfies the community interest test if a reasonable person might consider that its activities (or proposed activities) are carried on for the benefit of the community.

All companies applying to be registered as CICs must provide the Regulator with evidence that they will satisfy the community interest test. To enable the Regulator to decide whether they will satisfy the test, applicants are required to deliver a community interest statement to the Registrar.

Asset Lock: The Asset Lock is a fundamental feature of Community Interest Companies and is designed to ensure that the assets of the CIC (including any profits or other surpluses generated by its activities) are used for the benefit of the community. This means that, subject to the CIC meeting its obligations, its assets must either be retained within the CIC to be used for the community purposes for which it was formed, or, if they are transferred out of the CIC, the transfer must satisfy one of the following requirements:

- It is made for full market value so that the CIC retains the value of the assets transferred;
- It is made to another asset-locked body (a CIC or charity, a permitted industrial and provident society or non-UK based equivalent) which is specified in the CIC's Articles of Association;
- It is made to another asset locked body with the consent of the Regulator; or
- It is made for the benefit of the community.

Provision to this effect must be included in a CIC's Articles. CICs are also able to adopt asset lock rules that impose more stringent requirements, provided they also include these basic provisions.

The Dividend Cap: The Dividend Cap strikes a balance between encouraging people to invest

in Community Interest Companies (CICs) and the principle that the assets and profits of a CIC should be devoted to the benefit of the community. This helps to ensure that the dividends are not disproportionate to the amount invested and the profits made by the company.

The Cap has three elements:

- The maximum dividend per share limits the amount of dividend that can be paid on any given share. The limit for shares issued on or after 6 April 2010 is 20% of the paid-up value of a share.
- The maximum aggregate dividend limits the total dividend declared in terms of the profits available for distribution. Currently, the limit is 35% of the distributable profits.
- The ability to carry forward unused dividend capacity from year to year to a limited extent. Currently the limit is 5 years.

Governance: The CIC's governing documents are the Memorandum and Articles, and it is governed by a Board of Directors. There must be an Annual General Meeting (AGM) with all members invited. Board members may be paid.

Annual Returns: In accordance with Company law, an annual return must be sent to the Registrar of Companies and accounts have to be filed within nine months of the date of the CIC's financial year end. These accounts may be audit-exempt or audited, depending on the size classification (small, medium or large) as defined by Company law.

Additionally, at the same time the accounts are filed, a Community Interest Company Report must be submitted to the Registrar of Companies who then pass it on to the CIC Regulator.

Members: The underlying legal structure for a CIC is a limited Company, which itself has two forms: a Company limited by Guarantee; and a Company limited by Shares. Each CIC is controlled by those individuals who are appointed to its board and by those who become shareholders/members. Votes are allocated based on the number of shares owned.

Community interest companies are limited companies subject to general company law, like other companies registered under the Companies Act 2006. A private company limited by shares or guarantee must have one member and any other company must have at least two members. There is no maximum number of members. The members of a company are the subscribers to the company's memorandum and all other persons who have agreed to become members of the company. In a company limited by shares, members purchase shares, with their liability being limited to any amount owing to the company in respect of their shares. In a company limited by guarantee, members agree to be liable to contribute a specified amount in the event of the company being wound up.

Incentives and sources of finance: FiTs and CfDs are available, as are EIS and SISR - although CfDs and SISR are unlikely to be used for reasons explained in Section 3. Finance may be in the form of share schemes, grants and debt finance. CICs do not receive tax breaks from the Inland Revenue by virtue of their legal status. They are eligible for the same tax reliefs available to other companies, and are subject to corporation tax and VAT.

Forms of Organisation

Charity: Charities exist to benefit the public. Because of this, charities:

- pay reduced business rates
- receive tax relief
- can get certain types of grants and funding

But charities are restricted in what they can do and how they work. For example, charities need to:

- follow charity law, which includes telling the Charity Commission and the public about their work
- do only things that are charitable in law
- be run by trustees who do not usually personally benefit from the charity
- be independent ~ a charity can work with other organisations but must make independent decisions about how it carries out its charitable purposes

There are four main types of charity structure:

- charitable incorporated organisation (CIO) - there are two types:
association CIO and foundation CIO
- charitable company (limited by guarantee)
- unincorporated association
- trust

A Charitable Trust is created for any purpose regarded as charitable in law. Benevolent and philanthropic purposes are not necessarily charitable unless they are solely and exclusively for the benefit of public or a class or section of it. Charitable trusts (unlike private or non-charitable trust) can have perpetual existence and are not subject to laws against perpetuity. They are wholly or partially exempt from almost all taxes.

A Trust is essentially a relationship between three parties, the donor of some assets, the trustees who hold the assets and the beneficiaries. The governing document is the Trust Deed or Declaration of Trust, which comes into operation once it is signed by all the trustees.

Co-operatives: Co-operatives are a flexible business model and do not have a specific, unique legal form. They can be set up in different ways, using different legal structures, depending on what works for the members." Therefore, they sit on top of other legal forms and the combinations are very wide. Co-operatives can be Industrial and Provident Societies only and also can be limited companies (by guarantee and by shares) and Community Interest Companies.

The International Co-operative Alliance (ICA) Statement on the Co-operative Identity describes a co-operative as 'an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise'. All co-operative organisations operate under the ICA co-operative values and principles. While the co-operative organisations are usually first thought of as an Industrial and Provident Society (IPS) Co-operative, there are many different legal

forms that can be used to create an organisation which falls within this definition. For example a company limited by guarantee could be used. One of the key features is usually 'one member one vote,

Industrial and Provident Society: IPSs may in general conduct any legal business, and fall into two broad categories:

- bona fide co-operatives - these trade for the mutual benefit of their members;
- societies for the benefit of the community or "bencom" - these trade to benefit the broader community, and the Registrar will refer to charity law. Societies for the benefit of the community are granted charitable status by the taxation authority, HM Revenue and Customs, rather than the Charity Commission (in England and Wales).

Societies registered under the Industrial and Provident Societies Acts are bodies corporate. They are therefore companies for tax purposes and are liable to Corporation Tax in respect of their profits, which are computed in accordance with normal HMRC rules. The key differences lie in the treatment of 'share and loan interest' paid by a society and, for those societies carrying on a trade, the treatment of dividends paid by reference to the transactions a member has with the society.

Mutual Society: Companies try to maximise shareholder value, whereas mutual societies should try to benefit members or the community. Mutual societies generally operate under the principle of one-member-one-vote, whereas in most companies votes are allocated based on the number of shares owned.

The FCA uses the term 'mutual society' to include:

- Industrial and provident societies, such as:
 - Co-operative societies
 - Societies for the benefit of the community
- Credit unions
- Friendly societies
- Building societies

A mutual society is owned and controlled by its members. Where the society is a co-operative it is guided by a set of values and principles. Different legislation applies to the different types of society. Not all co-operatives are registered with the FCA. Co-operatives can take on other legal forms such as private companies -limited either by shares or guarantee, community interest companies, limited liability partnerships and trusts. The FCA only registers those using the industrial and provident society legal model, which includes credit unions.

Social Enterprise: A social enterprise is a business with primarily social objectives whose surpluses are principally reinvested for that purpose in the business or in the community, rather than being driven by the need to maximise profit for shareholders and owners. Social enterprises tackle a wide range of social and environmental issues and operate in all parts of the economy. By using business solutions to achieve public good, the Government believes that social enterprises have a distinct and valuable role to play in helping create a strong, sustainable and socially inclusive economy.

Social enterprises are diverse. They include local community enterprises, social firms, mutual organisations such as co-operatives, and large-scale organisations operating nationally or internationally. There is no single legal model for social enterprise. They include companies limited

by guarantee, industrial and provident societies, and companies limited by shares; some organisations are unincorporated and others are registered charities.

Regulator

Industrial and Provident Societies are regulated by the Financial Conduct Authority.

Charities are regulated by the Charities Commission.

Limited Companies are regulated by Companies House.

Community Interest Companies are regulated by the CIC Regulator.

Appendix 3 - Draft Third Party Agreement

MARSHFIELD ENERGY PROJECT

3 November 2015

DRAFT - Outline of Agreement with a Third Party to host and support a Community owned Anaerobic Digestion Energy Project.

Principle: to establish a community owned Anaerobic Digestion Project which generates heat and electricity from which RHI and FIT revenues can be earned for community benefits.

1 Introduction:

MEP has had the benefit of a Rural Community Energy Fund grant to explore the options for community energy locally.

Phase 1 of the study identified Anaerobic Digestion as offering the greatest community benefit for capital invested, as well as providing output over 24 hours per day, compare with intermittent output from wind or PV options.

Grid connection investigations have confirmed a local limit of 100kW installation

A site has been identified which requires agreement with the present owner/operator (referred to here as Third Party)

2 Requirements of installation:

A 100kw AD plant requires a land area of about 0.5 Ha and access to a public road for delivery of feedstock.

Grid connection for 100kW plant out put

Guaranteed feedstock supply of degradable/digestible material amounting to 3600 tonnes per year, delivered and stored to allow daily charging of plant

Pre-treatment of waste by heat to deal with potential ABPR risk from waste stream

Daily operation and reliable response to equipment mis-function/breakdown.

Disposal of digestate waste

3 Benefits of installation

The outline business case studies demonstrate that an installation of this scale with a FIT of 8p /kWhr and a gate fee of £25/tonne would provide a revenue stream, after paying investors, of £1,000,000 over 20 years.

Plant will produce electricity which generally will be supplied to the grid. The hosting third party will have a facility to tap into the plant output and take an electricity supply (up to 50kW) for onsite consumption, free of charge.

The installation will also produce heat around 500,000kW thermal per annum, to be available to the site host.

4 Assumptions for Third Party Agreement

In order to proceed MEP would have to enter into an agreement with a third party. This agreement provides confidence to MEP that a site is available, that feedstock will be provided and plant maintenance carried out to ensure uninterrupted operation. The schedule below sets out the basic terms of such a Third Party Agreement.

In this schedule it is recognised that the potential third party has access to waste materials which are considered to be suitable as feedstock for the AD plant.

The potential third party has access to handling equipment, waste handling operatives, and maintenance fitters, each of which could be programmed to provide orderly but intermittent input for the operation and maintenance of the plant.

It is also recognised that the potential third party has civil engineering construction skills which could be mobilised for installation of the plant.

5 Proposition for Third Party Agreement

Stage	Activity	Marshfield Energy Group	Third Party
Finance	Business case	Evaluate all costs and output values to formulate a detailed business case for investors	Confirm agreement to and level of gate fee for selected incoming waste feedstock
	Grid connection	Prepare application to Network Manager (WPD) and obtain firm commitment for grid connection	Agree any changes necessary to incoming power supplies
	Source funding	Attract investment for the whole cost of the project variously from grants, investors, loans and in-kind contributions	
Pre-planning	Equipment	Identify suppliers of equipment to deliver 100kW through Anaerobic Digestion, and pasteurisation	Identify supply pipe/duct requirements for heat take off
	Layout	Identify areal requirements of elements of plant and test alternative layouts of equipment to suit operation of plant and site	Identify site for installation of equipment and access and confirm minimum 20 year lease for installation/advise on site operations to inform plant layout
	Feedstock	Specify requirements for efficient operation of plant including buffer storage requirement	Confirm capability to source suitable feedstock over the life of the plant/identify facilities for on site storage of feedstock
	Digestate	Obtain confirmation from EA and other agencies that digestate will be safe for disposal as fertiliser, at no disposal cost	
Planning	Submission	Prepare planning application and associated documents	Advise on terms of current Waste Management License and verify that the AD plant would/could be permitted development under this license
Lease		Prepare lease agreement for AD plant	Agree lease and allocate/fence site as appropriate/protect access to AD plant
Tender	Contract	Short list suitable	Identify special conditions of

	documents	suppliers/Prepare tender documents for selection of equipment supplier(s)/identify interface between contractors and suppliers	tender applicable to work on selected site/identify site construction work to be carried out by owner on a cost plus basis.
	Tender process	Manage tender process	Host site inspection by tenderers
	Award	Clarify preferred tender offer/ confirm interfaces between suppliers and contractors	Confirm agreement to supplier/contractor selection
Construction	Appointment of contractor(s)	Confirm that funding is in place for construction and initial operation/ Award contract/Agree construction programme	Make site available and arrange for construction access.
	Supervision	Provide contract administration and supervision	
	Commissioning	Negotiate and fund changes to incoming power supply and transformers/witness commissioning of plant/ accept installation complete and operational/Obtain EA and other approvals for disposal of digestate	Provide feedstock for commissioning
Operation	Feedstock	Review feedstock sources and advise if inappropriate for safe and reliable operation	Source feedstock throughout life of plant/manage stockpiles/load plant daily
	Operation	Prepare operations schedule and update as required	Provide skilled labour and handling plant for operation
	Maintenance	Prepare maintenance schedule and maintenance contract	Provide skilled labour and carry out all plant maintenance
	Administration	Collect all revenues, manage accounts, pay contractors and investors	Invoice maintenance and operation charges
	Digestate	Source disposal of digestate/Arrange testing of digestate in accordance with disposal agreement	Provide haulage for digestate on cost plus basis

Appendix 4 - Text of Close Out response to Potential Third Party host.

Issued by e-mail April 2016.

Thank you for giving us time at the end of March to meet your team and to reflect on the option we have been exploring together.

We are grateful for your interest and for making your staff available.

You asked us what advice we were getting regarding treatment of waste, and we had to admit that our AD adviser was more focussed on processes which suited farms. This was where our search for a partner had started and at the time seemed the right approach. We have located a prototype pasteurisation unit which can be added to the front end of an AD plant to deal with animal by-products issues, but recognise the challenge of incorporating plant which has yet to be commercially developed.

On your side we picked up that ABC had been unable to find plant which was scalable down to the size appropriate for your operations and remain economic. You had also identified that plant operation required regular hands on commitment, and was probably much more labour intensive than and product salesman would admit.

Your original objective had been to find a treatment process for the waste you collect and which is currently containerised and back loaded to Europe. Together we have not satisfied that objective.

On this basis we agreed that we did not have an option to develop together. It is perhaps indicative that we had both come to that understanding and therefore did not spend any time analysing the draft third party agreement we had sent ahead of our meeting.

It is a pity that for now we are not going to work together, but better to have tried. As we noted we have other options to explore once we have a clearer picture of government policy.

Thank you again for your interest.