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WP3 - Energy Entrepreneurship based on renewable energy resources

D16 – Business analysis report on potential bioenergy service entrepreneur

Summary

The Business analysis aim is to characterize the energy entrepreneurship based on renewable energy resources, focused on a potential bioenergy entrepreneur. The Business analysis, together with the Market analysis developed in the previous Work Package of Biohousing (see *Deliverable N.15* of the project), are the basis for the development of the Bioenergy Service Entrepreneurship Model. This tool, which will be developed in the following moths, will show the main aspects that should be considered by any new company (or new business line from an already established company) from Europe which wishes to provide bioenergy services.

In order to harmonize the information from each partner's region/country, a format and information indications were provided by WP coordinator to all partners. Four countries, Finland, France, Italy and Spain, have provided business analysis, including SWOT (Strengths, Weakness, Opportunities and Threats) analysis, for typical companies that would be established in their respective countries, while Austria, a more consolidated country with consolidated experience, has provided the analysis and view form a well established company.

Main general conclusions

The aim for the energy entrepreneurship is to help the expansion of solid biomass heating by removing the need of a potential private house occupant to take care of a heating system by himself.

Business analysis and best practices analysis developed in five European countries have showed that each European country has its own specific conditions and options in the bioenergy market, and that a company to be established in each one of them could have some or many different characteristics. The different detailed business analysis have clearly presented this issue.

While in some places, a specific company composed by a reduced number of people, with one professional specialization, are the right ones to establish a service for supplying maintenance services (which is the option for Finland with the chimney sweepers), in others the option of an "all-inclusive" service integrating operation (with biomass supply

and system monitoring), maintenance, 24-hours assistance, technical advising and maybe financing solutions would be the right entrepreneurship. This last option is correct for Italy and France.

In Spain, with an initial lower potential of bioenergy interested end-users during the following years, some more services apart of those mentioned for Italy and France should be provided, as training courses for professionals' education and maybe heat supply.

The consideration of integrating solar thermal energy with biomass energy is considered also in Austria, Italy, France and Spain. These mixed biomass-solar systems are already running in many European countries with success, even when the investment costs are high if compared with traditional fossil fuel or electricity systems.

One important coincidence in all countries is the necessity of specific training of the bioenergy entrepreneurship staff on those systems or equipment that will be supplied and maintained. It shouldn't be forgotten that equipment manufactures and suppliers usually provide guarantees under the commitment of contracting qualified technical services. The Austrian company analysed as best practice confirms this high necessity of education for providing guaranteed service.

The particular business analysis developed by each partner in their country is presented in the following sections. In the specific case of Austria, the *best practice* example of one of the leading boiler manufacturer in Austria was made.

Biomasse Normandie (France)

BUSINESS ANALYSIS FOR THE FRENCH CASE STUDY

A- The company profile

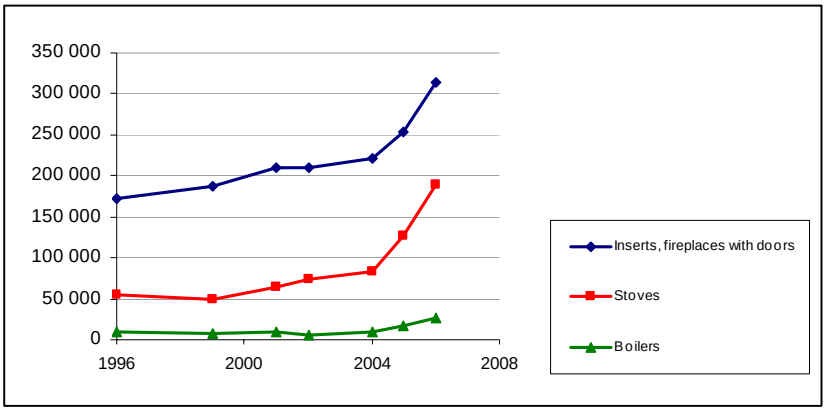
Objective

The objectives of this company is to propose integral ("all inclusive") services related to individual biomass heating (possibly coupled with solar heating system): installing and maintaining the equipment, delivering the bio-fuels, removing the ashes and even proposing financial solutions… like it is already made for oil or gas systems.

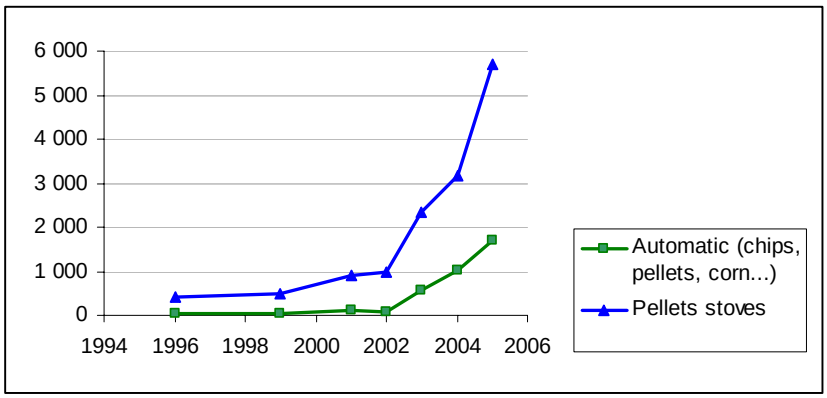
Vision

Biomass heating equipment market is increasing continuously, due to high level of fossil fuels prices and subsidies for buying domestic wood heating equipments.

Graphique 1 : Annual sales of wood based heating systems from 1996 to 2006



Graphique 2 : Annual sales of automatic boilers and pellets stoves



Though, the market still needs to be structured: a lot of pellet heating systems were sold within the last three years, whereas pellets manufacturers are still lacking and good quality pellets can be difficult to buy.

The two series of inquiries (one for professionals and the other for domestic end-users) showed that the concept of a company proposing "all-inclusive" services could be developed and would comfort end-users in choosing biomass based system. However, these services should not generate too much extra costs, comparatively to fossil fuels systems.

Currently, there are no companies in France offering all services related to wood based heating systems: people have to ask first boiler manufacturers, which are often working with a network of plumbers/installers, and then need to find a fuel supplier. Market analysis show that two categories of professionals would be interested in developing these "all-inclusive" services:

- **Plumbers/heating engineers**, who often have a contract with identified boilers manufacturers and are proposing standard services (installation, repair services …) ; they could diversify their activities by also supporting bio fuels deliveries ;
- **Fossil fuel suppliers**, and particularly the oil suppliers which dispose of the required framework (size, number of employees) to develop their activities and propose all the different services linked to solid biomass heating systems : from selling and installing equipment, to delivering fuels (pellets, chips …) and proposing maintenance contracts.

Offered services

The company we propose to study is a present oil supplier proposing installation, maintenance and cleaning activities for traditional oil boilers. New services related to biomass or solar heating could be:

- Installation, operation and maintenance of biomass based heating systems (fed by log woods, pellets, chips, corns, other residues) including annual checks, cleaning of the burner, the storage room and smokestack, optimisation and combustion calibration, component failures management, ash/residues removal.
- Technical consultancy and maintenance of the solar thermal technology as main or auxiliary system for heating/cooling and the production of domestic hot water integrated with biomass heating systems.
- Sale and supply of solid non-fossil fuels (log woods, pellets, chips, other residues), which could also includes automatic delivery procedure proposed to the end-user, by measuring the residual volume of storage room through remote control or evaluating annual consumption (as it is made for oil).
- Energy advisory: seasonal consumption calculation, savings and optimisation of the heating system, in order to help end-user to choose the best heating system regarding to his own configuration (type of house, degree of autonomy wanted …)
- 24-hour assistance: emergency support available 24 hours a day.
- Financing solutions (attractive short term credit).

The company could perform all or only some of the above services, depending on the end user wishes or needs.

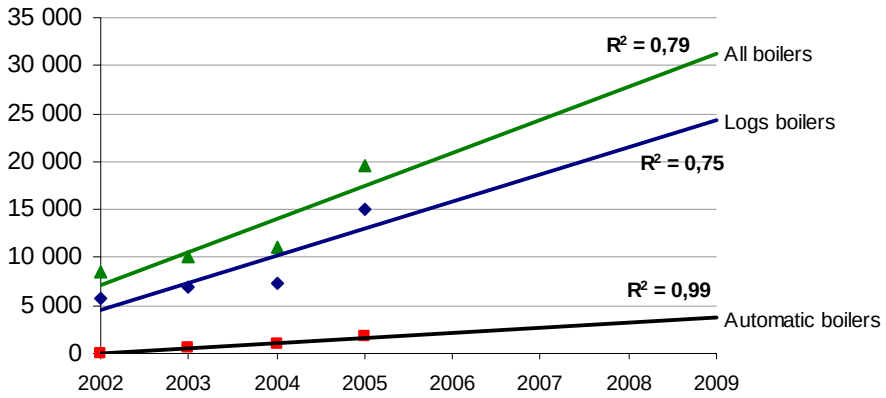
B - The potential market

The company and the market

Taking into account the quick development of wood based heating systems, and particularly wood boilers (manual or automatic) since 2002, it seems that there is a real opportunity to develop new services related to wood heating systems.

According to the actual trend of wood based boilers market, which is expected to keep on the same way in the next years (as long as Governmental support, such as Credit on Income Tax is maintained), we can expect about 30 000 boilers per year (logs + automatic) to be sold in 2010.

Graphique 3 : Extrapolation of annual wood boilers sales for 2006-2009 period



However, as it has been shown by interviewing end-users, final prices for "all-inclusive" services must not lead to high increase in total costs, otherwise people won't use them.

This is the main challenge, as equipments and fuels (pellets) are still expensive compared to gas and oil.

In order to analyse the potential in developing such new bioenergy services, a SWOT analysis has been carried out in order to evaluate the Strengths, Weaknesses, Opportunities and Threats from the point of view of an **oil supplying company willing to diversify its activities**.

Internal factors (related to the company)	
S **Strengths = strong points of the company**	**W** **Weakness = weak points of the company**
• The company is experienced in domestic heating system • There is no need to invest in specific equipments (used tools are suitable for wood heating systems) • The potential customers are already identified : present oil boiler owners => limited commercial prospecting • Company showing "Qualibois" label gives insurance that technical staff is qualified for installing wood boilers => in the future, this label will be required in order for house-owner to receive local subsidies	• Lack of experience in wood heating systems => training is needed and must be adapted to each product according to manufacturers specificities • High investments costs in tank truck for delivering chips or pellets => in some case it could be more interesting to establish partnership contracts with bio fuels producers • High logistics to implement all services : installation, maintenance, delivery… => extra costs should not lead to high increase in final prices

External factors (related to the market)	
O **Opportunities of the market**	**T** **Threats of the market**
• Strong increase in automatic boilers sales in the last 3 years, combined with high level of fossil fuels prices • Awareness in environmental issues from private end-users • Growing demand on the market for extra services, such as advices in energy savings and technical support to help in the choice of appropriated heating system • Governmental policies engaged to foster the use of RES based heating systems : Income Tax credit, local subsidies … • Governmental Plan of Energy Saving Certificates => energy suppliers have to initiate and realize concrete actions to reduce energy consumption in housing sector, during a 3 years period, otherwise they will be taxed (penalties) (1) • Domestic end-users are more and more trusting in wood fuelled boilers and show interest in automatic systems • Control of installation and smokestack cleaning are compulsory and have to be done once a year (Local regulations) => Non respect of annual checking and cleaning can invalidate insurance policy in case of fire • Regular control of the heating device leads to environmental benefits => optimised combustion reduce consumptions and emissions	• Estimated automatic wood boilers are only 5 000 to 6 000 units for domestic heating => very few potential customers available yet • Thermal regulation for new buildings (RT 2005, and future RT 2010) will lead to reduction in energy consumption => thus automatic wood boiler could appear to be too much expensive with respect to final energy needs in new houses • Strong needs to structure fuels production (pellets, chips) => domestic end-users are worried about high variances in prices (like for oil) • High level of automatism for modern wood boilers leads to reduction in control needs => services should not be too expensive, compared to oil or gas boilers • Customers could be willing to assume cleaning or supplying by themselves (case of farmers with wood chips) except if the boiler manufacturer sets conditions that annual checking should be made by certified professional for warranty purposes • Wood boilers market could stagnate after 2010, as French Government is thinking of progressive reduction in subsidies.

(1) for more details on Energy Saving Certificates (CEE : Certificats d'Économie d'Énergie) see chapter C

C- Focus on local oil Supplier Company

Constraints for fossil fuels suppliers

The Program Law of July 13th, 2005 defining orientations of the French energy policy has established an innovative regulation called **Energy Saving Certificates**. This new Plan is based on making energy savings in tertiary and residential sector, initiated by energy suppliers or municipalities.

Through this Plan, energy suppliers (and particularly oil suppliers) are "obliged" to realize a specific amount of energy savings on a three years period (first period from 01/07/06 to 30/06/09). For each oil suppliers, a certain amount of energy to save is established according to quantity (kWh) of fossil fuels they are selling each year. They can realize these actions by helping their final customers to reduce fossil fuels consumption.

Government (Ministry of Industry) has established some reference actions, such as: installing biomass boiler, solar thermal system, condensing oil boiler …in private houses.

Each action leads to establishment of a Certificate indicating how much energy was saved. These Certificates go to the oil suppliers if he can prove he has initiated the action. At the end of the period, oil suppliers will sum all Certificates, and this will be compared to the objectives fixed by Ministry of Industry. If the oil supplier doesn't have enough Certificates, he will have to pay penalties: 2cts of euros for each missing kWh.

Thus, oil suppliers are the right professionals for initiating actions in domestic heating and are really interested in proposing "all-inclusive" services from advising to installing and maintaining biomass boilers.

Competitors

Competition comes mainly from professionals from the following categories:

- other energy suppliers (already proposing complete services : installation, maintenance, annual checking) willing to move from fossil fuels to RES,
- installers/heat engineers who also wants to propose bio fuels deliveries,
- bio fuels producers/suppliers.

Potential clients

Customers are mainly house owners equipped with automatic wood boiler or oil boiler. These last ones would be advised to turn to wood boiler in case oil boiler would need to be replaced.

If we focus on one department, such as Calvados (about 648 000 inhabitants in 2006, 5 542 km^2), potential customers are represented by:

- 50 automatic wood boilers, mainly in rural areas (3 % are pellets boilers, others are chips or agro fuels boilers). By the end of 2007, 20 more automatic wood boilers are expected to be installed;

- 60 000 oil boilers, from which about 10 000 are more than 20 years old, and will need to be replaced in a near future.

Delivery of fuels

As investments costs for tank truck are very important (about 120 000 euros), it is more interesting to sign agreements with bio fuels producers (through long term contracts)

already equipped with such automatic delivering equipment. Long term contracts will insure good quality in supply of pellets or wood chips, and controlled variance in bio fuel prices.

Operation plan

Activities proposed are the same as for oil boilers: installation, maintenance and annual check, fuel delivery on customer's demand or by automatic procedure, based on calculation of annual consumption.

Thus, present organisation of oil Supplier Company is adequate for proposing bioenergies services.

Additional activities in order to put the company into operation are:

- Administration of the financings and grants,
- Administrative procedures,
- Selection and training of personal,
- Agreement/contract with bio fuels suppliers companies.

Maintenance contract for biomass based boiler will include:

☞ Standard services = annual check once a year:

- Checking of all mechanical parts,
- Cleaning of boiler and smokestack,
- Function check of all connected measuring and control equipment,
- Function check of feeding system,
- Function check of safety equipment,
- Efficiency and adjustment measuring (flue gas control…)

☞ Additional optional services: emergency support (24h/24h) for :

- Failure in burner or boiler,
- Failure in feeding system.

Economic and financial aspects

See annex: comparison made for domestic heating between oil (condensing boiler), pellets or chips.

ANNEX

Comparison between oil, pellets or wood chips boiler installed in a single old house with annual consumption of 20 MWh.

Supposition is made that there is already space in the house for wood ship storage (no specific costs for building the storage, with concrete walls for example).

	Condensing oil boiler	Wood boiler	
		pellets	chips
Boiler	7 913	8 600	15 100
Installation costs	1 055	1 450	1 450
Storage/other equipments	1 583	3 350	3 350
Total	***10 550***	***13 400***	***19 900***
Energy Saving Certificates	924	1 380	1 380
Local subsidies		580	580
Income tax credit	1 978	3 786	6 866
Total of subsidies	***2 902***	***5 746***	***8 826***
Investment cost for owner	**7 648**	**7 654**	**11 074**
Fuel costs : € TTC/MWh PCI	59	51	31
Average consumption : MWh PCI/year	20	20	20
Fuel cost per year	**1 186**	**1 022**	**610**
Maintenance/control	**180**	**200**	**250**
Bank credit, annual reimbursement (1)	**712**	**713**	**1 031**
Total annual cost	**2 078**	**1 935**	**1 891**

(1) credit with bank rate at 4,5 % on 15 years.

On this basis, and by including the economical influence of Energy Saving Certificates, wood fuelled boiler (either with pellets or chips) could be economically interesting for end-user. We can notice that old houses have high level of energy consumption. This economy is not obvious in new houses (with annual consumption from 10 to 13 MWh).

ETA (Italy)

BUSINESS ANALYSIS FOR THE ITALIAN CASE STUDY

Index:

1. COMPANY

Objective

The main aim of the company is to excel in the Italian market of the service supply for biomass heating systems by proposing an "all-inclusive" service able to allow the final customers to have the same comfort and the same ease in the daily management as traditional heating systems fed by fossil fuels.

Vision

In the near future, a considerable increase in the fossil fuel price for heating systems is anticipated; for this reason, a substantial increase in the use of solid bio-fuels for domestic heating systems is expected as well.
Therefore, in the following years, an even greater number of Italian customers of biomass-based heating systems will request both a total service of operation & maintenance and an organised system of solid bio-fuels sale and supply.
For the time being, there are no companies in Italy as the one proposed, able to provide an "all-inclusive" service; on the contrary, many companies able to fulfil only single and specific requests are quite common. Moreover, in general terms, an ever greater number of families are interested to heat their houses by renewable energy devices (biomass heating systems coupled often with solar thermal systems).

Mission

In a modern market, flexibility and multiple field experience are fundamental key aspects. Considering that biomass heating needs more care than fossil fuel heating, the present and future mission of the company would be to fulfil all the final user's needs, relieving them from any type of activities in the management of the biomass heating system.

Offered services

The company proposes to reorganise, by the utilisation of the specific know-how and with an appropriate training of the employees, the present maintenance and cleaning activities for traditional fossil fuels heating systems, by providing the following services:

- Operation & Maintenance (O&M) of traditional heating systems (fed by natural gas, LPG, gas-oil, heat pumps for radiant floor heating systems), including annual and extraordinary checks, cleaning of the system, optimisation and combustion calibration, component failures management.

- Operation & Maintenance (O&M) of biomass based heating systems (fed by log woods, pellets, chips, corns, other residues) including annual and extraordinary checks, cleaning of the burner, storage room, smokestack, optimisation and combustion calibration, component failures management, ash/residues removal.

- Technical consultancy and maintenance of the solar thermal technology as main or auxiliary system for heating/cooling and the production of domestic hot water integrated with biomass heating systems.

- Sale & supply of solid non-fossil fuels (log woods, pellets, chips, corn, other residues).

- Energy consultancy: seasonal consumption calculation, savings and optimisation of the heating system.

- Web-based remote monitoring

- 24-hour assistance: emergency support available 24 hours a day

The above mentioned services could be performed totally or partially, taking into account the demand in the specific context the company will operate. Depending on the specific requested load, the team will be properly staffed by means of temporary employees.

2. MARKET

The company and the market

The company will be a leader in the Italian market for maintenance services for traditional and biomass-based heating systems by providing a turn key product. The real difference with the competition is based on the supply of an “all inclusive” service able to permit the final customers to have the same ease, in the daily management, and the same comfort of traditional heating systems fed by fossil fuels. The company will provide all the services requested by the users of biomass heating systems that are to date provided individually by the competition, and the real competitive advantage will be the total approach, supplied with a lower cost with respect to the sum of the individual services.

To understand the role of this new company in the Italian market, a SWOT analysis has been carried out in order to identify the key internal and external factors for the verification of its economic feasibility and convenience. Two main categories of key pieces of information have been considered:

- Internal factors - The Strengths and Weaknesses internal to the organization.
- External factors - The Opportunities and Threats presented by the external environment.

The company	
S **Strengths = strong points of the company**	**W** **Weakness = weak points of the company**
In Italy, a company able to provide the supply of pellets with tank truck has no competitors to overtake.	Inexperienced companies have to be trained. At the very beginning, employees have a very low productivity. Maintenance on new equipment implies new training and education of hired personnel as well.
A company which provides an "all inclusive" service based on the O&M and/or the supply of solid biomass fuels has a competitive advantage providing the customers with a turn key service.	High pre-start up costs due to the acquisition of cars (O&M) and tank truck + rent of office and rent of the warehouse (for the storage and supply of pellet)
In Italy, there are a lot of potential customers (above all pensioners and single elderly people, living in mountain areas, who are owners of pellet -log wood heating systems and directly manage the overall daily control and annual maintenance of the system, as well as the purchase and organisation of the supply of the wood fuel) that would be greatly interested in receiving an "all inclusive" service, for a total price less than the sum of the single services.	The delivery of wood fuel in time, quality and quantity is strictly related to the extensions of the areas not covered by a distributor company. Too big area can decrease the quality and the profit of the service.
The high flexibility of the new company, even one born from an existing one, can sustain sudden changes of the market and provide the final customers with different services according to the particular specific conditions.	

The market	
O **Opportunities of the market**	**T** **Threats of the market**
An increase of the number of companies creates competition and reduces the fee for the final customers -> this may lead to a further increase of the demand and the overall quality of the services.	An increase of the number of companies can saturate small localised markets
A decrease in the costs of biomass systems due to the evolution of the market can increase the demand for biomass heating systems and related maintenance services.	An increase of the costs of biomass fuels (both related to a general decrease of the costs of fossil fuels, and an increase of biomass fuel demand) can decrease the demand and the profitability of the supply.

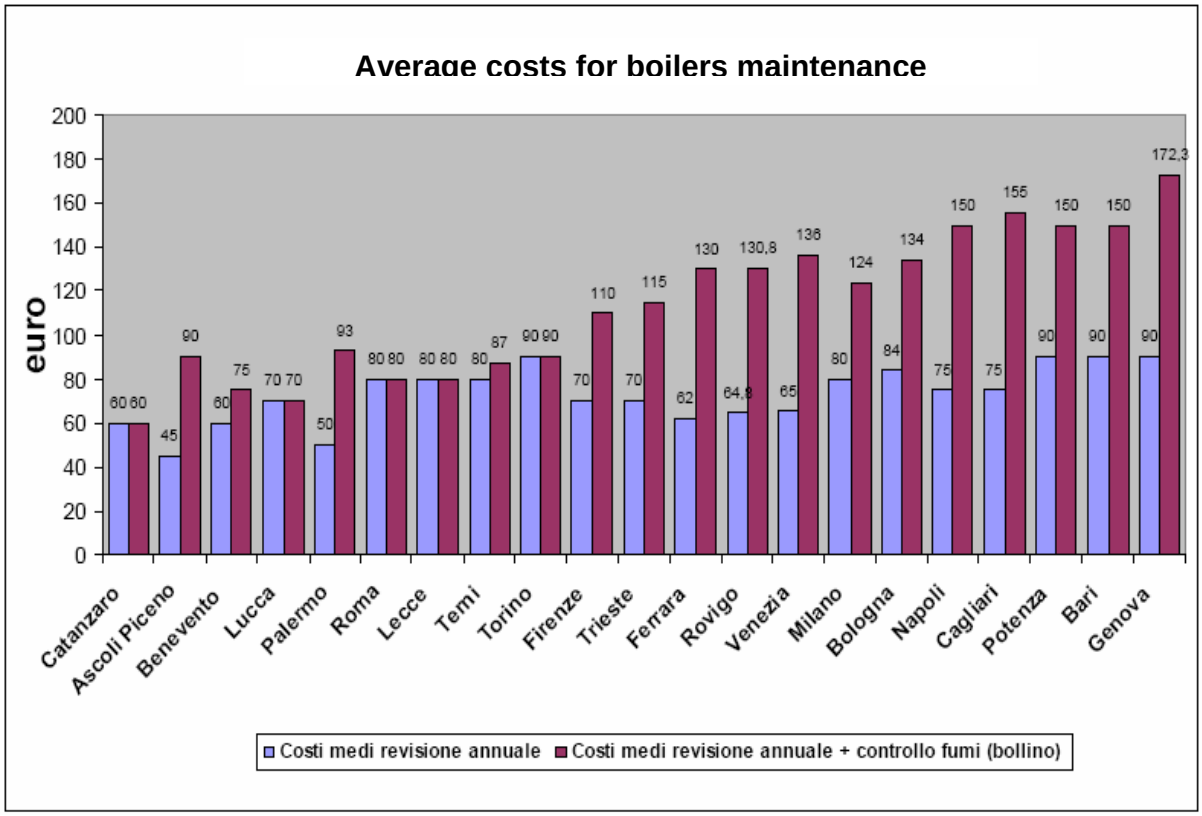
Lack of specific Italian legislation for biomass heating systems has favoured the entrance of only high quality products from advanced countries. Thus, biomass heating systems are a mature technology, completely automated, that can be installed easily with no particular technical complications. It is likely that the maintenance of the future new technologies will be even easier with reduced times -> this may lead to more biomass systems.	Inexperienced companies, with a general lack of knowledge about how O&M is to be performed, can negatively affect a market that is still young.
The expected future Italian building sector will be based on single/bi-family houses, organised in detached or terraced houses, (especially in an extra urban context): these typologies are particularly suitable for the integration of biomass heating systems.	The last fiscal contribution (Italian Financial Law - Finanziaria 2007) doesn't consider biomass systems but only highly efficient systems: a company that works exclusively with the tenance and supply of biomass based heating systems can be damaged if this persists.
New Italian and European legislations can favour the development of RES heating systems, and new funding programmes can increase the number of these systems.	A possible unfavourable configuration of the national index (inflation rate) and European index (Discount rate - Euribor) can obviously damage the new companies working in new markets.
If the market of RES heating systems grows, banks/financial institutions could be interested in proposing soft loans that can favour the introduction of these equipments.	Lack of support of financial institutions by ignorance of the specific kind of service.
	The lack of knowledge of public administrations could lead to lack of support in the building regulations and in the maintenance and supply requirements

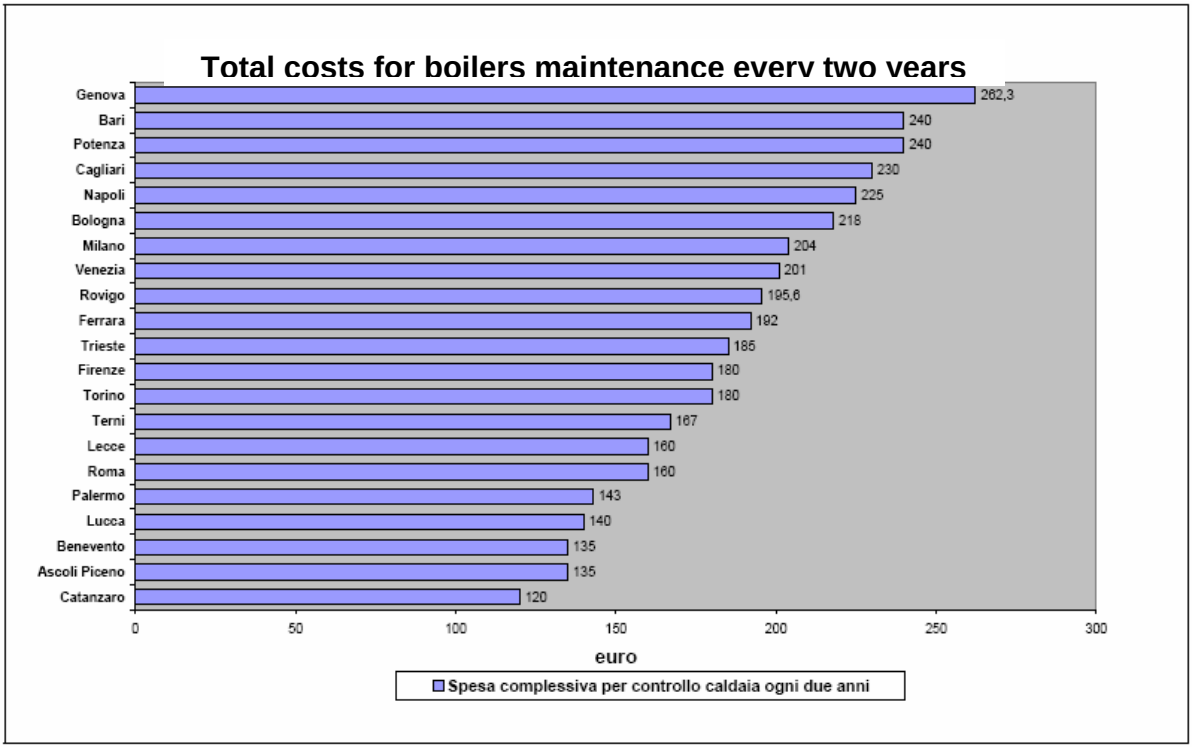
Competitors

The competition is mainly from professionals able to provide single specific services: cleaning of the smoke stack (chimney sweepers), operation & maintenance (specialised personnel, plumbers, pipe fitters), sale agents/sellers of wood fuels (wholesalers or retailers).

As for the reference of the current pricing of the maintenance of traditional heating systems, the Italian Agency “Help Consumatori” (http://www.helpconsumatori.it), in collaboration with the “Movement for the defence of the citizen” (http://www.mdc.it), carried out an enquiry on the annual costs for boiler maintenance: an Italian family pays on average 186 € every two years (data as of September 2006).

According to current laws (D.P.R. n. 412 del 1993 e D.P.R n. 551 del 1999 e Dlgs 19 Agosto 2005 n. 192), domestic users have to request technical assistance by specialised personnel for two kinds of control: every year an ordinary maintenance, and every two years the ordinary maintenance with the check of the smoke stack and the general yield of the combustion.


Average costs for boilers maintenance
euro
Catanzaro
Ascoli Piceno
Benevento
Lucca
Palermo
Roma
Lecce
Temi
Torino
Firenze
Trieste
Ferrara
Rovigo
Venezia
Milano
Bologna
Napoli
Cagliari
Potenza
Bari
Genova
Costi medi revisione annuale
Costi medi revisione annuale + controllo fumi (bollino)


Total costs for boilers maintenance every two years
Genova 262,3
Bari 240
Potenza 240
Cagliari 230
Napoli 225
Bologna 218
Milano 204
Venezia 201
Rovigo 195,6
Ferrara 192
Trieste 185
Firenze 180
Torino 180
Terni 167
Lecce 160
Roma 160
Palermo 143
Lucca 140
Benevento 135
Ascoli Piceno 135
Catanzaro 120
euro
Spesa complessiva per controllo caldaia ogni due anni

The mentioned enquiry, and the two reported charts, clearly show how the choice of the location of the action is essential for the company's profit and how wide the range of revenues can be.

A proper quantification of the bills for the maintenance of the biomass heating systems can be generally estimated at 125-135% of traditional systems due to the corresponding major time and frequency requested.

Potential clients

The results of the market analysis questionnaire (T31) have underlined the most indicated typologies of potential customers that can benefit of the proposed services, in general terms as the customers typologies that can benefit of a complete service (pensioners and single elderly people, living in mountain areas).

However the company should consider a certain flexibility in the different services offered in order to attract the biggest possible number of customers (they may already receive some service as the boiler check, but they would need also the supply of the wood fuel). In this category not only the owner or the tenants of mono/bi-family houses of apartment buildings have to be considered, but also local administrations, shops and any other actors, owner or users of the biomass heating system.

Suppliers

Agreements will be signed with both biomass producers for long-duration contracts, assuring a good price for pellets and other wood fuels, and also with technical design and installation companies with 5 years experience in the field of solar thermal energy and its integration with biomass-based heating systems for heating and domestic hot water production.

3. OPERATIONS PLAN

- The activities in order to put the company into operation are:
  a) The administration of the financings and grants
  b) Administrative procedures
  c) Selection and training of personal
  d) Agreement with companies: biomass supplier & solar thermal professionals

The main assumptions considered are (to be varied in the sensitivity analysis):

- The supply service is provided in 25km radius maximum from the main warehouse.
- The number of customers is less then 2200units/year.

4. HUMAN RESOURCES PLAN

The company can consist of different professionals, each of them able to give a specific know-how in a "joint venture" of competencies.

The number of employees is related with the expected number of clients in each specific sector (supply of fuel, maintenance of traditional heating systems, maintenance Biomass heating systems).

The main assumptions considered are (to be varied in the sensitivity analysis):

- Number of maintenances/month made by 1 worker for traditional heating system = 120.
- Number of maintenances/month made by 1 worker for Biomass heating system = 80.
- Number of supplies made by 1 truck driver / month = 120.
- One full-time secretary for a company of max 6 employees.
- One full-time employee for the administration for a company of max 6 employees.
- The contracted personnel will be trained with a specific course for a total cost of 1200€/year per employee.

5. OFFICES, MACHINES AND MATERIALS

The main assumptions considered are (to be varied in the sensitivity analysis):

- Rent of the warehouse per year (consisting of three parts: an indoor area for the storage of wood fuels, loading and unloading of general things, an indoor area for a three-room office and client reception, and a canopy for car parking and outdoor storage) = 60.000€/year.
- Each employee in charge of the O&M will have a small van: 12.000€/van.
- One tank truck to carry out the supply of biomass (pellet): 100.000€/truck.
- Costs for employee/month (equipment, fuel, lunches): 1.000€/emploeey.
- General costs of the company (current, heating, insurances, chartered accountant etc) are included in the "Costs for employee/month" cathegory.

6. ECONOMIC AND FINANCIAL ASPECTS

See the attached balance model for the expected general expenses and incomes as a function of the assumed assumption.

Scenario		2
Total number of customers / month		200
Number of customers / month (SUPPLY)	u.	100
Number of customers / month (Maintenance heating systems)	u.	0
Number of customers / month (Maintenance BIOMASS heating systems)	u.	100
Number of maintenances / month made by 1 worker for heating system	u.	120
Number of maintenances / month made by 1 worker for Biomass heating system	u.	80
Number of supplies / month	u.	120
Average annual quantity of pellet purchased per client	Ton	3

Pellet Costs	€ / Ton	180
Km per customer	km	30
Cost for the truck	€	100000
Average maintenance fee for heating systems	€	90
Average maintenance fee for BIOMASS heating systems	€	130
Reload on the pellet production costs	€ / Ton	80
Inflaction rate	%	2%
Discount rate	%	4%
Number of employes (administration and secretary)	u.	2
Number of employes (maintenance of biomass heating systems)	u.	2
Number of employes (maintenance of heating systems)	u.	0
Number of employes (supply)	u.	1
Number of cars (maintenance)	u.	2
Number of truck for the supply	u.	1
Full monthes considered to perform the services		11
Customers/year (supply)	u.	1100
Customers/year (maintenance)	u.	0
Customers/year (maintenance biomass systems)	u.	1100
Number of monthes for the supply	u.	8
Total customers	u.	2200

Costs	Monthes considered		12
	Salaries	€/u	2.022
	Costs for employee/month (equipment, fuel,lunch)	€/u	1000
	Costs for training for employee/year	€/u	1200
	General costs of the company/month (affitto, luce, gas, assicurazioni, commercialista etc)	€/u	3000
	Annual Costs (Personnel, general office costs)	€	219.694
	Pellets to be purchased	Ton	3300
	Pellets Costs	€	594.000
	Total Km		66000
	Car/truck consumption	Km / l	8
	Fuel costs	€ / l	1,32
	Total costs for fuel	€	10890
	Cost for the supply	€	10.890
	Costs (for 1 car)	€	12000
	Total costs (cars)	€	24000
	Annual rent for the warehouse (storage of pellets)	€	60.000,00
	Costs (cars / warehouse)	€	184.000
	Total annual costs	€	1.008.584
	Profit (maintenance)	€	0
	Profit (maintenance of biomass systems)	€	143000

Revenues	Final price for the pellet supply	€ / Ton	260
	Profit (supply)	€	858000
	Total annual revenues	€	1.001.000
	Fatturato lordo - Gross profit	€	- 7.584
	Tax provision		40%
Profit & Margin	Fatturato netto 1° anno - NET Profit 1° year	€	-
	Margine di profitto lordo - Gross margin		0%
	Margine di profitto netto - Net margin		0%

7. LEGAL ASPECTS

According to the different Italian legal entity possibilities, the first year expenses of the company have costs ranging from 2700 to 3650€.

ESCAN (Spain)

BUSINESS ANALYSIS FOR THE SPANISH CASE STUDY

1. COMPANY PROFILE

Aim of the company

The aim of the company will be to develop its activity in the framework of the renewables, supplying services related with biomass and solar thermal for heating and hot sanitary water production. The approach of the company will be according to each customer demand, so while some customers may need less service, some other could demand integrated supply of services.

Main areas of activity

The main areas of activity of the company will be one or several of the following ones:

- Biomass boilers and auxiliary systems supply
- Solar systems and auxiliary systems supply
- Maintenance, that could be from one-visit for corrective maintenance to integrate maintenance
- Biomass supply
- Training courses for education of professionals
- Advising ,calculation and planning of heating systems
- Thermal energy supply

Main products

The main products that will be supplied will be the following:

a) Biomass heating systems
   - Biomass boilers
   - Biomass equipment for storage and storage silos
   - Accumulation systems
   - Auxiliary equipment
   - Heat produced with biomass heating systems

b) Solar thermal energy systems
   - Solar collectors

- Accumulation vessels
- Auxiliary systems

c) Maintenance of biomass and solar heating systems
   - Under a maintenance service contract (see Annex 1) the company will supply from corrective maintenance to integrated predictive and preventive service.

d) Training and education
   - Specific training to engineers, architects and planners
   - Specific training to installers
   - Specific training to maintainers
   - Other courses, as basic courses on biomass, workshops, etc

e) Advising services
   - Calculation of biomass and solar heating systems
   - Advising on renewables energy systems for houses and buildings
   - Advising on regulations and financing for RES

2. PLAN OF MAKETING

a) Expected evolution of demand

The application of the national Renewables Promotion Plan has as global aim the use of renewable energy sources for covering 12% of the national energy demand.

Biomass is the main renewable energy considered, reaching 58% of the total production with RES.

	TARGET 2010
Total Primary energy consumption (Mtep)	134,97
Energy generation with RES (Mtep)	16,60 (12,3 %)
Energy generation with biomass (Mtep)	9,65 (58 %)

Biomass use for energy production in Spain by 2010. Ministry of Industry

In Spain, potential biomass energy sources are calculated in national Renewables Promotion Plan:

Production (Year 2010)	tep
Forestry wood residues	462.000
Agricultural wood residues	670.000
Agricultural herbaceous residues	660.000
Forestry industries wastes	670.000
Agricultural industrial residues	670.000
Energy crops	1.908.300

Biomass use for energy production in Spain by 2010. Ministry of Industry

From the total amount of biomass use, by 2010 900.000 tep should be used in thermal applications.

Regarding **solar thermal** energy, Spain is favoured by the great potential available, the market capacity, the expertise of national manufacturers, the technological advances reached, and the tendencies in countries with similar environment as Spain. Moreover, the ratio of solar thermal surface for every 1.000 inhabitants is under the average of the European Union.

The application of the national Renewables Promotion Plan should lead to the increase of solar thermal collectors, reaching by 2010 a surface of 4.500.000 m2. This figure has been obtained considering the following aspects:

Considering a solar supply of 50%, and without any restrictions, the potential market for solar therma energy is 27.000.000 m2, divided in the following sections:

- Residential: 20.000.000 m2 (7.000.000 m2 in one-family homes and 13.000.000 in multi family homes).
- Hotels: 1.000.000 m2 (considering 75 % solar supply)
- Collective buildings: 300.000 m2 (school, residences, etc.)
- Domestic new constructions: 5.000.000 m2
- Other applications: 500.000 m2 (swimming pools, industries, etc.)

b) Marketing strategy: customers, competitors and suppliers

(See also the SWOT analysis in the *Annex 2*)

Customers

- Building sector: construction, promoters and building managers. A
- Buildings of flats

- Buildings of offices.
- One family houses.
- Groups of houses.
- Public institutions facilities
- Industries

Competitors

- Regarding competitors considering technologies, the main ones considered are:
    i. Oil boilers.
    ii. Gas boilers.
    iii. Electrical boilers.
- Regarding other companies business lines, the competitors would be:
    i. Established biomass boilers suppliers, installers and maintenance companies.
    ii. Solar system suppliers, installers and maintenance companies.
    iii. Biomass suppliers.
    iv. Engineering and planning companies.
    v. Educational companies and institutions.
    vi. Thermal energy supply.

Suppliers

Main supplies will be from the distributors of equipment, both biomass and solar. The main suppliers will be:

- Solar thermal systems suppliers: solar thermal equipment as boilers, accumulation tanks and auxiliary equipment are provided by a big number of companies in Spain.
- Biomass heating systems suppliers: main biomass heating systems suppliers could be shown in the Biohousing catalogue.

c) Company development strategy

Strategic Objective

The target strategic objectives are to introduce new products and services for heat and hot sanitary water supply by RES, reaching an increase in the incomes of at least 10% per year.

Product Strategy

All products provided by our company will be of medium to high quality, certified according to European and national normative. Professionals providing services will have background and certifications, in order to provide a good service to customers.

Prices Strategy

The costs of high quality equipment involve higher equipment costs.

Distribution Strategy (only for equipment)

The distribution of the products should be done through the following distribution channels:

- Direct: in the premises of the company
- Indirect: through agreements with manufacturers and biomass suppliers
- Internet: a virtual shop will be designed for internet supply (in some cases), with brochures and commercial information

Promotion Strategy

It will be considered an specific budget for promotion and dissemination, both for the new company image and the internet promotion. This could be done through press, radio and professional magazines.

3. OPERATIONS PLAN

In the bioenergy entrepreneurship it could be considered two options, the launching of a new business line in an existing company, and the launching of a newly created company. In this last case, the steps to be followed would be:

- Definition of the number and type of stakeholders that will be involved in the company
- Analysis of market and establishment or a first business plan.
- Legal constitution of the company: address, contact details, legal form for the company, initial capital, etc.
- Selection of the leader or director of the new company and other involved staff. This will be typically done by the management board of the company.
- Establishment of business contracts with suppliers
- Selection of additional staff and necessary resources.
- Training
- Enter into operation
- Possible action plan and company adjustments (changes in marketing plan, stakeholders, etc.)
- Fully enter into operation of the company (usually after 2 years)

4. HUMAN RESOURCES

Management and staff

- The general manager of the company should be a professional with managerial and commercial skills.
- At least one engineer with typical specialization on energy
- A commercial skilled professional
- Technicians

Training

Technical Training is often provided by educational institutions and training experts from companies.

5. OFFICES, MACHINES AND MATERIALS

Premises (for a new company or a branch from an existing)

A good location for the new offices, with special access should be found. The driving of trucks in and out of our premises should be easy, as machines and biomass should be transported. Then, the headquarters should be in a place with good and wide communications by road.

Machinery and vehicles

It could be considered the following auxiliary machinery and vehicles for the company:

- Machinery for lifting and moving the equipment and the biomass:
- A truck or van for the transport of machines and biomass

6. ECONOMIC AND FINANCIAL ASPECTS

The following tables show a preliminary economic and financial analysis of the company for the first five years.

Sales forecast

Forecast for the first five years years:

Yearly sales forecast in units

Year	2008	2009	2010	2011	2012
Solar Energy	6	7	14	21	28
Internet	1	1	2	3	4
Direct	4	5	10	15	20
Indirect	1	1	2	3	4
Biomass	3	3	6	9	12
Internet	0	0	0	0	0
Direct	2	2	4	6	8
Indirect	1	1	2	3	4
Maintenance	1	1	1	1	1
Direct	1	1	1	1	1
Training	1	1	2	3	5
Direct	1	1	2	3	5
Total	11	12	23	34	46

Expenses forecast

The main expenses to be considered will be:

- Renting of premises and other general costs: 30.000 – 40.000 Euro
- Staff: 75.000 – 95-000 Euro
- Promotion and advertising: 20.000 – 30.000 Euro

Balance

It could be seen that there has been obtained a benefit since the third year of company operation, and also can be determined a stable increase in the sales, that could lead to an increase in the number of staff incorporating new employees.

Results account

Year	2008	2009	2010	2011	2012
Sales	234.300	261.668	547.472	859.440	1.210.351
Sales costs	150.550	164.740	341.050	529.565	729.490
Gross margin	83.750	96.928	206.423	329.876	480.861
Fix costs					
Staff	78.848	81.844	84.954	88.183	91.534
Commercial costs	9.600	9.984	10.483	11.112	11.890
Marketing costs	12.000	13.200	14.256	15.396	16.628
General costs	31.200	32.160	33.459	35.132	36.889
Benefit before amortization	-47.898	-40.261	63.270	180.053	323.921
Amortization	14.073	16.625	16.625	16.625	16.052
Operation benefit	-61.971	-56.886	46.645	163.428	307.869
Financial Results	-1.502	-840	-613	-400	-171
Capital subventions	6.000	0	0	0	0
Benefits before taxes	-57.473	-57.726	46.032	163.028	307.697
Taxes	0	0	16.111	57.060	107.694
Benefits after taxes	-57.473	-57.726	29.921	105.968	200.003

Financial aspects

The financing of the company could be made through own funds provided by the shareholders and owners, or by third party funds. Subsidies and soft loans should be carefully analysed when constituting a new company, as well as administrative issues. Usually, the SMEs office of the National or Regional Government could provide detailed information on this and other relevant aspects.

7. LEGAL ASPECTS AND OTHER RELATED ISSUES

The constitution of a new company involves the start of a new legal form and the future fulfilment of legal and administrative requirements. It should be selected carefully the kind

of company that the stakeholders wish to constitute, as it could be a public limited company, limited company, sole trader, etc.

- Each one of these options has different requirements in each country. In Spain, the main aspects for each legal form are:

LEGAL FORM	NUMBER OF SHAREEHOLDERS	CAPITAL	RESPONS.
SOLE TRADER	1	-	Unlimited
CIVIL CORPORATOIN	2 and more	-	Unlimited
LIMITED COMPANY	At least 1	3.006 Euros	Limited to capital contributed
PUBLIC LIMITED COMPANY	At least 1	60.101 Euros	Limited to capital contributed
LABOR LIMITED COMPANY	At least 3	3.006 Euros	Limited to capital contributed
PUBLIC LABOR LIMITED COMPANY	At least 3	60.101 Euros	Limited to capital contributed
COOPERATIVE	At least 3	1.803 Euros	Limited to capital contributed

ANNEX 1: MAINTENANCE CONTRACT MODEL

Yearly maintenance contract model for biomass heating systems

Guarantee description

The maintenance contract model for biomass heating systems will include the following (changes in content and cost could be made, this is the basis for different contracts).

- Annual boiler service according to checklist. Call out charge and labour are included in the annual service. Checklist:
  - » Visual appraisal of the boiler
  - » Checking of all mechanical parts
  - » Visual appraisal of connected fittings and checks for smoke (not included, however, is the fixing of leaks)
  - » Function check of all connected measuring and control equipment.
  - » Function check of safety equipment
  - » Efficiency check, including adjustment measuring

  » + 85€

- Cleaning: if required or demanded, will be charged separately.

  » + 50€/h

- + 2 years full warranty for materials (except parts subject to wear & tear[1])

  » + gratis

- + 5 years full warranty for materials (except parts subject to wear & tear)

  » + 40€ (since the 3rd year)

- + 2 years warranty for parts subject to wear and tear (material only)

  » + 50€

- + 2 years warranty for the tightness of the stainless steel tanks or burner depending on models

  » + gratis

- + 5 years warranty for the tightness of the stainless steel tanks or burner depending on models

[1] Examples of parts subject to wear and tear are washers, the electrical ignition, magnets, lambda sensor, fire bricks, boiler plate and inset, floor plates and flame channel cover.

» + 40€/year (since the 3rd year)

- Additional servicing (if necessary), even when the annual service has already taken place.

» + gratis

- Aditional notes:
    - The guarantee can be bought at the time of commissioning or respectively up to three months afterwards (in the last option, a check in the boiler will be made)
    - If the duration of initial contract is for 5 years and more, a 10% discount will be given.
    - All prices exclude VAT

Voiding of the service, warranty or guarantee

The service, warranty and guarantee becomes void when at least one of the following takes place:

- Non-concurrence with planning and operating instructions
- Installation of non-functioning control modules
- Commissioning and servicing by unauthorised companies
- Intentional damage
- Inappropriate operation and neglected service and cleaning
- Damages caused by natural catastrophes (water, fire, etc.)
- Damages caused by transport
- Enamelled goods can not be manufactured without any flaws, therefore, small damages that do not reduce the normal use of the appliance, will be claimed by customer
- Disruptions caused by unsuitable fuels
- Lack of electricity or water
- Disruption of operation

Guarantee & Warranty

- The warranty period starts at the time of handover of the system (delivery docket). If the system shows flaws, despite expertly installation (with adherence to the technical documentation), the guarantee will be uphold. The warranty periods will be in keeping with the prevailing law.
- The calculation of the warranty period starts at the time of handover. The warranty is valid for technical, construction and manufacturing faults that hamper trouble-free operation. The warranty is not extended to parts not manufactured by the supplier, and any warranties given to by the original manufacturer will pass on to customers.

- The warranty does not apply, when the system has been tampered with by unauthorised persons.
- The invoice has to be paid within the stated payment-period for starting any maintenance service.
- Occurring damages have to be notified in time and correctly, so that the cause can be found.
- Within the warranty, our company only will pay for installation time and any materials described in the guarantee, not – however – for call out charges, labour or possible return costs. We do not refund possible costs arising afterwards.
- Before any repair, not under warranty, with a cost over 100 €, our company will inform the customer for approval. At the time of repair or replacement only the warranty for those parts starts anew.

Yearly biomass supply contract

The yearly biomass supply contract will be based on the kind of biomass, to be supplied, the number of recharges, and number of approximate tons to be supplied each time.

Depending on the boiler, the biomass supplier should also provide advising on which could be the best biomass to be supplied, so specific training and contacts with boilers manufacturers or distributors would be necessary.

ANNEX 2: SWOT ANALYSIS

Risk and strengths analysis for potential bio-energy entrepreneurs

External risk facts (Threats)	Internal risk facts (Weakness)
A) Facts that influence the cost o Rising of biomass cost of by the evolution of the market due to the demand increase. o Greater costs of sale and maintenance of the equipment when be imported. o Low number of installations reduce companies profitability	**A) Facts that influence the cost** o Customers could have initial low relay on new companies, due to starting market o Higher marketing costs needs to introduce the Entrepreneurship concept at the residential market o Larger costs in the buy of equipment, and maintenance, compared to traditional systems.
B) Technological Facts o In some countries, lack of adaptation between the technology (usually imported) and the raw material (national) o New versions equipments are breaking through the market	**B) Technological Facts** o Lack of experience and knowledge in the technology and in the biomass systems process, could reduces the productivity. o When selecting equipment, often low technology cheaper inefficient systems are chosen
C) Social-economic Facts o Necessity of adapt the buiders architecture to the new equipments o Possibility of initial rejection of general people mentality to these systems o Needs of clear informing about biomass availability to customers. o Lack of qualified personnel in the installation and maintenance of the new equipment.	**C) Social-economic Facts** o At the start of the companies, or new business lines, it has to be considered the awareness of the general public on the new systems, to avoid bad reactions. Usually new systems or new ideas are rejected by traditional thinking o Some competitors, as boards manufacturers, could cause problems. Integration of local socio-economy should be considered

D) Quality and Service o Present design of the housing where the lack of spaces could difficult the operation and maintenance of the equipments and the storage area. o Lack of knowledge and training of the consumers that produce a bad use of the equipments and then originate a bad service. o The importation of the spares parts affect at the reparation time of the equipments. o Have to guarantee the delivery of fuel in time, quality and quantity in zones that don´t exist the distributor company.	**D) Quality and Service** o Lack of experience, particularly in biomass supply, biomass heating systems installation and maintenance. Needs of training. o The necessity of applied control mechanisms of quality to guarantee the deliver, installation and maintenance of the good equipments, and biomass supply quality o In case of other services providing (e.g. advice, engineering, etc), sometimes non-reliable companies provide wrong information
E) Legal, Institutional and Financial Facts o Lack of specific legislation biomass heating systems, that could produce the entrance of a bad quality product and the rejection of the market.. o Lack of knowledge of the public administrations that could produce the lack of support and in some cases the reject of this kind of project. o Lack of financial incentives and subsidies to start the market o Lack of support of financial institutions by ignorance of the product.	**E) Legal, Institutional and Financieal Facts** o Lack of information of the behavior of the national marked, then it´s necessary to look information in other European countries, but adapted. o Financing mechanisms are scarce for new bioenergy companies, or don´t exist o Some institutions are not aware on the possibility of new bioenergy entrepreneurs to provide services, even when public institutions should be an example
F) Environmental Facts o Bad use of the equipments by the consumers that will produce environmental pollution. o Raw material with mushroom could be produce illness. o Rise of fire risk due to the raw material.	**F) Environmental Facts** o Bad installation or maintenance could lead to environmental problems. o Quality on biomass supplied can vary the emissions in the boilers. This should be considered in order to select good boiler-biomass couples o Each region has, sometimes, specific legislation for biomass boilers. This must be considered.

External Strenghts (Opportunities)	Internal Strenghts (Strengths)
A) Facts that influence the cost o Reduction of investiment costs by the increasing promotion of these technolologies o Pilot actions, with the first demonstrative units installed, could lead to more units installation and reduction of the costs. o Development of the market produces the appearance of systems and biomass supply chains which results in the reduction of costs.	**A) Facts that influence the cost** o Increase in the number of companies creates competition, increases the number of installation, and reduces the costs. o The selection of a geographic area with a favorable frame (suitable legislation, distribuition of raw material, existence of infraestructure) helps cost reduction. o Diversification of services can help to profitability at the first stages
B) Technological Facts o The equipment installation is simple and the equipments are very automated. o Promotional activities increase the manufacture of equipments and adapt to the conditions of the country. New R&D lines are favouring this matter.	**B) Technological Facts** o The incorporation of a technologist oriented professional at the Bioenergy entrepreneurs with experience in the equipments (solar-biomass) and in the raw material improves the know-how, raising the producitivity. o Use of high developed technologies (e.g. modern biomass boilers) gives prestige to new companies.
C) Social-economic Facts o Awareness in renewables systems is increasing at the same time than European directives implementation in the countries o Redution of the external energetic dependence (more autoproduction) is an objective of administrations and interested energy companies	**C) Social-economic Facts** o Some pioneers usually act as the pilot actors to use new concepts as the bionergy entrepreneurs. o New business, employment creation and experience increase, improves local and regoinal socioeconomy o Employment creation and fixation of rural population due to the new business related mainly to local biomass supply, systems maintenance and other services.

D) Quality and Service o The new buildings, with architects and installers trained from the initiatives as BioHousing could design adequately the installation of the new systems. o The greater development of the offer caused by the rise of demand improvement the quality ande the service of the entrepreneurs. o The use of equipments produced in the country reduce the costs and the maintenance time.	**D) Quality and Service** o The add of experience and know-ledge from local and regional project professionals improve the quality and the service. o The use of internal quality standards (to the biomass and the equipments) from other advanced countries (as Austria) improve the quality of the internal system. o The use of a "Contract model" adapted from existing in other countries will help to provide good quality-service supply
E) Legal, Institutional and F inancial Facts • New legislations, favoured by bioenergy actors promotion, could be developed at local level, and would favour the development of RES heating systems • The present funding lines oriented to the development of the market improve the introduction of these equipments. • The lines of soft loans could improve the introduction of these equipments. • European support as funding help to the introductions of these equipments.	**E) Legal, Institutional and F inancial Facts** • The development of the Entrepreneurship concept and the Biohousing project will supply information to develop biomass heating system legislation. • Some financing systems are maintained in the last years in most Spanish regions to promote biomass and solar systems. The good knowledge on this issue will help companies • Regulation on biomass systems is starting in some Spanish regions, and also biomass standards are arising.
F) Environmental Facts o Reduce of the greenhouse emissions due to replacement of fossil fuels by biomass and solar energy.	**F) Environmental Facts** o Bioenergy entrepreneurship will favour the reduction on the emissions and improve the environmental quality of the region. This aspect should be pointed out when providing services to customers. o Logos, sticks, posters, and other promotional tools may be included in the entrepreneurship promotional activities indicating the environment improvement when using biomass systems

JI (Finland)

BUSINESS ANALYSIS FOR THE FINNISH CASE STUDY

1- COMPANY PROFILE

In Finland, the potential entrepreneur who may offer maintenance services (maintaining biomass heating systems and cleaning fuel storages) for private consumers, is a chimney sweeper. In Finland, there are 900 chimney sweepers and 500 of them are private entrepreneurs working on certain district. These district chimney sweepers employ 300 workers. The rest are working for municipalities or regional rescue departments.

In Finland, chimney sweeping is based on law. The house owner is responsible for inviting chimney sweeper regularly to visit the house for chimney sweeping. Service supply of the chimney sweeper is very wide. The main tasks are checking and sweeping the furnaces and chimneys as well as cleaning the ventilation system. Additionally, chimney sweeper tests the chimneys' leakness and boilers' efficiency, sweeps boilers' heating surfaces and repairs chimneys. Essential part of professional chimney sweeper's work is counselling and consulting private house-owners about maintenance, usage and planning matters related to furnaces, combustion, ventilation and fire safety.

To understand the chimney sweepers' internal and external possibilities and barriers to act as a local bioenergy maintenance service entrepreneur, the SWOT- analysis has been drafted (annex 1).

2- PLAN OF MARKETING

The customers will be mainly private house owners (single-family houses or semi-detached houses) who have a biomass boiler as a main heating system. In some cases, row house managers or managers of house blocks may be customers. The business analysis is based on the fact that the entrepreneur (chimney sweeper) offers services for the customer which are not fixed by law. These extra services are maintenance services (monthly checks, cleaning boilers / burners / storage, combustion adjustments, fuel management, ash transportation). The chimney sweeper is not a heat entrepreneur. He will *not* sell heat or products e.g. boilers, burners, spare parts. First it has been thought that 24h on-call duty could be included in services but perhaps this service is not relevant.

The main competitors are plumbers and installors. Chimney sweepers are operating on their own districts. It is not possible to operate on others' districts and therefore the other chimney sweepers are not competitors.

3- OPERATIONS PLAN

Some of the maintenance services are the same services as the chimney sweepers are doing at the moment for oil boilers. So the basic concept is the same. Nowadays, some chimney sweepers are cleaning and maintening the biomass boilers and fuel storages but the service is not regular. The work is agreed with the customer case-specific. To raise the share of maintaining of the biomass systems, the chimney sweepers should actively offer the services personally for the house owners. The contract of the biomass heating system maintenance could be one helping tool (see annex 2, a draft contract).

4- HUMAN RESOURCES

Most of the chimney sweepers are private entrepreneurs who employs themselves. In some cases, chimney sweeper employs 1-3 workers. To offer maintenance services doesn't require any special contracts or personnel management activities.

Constant training of the entrepreneurs is important because there are so many different heating device manufacturers on the market.

5 – OFFICES, MACHINES AND MATERIALS

To offer maintenance services doesn't require any special facilities, machines, vehicles or materials which the chimney sweeper wouldn't have for his present work. Perhaps some extra tools are needed, e.g. ash cleaner or flue gas indicator to raise the quality of the work (service).

6- ECONOMIC AND FINANCIAL ASPECTS

The price for the normal chimney sweeping services is fixed by law. But according to the law, the chimney sweepers are able to agree on a price of maintenance services by themselves. The proper price could be 50€ / hour (incl. taxes).

7 – LEGAL ASPECTS

To offer maintenance services doesn't have an effect on legal entity of the chimney sweeper.

ANNEX 1: SWOT

The SWOT-analysis is used to evaluate the *S*trengths, *W*eaknesses, *O*pportunities and *T*hreats from chimney sweepers' point of view. Risk analysis is included in *T*hreats.

Strengths:	**Weaknesses:**
• professionals => experience of oil heating devices is high • house owners trust chimney sweepers, they are known at the small residential area => sweepers are allowed to visit boiler rooms regularly • employment improves => extra income (according to the law, sweepers are allowed to fix a price for these services by themselves) • high motivation to learn new skills, systems and products • no need for expensive investments or facilities => the same tools are usable for sweeping oil boiler than pellet boiler, potential investments are e.g. ash cleaner and flue gas indicator • consultation services are already part of sweepers main tasks	• lack of experience of automatic biomass heating systems, combustion, installation and storages, professional skills on biomass sector are limited => education is needed • on the market there is numerous amount of biomass heating device manufacturers => lack of device-specific know-how => education is needed • chimney sweepers don't act as business men because chimney sweeping is fixed by law and each sweeper has his own sweeping area => lack of marketing skills • present working situation is good (enough work) => it depends on sweepers own willingness if the extra services are offered => lack of entrepreneurship, no need for competition
Opportunities:	**Threats:**
• the share of pellet heated private houses has been increasing in recent years and the trend is expected to remain => the number of potential customers is increasing • "maintenance contract" may be a tool to promote maintenance services, it defines the services (plus responsibilities and duties on both sides) => arouses trust • related associations may promote the entrepreneurship and "maintenance contract" in order to assist sweepers to have customers • the wood-based ash is collected in a separate ash tray and transported to be utilised as a fertilizer => environmental benefit • the share of blended pellets is increasing when the ash amount increases => the need for maintenance work increases • regular maintenance of the heating device improves the functionality of the device and decreases fine particle emissions	• there are only 10.000 pellet heated private houses in Finland => not many potential customers available • the price of pellets is increasing, people are suspicious of investing in pellet heating devices => not many potential customers available • the labour shortage of chimney sweepers => extra services have to be considered carefully • the degree of automation in pellet boilers will increase => no need for constant cleaning • the share of investment subsidies may increase. As a consequence, the share of more automated (more expensive) heating systems may increase => decreasing need for constant cleaning/services • customers are not willing to buy extra services but are capable and willing to do maintenance work themselves => maintenance is not a limiting factor to have biomass heating system

ANNEX 2: CONTRACT MODEL (DRAFT)

Chimney Sweeper N.N. ("Supplier")
Street address xx, 00000 City
Tel. +358 00 000 111

CONTRACT OF BIOMASS HEATING SYSTEM MAINTENANCE

_____
Customer's name, address and phone number

_____
Representative of the customer

TASKS AND AGREED PRICE (incl. VAT)

1. Maintenance services of the biomass heating system

- Cleaning of the boiler's heating surfaces (incl. ash transportation):

Cleaning times: □ _____ times a year

- Cleaning of the fuel storage

Cleaning times: □ _____ times a year

- Ordering of the biomass fuel

Delivery times: □ _____ times a year

Price for tasks _____ € / hour

2. Additional tasks

_____
_____

_____
_____

Price for additional tasks _____ € / hour

RESPONSIBILITIES OF THE SUPPLIER

Supplier informs customer about the arrival beforehand.

Term of payment 14 days net unless differently agreed. Interest for default 10%.

DUTIES OF THE CUSTOMER

Customer arranges clear and safety passage for required sites and offers electricity for lightning and working tools without charge.

SIGNATURE

This contract is signed in two (2) equal pieces, one for each contracting party.

The contract becomes valid when both contracting parties have signed it. The first cleaning of the boiler's heating surfaces will be in (month) 20__.

The contract is valid until ___/___ 20__ and is continued after it for one year at a time unless either contracting party terminates the contract three (3) months before the end of the contract period.

Price changes are agreed separately.

_____

Place and date

_____

Signature of the customer Signature of the supplier

OFI (Austria)

BEST PRACTICE FROM AN AUSTRIAN BIOENERGY COMPANY

Best practice example of one of the leading boiler manufacturer in Austria

1- COMPANY PROFILE

The basic idea behind this company came from the bold vision of a committed scientist, who has occupied himself with biomass combustion research since the seventies. He was convinced that the only chance to prevent climatic collapse and global warming is to change over mankind's energy supply to renewable energy.

The goal of his work was, therefore, to implement his research results on a practical level. Although his ideas were smiled at by many in the beginning, he was able in time to win over more and more people.

On top of this, due to his social expertise and ability to arouse enthusiasm in others, he was able to gather a motivated team around himself and has held it together ever since.

Company Mission Statement
As part of society and nature, the company is bringing about economic, social and ecological health. Tthis means:

- Raising the company corporate value in order to be in a position of negotiation.
- Cultivating contact with employees, customers, suppliers, authorities and all those involved, on a partnership basis.
- Making an essential contribution, through our thoughts and actions, to mankind's change-over to renewable energy sources; Here, the combustion of biomass plays a foremost role.

The company is securing the realisation of this mission statement through our quality and environmental policies and the objectives deriving from them.

Facts and History

This company was founded in the nineties in Austria. Today over 300 people (200 in Austria 100 international) are employed, working mainly in production, development and service.

The company manufactures various; innovative biomass systems fired with pellets, wood chips and log wood. Their products comprise biomass boilers for private use (10-30 kW) up to boilers for indus-trial use (up to 300 kW). In addition to Austria, the company

operates abroad through subsidiaries or partner companies in following countries: Germany, Italy, Belgium, Great Britain, Ireland, Spain, Swit-zerland, Slovenia and France.

Last year the company produced approx. 6.000 systems with a turnover of 50 millions Euros. The selling figures of biomass boilers are showing following picture:
60-70% pellets 10-30 kW pellets increasing
30% wood chips 25-100 kW
5% log wood
2-3% pellets 150-300 kW increasing

2- PLAN OF MARKETING

In former days the customers of the company have been mainly farmers (wood chips), now they are also comprising renovating and building companies, private house owners, companies which need process heat, cooperatives and energy contractors,…

The firm reaches the customers via a wide spread service network, the well-designed web page translated into several languages, TV-, radio- and newspaper- advertisement, fairs and other common marketing tools. In future they plan to shift their selling strategy from direct to indirect selling. Therefore the company will choose partners from different branches like installers, planning agencies,…

3- OPERATION PLAN - HOW SERVICE IS ORGANIZED

A modern boiler needs less maintenance. Although some has to be performed. As described in the instruction manuals there are weekly and monthly checks that have to be performed by the user himself (like ash removal, check of the com-bustion chamber, safety matters…). Other maintenance has to be performed yearly by an authorized technician (like emission measurement, cleaning, parts exchange if necessary…).

The company established a so-called maintenance contract and approx. 30% of the customers accept that offer. To perform the maintenance the company has as mentioned before a wide spread service network. 20 technicians are serving customers Austria and 20 in Germany.

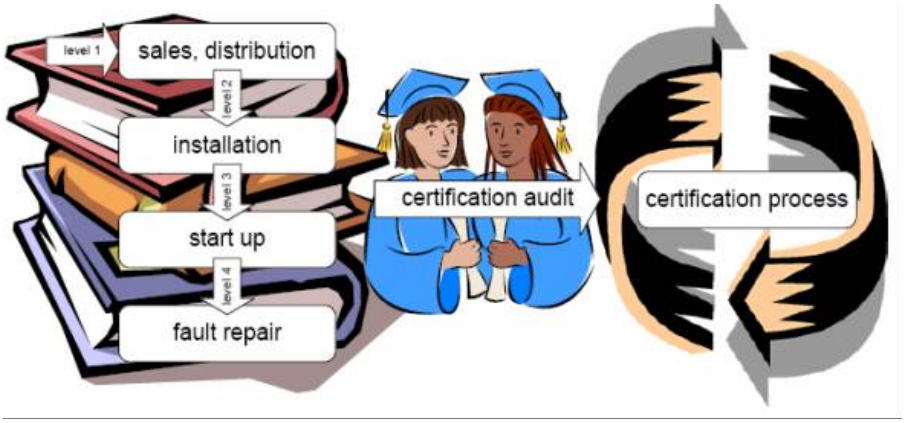
But the service comprises not only maintenance, but also planning, start up and fault repair. The technicians are working in home offices, but the own company delivers all kind of equipment.

Because of economical reasons and because of the development of the biomass branch (biomass is getting more and more common and well known), the company started and educational centre. That’s a comprehensive education system to train professionals (e.g. installers). The company plans to build up a network of certified partners to fulfil the tasks of customer service. The “old system” will remain mainly for the established heating systems, but in future the company will have an international network of trained specialists working in different, independent companies.

So fare in 2007, 55 installers have been trained in Austria and the company planes to offer the education on an international level as well.

4- HUMAN RESOURCES – HOW TO BECOME A PARTNER OF THE COMPANY

The education program of the educational centre consists of 4 education levels, each leads to more competence, see figure below. At the end the company will start the certification process that have to be renewed each year.



5 – OFFICES, MACHINES AND MATERIALS

In addition to his usual equipment, the trained and certified professional (e.g. installer) needs some specific means of measurement e.g. emission measuring tools. If replacement parts are needed the technician is allowed to order them at the company premises or an authorized partner.

6- ECONOMIC AND FINANCIAL ASPECTS

There is some financial investment for the person who wants to get trained and of course the investment for the means of measurement. For the service offer to the customer there is no fixed price, it depends on the calculation of the technician.

7 – LEGAL ASPECTS

Passing the whole education process and the certification means to get the license to deal, install and maintain the company heating systems. For the installer that means to obtain more know how and expertise. Between the technician and the customer a contract has to be placed.

The contract has to contain at least information about:

- Scope of maintenance
- Duration and frequency
- Additional charge
- Questions of warranty and guaranty
- Terms of business

ANNEX : SWOT for installers to take part in THE COMPANYs' education program

The SWOT-analysis is used to evaluate the *S*trengths, *W*eaknesses, *O*pportunities and *T*hreats from installer' point of view. Risk analysis is included in *T*hreats.

Strengths:	**Weaknesses:**
• Professionals -> experience of heating systems is high • Customer get in contact when planning to change the heating system • Already existing customers (oil, gas,…) • Employment improves -> additional expertise • Experience with traditional heating systems (oil, gas) already exists • Accepted business (locally)	• Lack of experience for sales strategies and marketing • Few international ambitions • Many small companies, less human recourses • Equal if the customer uses oil or pellets -> similar service
Opportunities:	**Threats:**
• In future the training of THE COMPANY will be offered for foreign countries as well • Contracting with leading boiler manufacturer • Well trained employees • Better and continuous relationship to customers "maintenance contract" • Regular maintenance of the heating device improves the functionality of the device and decreases fine particle emissions • "Maintenance contract" leads to an extension of the guarantee of THE COMPANY boilers • High price of fossil fuel means increasing usage of RES leads to more customers • Benefits because of a big companies' (THE COMPANY) marketing • Possibility to act as an energy contractor	• Contracting with just one boiler manufacturer • The price of pellets is increasing, people are suspicious of investing in pellet heating devices => not many potential customers available • Fluctuation of trained employees • Maintenance is performed by the customer themselves • Subsidies for biomass applications may increase