



BioPAD



Bioenergy Proliferation and Deployment



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This document should be cited as:

Sikanen, L., Prinz, R. & Nivala, M. (2014). BioPAD: New Business Opportunity Survey Report.
Available online from www.biopad.eu.

New Business Opportunity Survey Report

INTRODUCTION

Probably the most wanted outcomes of bioenergy development projects are new businesses. New business can be totally new product or service created from scratches to satisfy existing demand. Ardichvili et al. (2003) describe the opportunity recognition and opportunity development as crucial steps in creation of new business. The practical way to recognize an opportunity is to know that someone is doing something similar somewhere else. There might be an opportunity to, either introduce new business, or modify existing business to new places and to new operational environments¹. To make that happen, one must know, what kind of businesses are existing elsewhere.

How to tell interested people about business opportunities and how to make them think the applicability of the business in new places? BioPAD project decided to promote business development by a survey. In this new business opportunity survey, wood energy professionals were asked whether they know these presented businesses and if business would be applicable in their operational environment.

In this report, survey results are presented based on Webpropol™ analytics. This is not a scientific report, but the example of business opportunities around forest biomass for energy. All businesses explained below exist in Finland, where over 20% of primary energy is produced by wood based solid and liquid fuels.

¹ Operational environment of forest energy business defined by Röser 2012: Operational environment includes the political and policy framework, the working culture in a certain region, the cultural background, ecological considerations, exposure to forest harvesting technology and knowhow as well as climatic conditions.

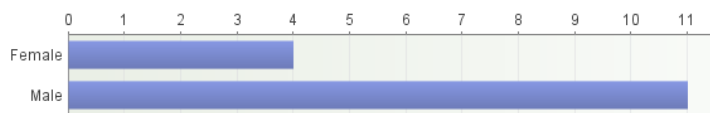
HOW TO USE THIS SURVEY AND REPORT

Feel free to copy this and make the survey on your own area or as a part of your own project. Use these results as a data and obtain more responses. Add new business opportunities into it and make new green business visible!

BACKGROUND INFORMATION OF RESPONDENTS

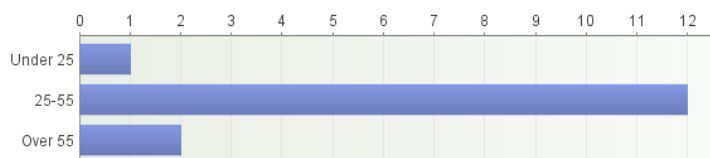
Gender

Number of respondents: 15



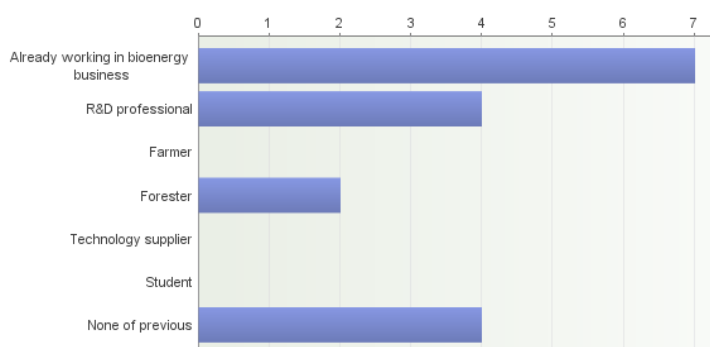
Age

Number of respondents: 15



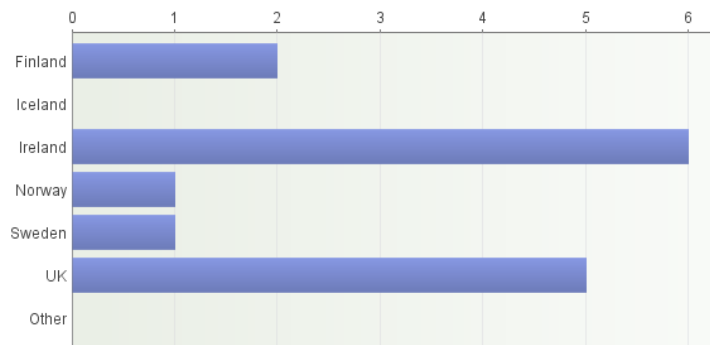
Professional background

Number of respondents: 15



Country

Number of respondents: 15



Region (e.g. Scottish Highlands)

Number of respondents: 13

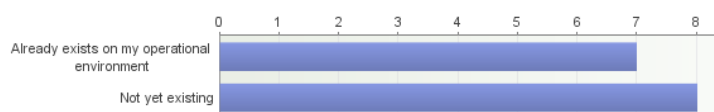
- West of Ireland (4)
- Northern Ireland (2)
- Northern Ostrobothnia, Finland (1)
- Galway (1)
- Scottish Highlands (2)
- Ireland, ROI (1)
- Pirkanmaa, Finland (1)
- The west coast of Norway (1)

RESULTS

In following, 11 Business examples were evaluated according to their existence on the areas of respondents.

Business example 1: Finding good forest energy stands and forest owners. Service is based on GIS and remote sensing like processed satellite images. Companies are offering exact forest resource location. Best markets are in countries with strict protect of private properties (no trespassing in forest) and poor governmental data sources.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	1	5	6	2	0	Strongly disagree	14	2.64

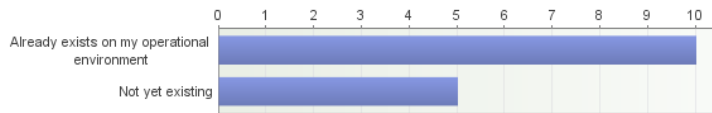
Free word comments for business opportunity: Finding good forest energy stands and their owners

Number of respondents: 4

- Such a service/services already exists in Finland (Metsaan.fi for example). The problem is the laws governing both the use and the availability of the data are still too strict. Offering refined and up-to-date information tailored to the needs of the customer would still be a viable business opportunity even in Finland.
- Would be very important. What is hard is linking those that need biomass with those who supply biomass. Our business firewood and wood chips is looking to supply to a larger market.
- Forest energy often a byproduct from other forest operations or an option to solve problems with overdense stands that has not been precommercial thinned and thus often found in discussions between the forest owner and his advisor. The companies use their own planning tools and remote sensing to find the stands.

Business example 2: Felling and forwarding trees. Traditional timber harvesting but specializing in energy wood harvests. Usually requires existing traditions of timber harvesting for industrial purposes.

Number of respondents: 15



10. Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	3	4	6	0	1	Strongly disagree	14	2.43

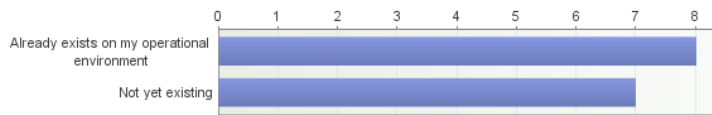
Free word comments for business opportunity: Felling and forwarding trees

Number of respondents: 5

- Small scale harvesting and forwarding equipment opportunity
- Not the most profitable business venture imaginable.
- Communication with the forester to enable the best and desired spec of timber is necessary.
- not sure I understand the question

Business example 3: Chipping and transporting chips. Company owns a mobile chipper mounted on a truck or towed by a tractor and a truck suitable for wood chip transports. Company sells services for those who have wood chip boilers. They chip and transport biomass prepared for that by other companies (see previous).

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	4	5	3	1	1	Strongly disagree	14	2.29

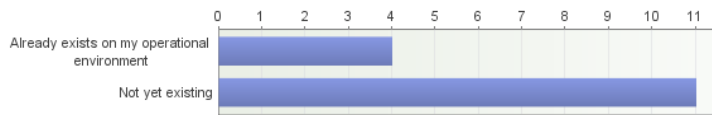
Free word comments for business opportunity: Chipping and transporting chips

Number of respondents: 4

- Local established biomass company's would have the skills and knowledge to divert into the chip and chip transport market
- We currently don't own a chipper but hire this in by the day/hour as and when needed. This can work well to lower capex of owning the chipper outright. The downside is on flexibility of when we can chip, as should volumes increase this would need to be reconsidered.
- Services sold to the seller of material. The owners of boilers usually buy chips not chipping services.

Business example 4: Selling heavy duty chipping and crushing services with mobile unit. These companies are specialized on chipping or crushing of biomass at big terminals. Machines are big and they are usually operating for days or weeks in the same spot. They are feeding big biomass burning processes or trains and container ships in terminals.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	0	5	3	3	3	Strongly disagree	14	3.29

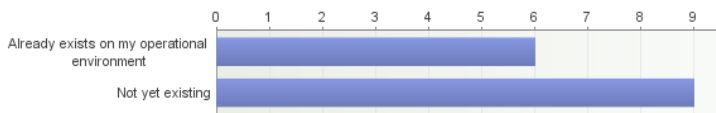
Free word comments for business opportunity: Selling heavy duty chipping and crushing services with mobile unit

Number of respondents: 4

- This is being developed on a small scale as Biomass Trade Centres
- If the use of bioenergy (by which I mean wood-based fuels) continues to increase in Finland, it would be wise to consider centralizing chipping and crushing to dedicated terminals. Raw material could be driven to the site by timber trucks and then be processed before delivering the fuel to the customer.
- There are no customers for this type of service in my area.
- A low noise machine would be needed, preferably <45 db. Utopia, I know.

Business example 5: Planning and scaling of heating plants. This expert service is very important in a developing sector. Regular plumbers and heating system dealers are not familiar with bioenergy heating systems and their requirements. It is important those designing or installing bioenergy systems understand the need for holistic planning of the system, and do not just focus on a single part of it.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 13

	1	2	3	4	5		Total	Average
Fully agree	5	3	3	1	1	Strongly disagree	13	2.23

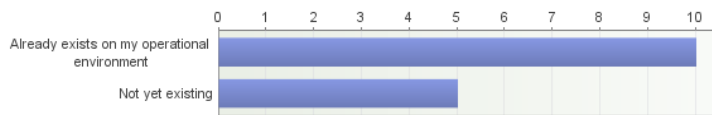
Free word comments for business opportunity: Planning and scaling of heating plants

Number of respondents: 5

- There is a fragmented approach to biomass installation and lack of joined up thinking.
- Government should offer courses in the design and system requirements for biomass boilers
- Especially the scaling seems sometimes difficult. Future possibilities are not considered and expanding - say - a small scale district heating network comes to halt because the boiler is undersized. Of course going over the top isn't ideal either, but the site surroundings are too many a times left unnoticed.
- Our business is already involved in discussions with local authorities to see if we can create opportunities for wood fuel
- The above statement is very true. So often heating system are planned without looking at the feedstock availability.

Business example 6: Building and selling heating plants and chp-plants. These companies manufacture and assemble heating units or combined heat and power units. It is beneficial, if they cooperate with planning and scaling consultants.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 13

	1	2	3	4	5		Total	Average
Fully agree	1	6	4	2	0	Strongly disagree	13	2.54

Free word comments for business opportunity: Building and selling heating plants and chp-plants

Number of respondents: 3

- There is a lack of expertise in this region.
- Smaller scale heating plants could be designed and assembled locally
- There's still room for quality Finnish boiler makers.

Business example 7: Running and fueling heating plants. Some companies have decided to offer easy solution for biomass boiler owners. They offer service, where one company fuels, supervises and maintains the plant. The benefit is that they are dedicated experts, who can take best possible care of the system and plan logistics for fueling and possible subcontracting by optimizing bigger group of plants, not only one single spot.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	2	5	6	1	0	Strongly disagree	14	2.43

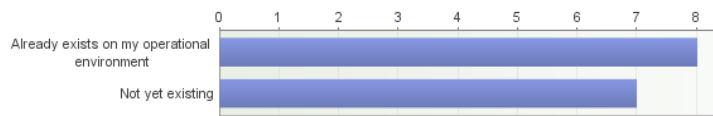
Free word comments for business opportunity: Running and fueling heating plants

Number of respondents: 4

- This works fairly well in our region but there are issues with moisture content etc.
- Technology-wise the choices made are sometimes a bit off, but in general at least the smaller companies perform well.
- We are looking into this
- In my area I am not aware of any medium to large scale heating plants. One or two are in the pipeline possibly in Omagh, Co. Tyrone.

Business example 8: Selling maintenance of heating plants. This is simple “sweeping and checking” service, which is usually done as subcontracting for boiler manufacturers.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 13

	1	2	3	4	5		Total	Average
Fully agree	3	5	3	1	1	Strongly disagree	13	2.38

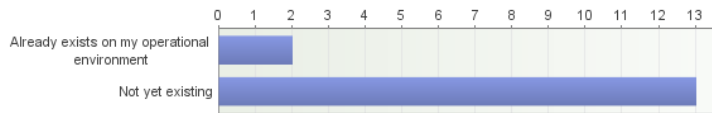
Free word comments for business opportunity: Selling maintenance of heating plants

Number of respondents: 4

- No comments here.
- Not interested in this but we are in discussions with another business that does this
- Our own biomass boiler is well serviced and maintained by a local company.
- No clue if it exists

Business example 9: Refining and selling wood ash from heating plants. This is a real bioeconomy business. Wood burning plants produce a remarkable amount of ash. Ash can be refined and used, for example, for fertilizing (nutrient recycling) of forests or land constructing.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	3	3	3	4	1	Strongly disagree	14	2.79

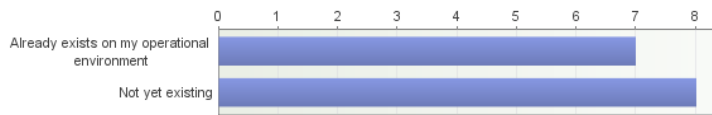
Free word comments for business opportunity: Refining and selling wood ash from heating plants

Number of respondents: 4

- Too much of the ash is driven to the dump. Ash can be used in farming instead of limestone, but this possibility is almost always left out of the conversation.
- Not considered this
- We would only have a small quantity of ash, but could see this as being an area to look at further. Perhaps the company that services boilers could blot this onto their existing activity.
- Ash is not a good fertilizer, could be used for roads.

Business example 10: Selling fleet management ICT solutions. In bioenergy, logistics is usually an important and expensive part of the value chain. Transporting large amounts of material from different locations require highly sophisticated logistics to be efficient. Fleet management is a well known area of expertise and it can be transferred to biomass logistics as well.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	4	2	6	2	0	Strongly disagree	14	2.43

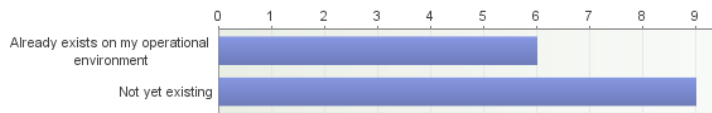
Free word comments for business opportunity: Selling fleet management ICT solution

Number of respondents: 4

- The industry is quite small and there has been no demand yet for this.
- If one comes up with an ICT system that both works and is user friendly there's a market to conquer.
- This is an area that I don't have much knowledge on but would seem to be very sensible to look further into.
- Most large companies already has fleet management systems, however, not fully adapted to the volatility in biomass deliveries.

Business example 11: Selling quality control and chain-of-custody control for supply chains. The EU requires a very exact chain-of-custody for raw materials of liquid biofuels. Origin recognition, emissions of supply, step tracking and storage records can be included in the same ICT-system (It can also include fleet management). This kind of system can be developed and sold as service for companies producing liquid biofuels or any other company, who wants to keep records of chain-of-custody for itself or for customers.

Number of respondents: 15



Would work / works well in my operational environment.

Number of respondents: 14

	1	2	3	4	5		Total	Average
Fully agree	2	4	6	2	0	Strongly disagree	14	2.57

Free word comments for business opportunity: Selling quality control and chain-of-custody control for supply chains

Number of respondents: 1

- This doesn't really apply to us, as we don't sell liquid biofuels.

Your Business Opportunity. Describe here any business opportunity not included yet in this survey. It could be something that doesn't exist anywhere but you recognize the need. However, as this information will be freely available, if you are just launching your business and the idea is still confidential, don't write it here!

Number of respondents: 3

- Am co-director of a startup in west of Ireland using an innovative feedstock specifically aimed at a heating product for households.
- More could be done to try and match producers of biomass with those consuming them.

ANALYSIS AND DISCUSSION

According to respondents, planning and scaling of heating plants (business example 5) is the business where to start. 60% of respondents told that the service does not exist yet and it had the best score in applicability (2.23). This is quite natural result, consultancy and development needs to be the first step to create new systems, because the whole value chain must be functional before introducing, for example, expensive machine investments.

Selling heavy duty machines and ash recycling were businesses, which got lowest applicability scores. The survey was directed to areas under early stages of development, those businesses are not yet needed and they were not seen worth of promoting (yet).

ICT-based fleet management and chain-of-custody control were evaluated even surprisingly positive. Respondents saw those systems existing already on other sectors and applicability scores were high too (2.43 and 2.57).

Respondents were not very active to describe their own business ideas or thoughts in the last question. This can have three interpretations, examples given were covering quite well business opportunities of forest biomass for energy, new ideas are difficult to create when asked or respondents have so good ideas that they do not want to share them.

Differences based on the professions and countries were not analysed here because of the relatively small number of respondents. The survey itself worked well and the implementation by Webpropol™ web survey tool was effective. If the survey could be done more widely as a part of future European development projects, it could work well as information and idea distributor as well as scientific data collector.

REFERENCES

Ardichvili, A., Cardozo, R. & Ray, S. 2003. A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*. Volume 18, Issue 1, 1 January 2003, Pages 105–123

Röser, D. 2012. Operational efficiency of forest energy supply chains in different operational environments. PhD Thesis. *Dissertationes Forestales 146*. School of Forest Sciences. Faculty of Science and Forestry. University of Eastern Finland. <http://www.metla.fi/dissertationes/df146.pdf>

BioPAD



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www.BioPAD.eu

Contact:

Western Development Commission,
Dillon House, Ballaghaderreen,
Co. Roscommon.
Tel: +353 (0)94 986 1441
Email: info@biopad.eu

BioPAD is promoting the wider use of bioenergy and developing applications targeting the whole process from supplying fuel to producing energy.

The project is led by the Western Development Commission (Republic of Ireland) and brings together partners from Northern Ireland (Action Renewables), Scotland (Environmental Research Institute) and Finland (Finnish Forest Research Institute, Metla).

BioPAD is funded by the Northern Periphery Programme www.northernperiphery.eu of the European Regional Development Fund (Interreg IVB).



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