

Assignment: Written business proposal for Ecopure Fuel

Course: Environmental science

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**Introduction**

The global population is becoming increasingly aware of the need to reduce our environmental impact through reducing our carbon footprint and creating a more sustainable lifestyle. Waste management is a serious environmental problem on a global scale. Its inadequate management can produce significant negative impacts on the environment and can cause very unhealthy situations such as contamination of water, soil and air. Besides contamination it can also affect ecosystems due to its contribution to rapid climate change. However, if properly managed, waste can be converted into resources which contributes to saving raw materials, the conservation of many natural resources. This process also contributes to creating a sustainable environment for the upcoming generations. It is important that the public is aware about the amount of waste generated in their homes and at their workplace. If there is enough education on the topic of waste such as awareness of the consequences of not managing it properly and the benefits of being able to manage it in a responsible way, it is more than likely that the damage to the environment will reduce remarkably. Almost 90 million tonnes of food waste is generated annually in the EU alone, which is 180kg/person/year, and about 126 million tonnes a year is expected by 2020 unless serious actions are taken.

**Improving the situation in a responsible manner**

The vision of Ecopure Fuel is to initiate a new movement on the island of Aruba which is known as upcycling. Upcycling, also known as creative reuse, is the process of transforming by-products, waste materials, useless, or unwanted products into new materials or products of better quality or for better environmental value. Food waste is generated every day and in big volumes by restaurants and hotels. The reality on Aruba is that there is no proper education on how to responsibly process waste and this causes the waste to end up at the landfill.

Food waste can be processed into renewable resources. The aim of this report is to explain the necessary steps which need to be taken to significantly decrease the amount of food waste on the small island of Aruba and creating a business where all the waste is processed responsibly into renewable resources which can be sold to households and businesses. Anaerobic digestion has been practically applied in agricultural and industrial waste treatment and is recognized as an economical-effective way for food waste disposal. The collected products are processed to seperate food materials from any packaging. The food materials are either then re-processed to recover new products (such as protein or liquid fat), or are used as direct fuel source for renewable energy.

**What is anaerobic digestion?**

Anaerobic digestion is a series of biological processes in which microorganisms break down biodegradable material. One of the end products is biogas, which is combusted to generate electricity and heat, or can be processed into renewable natural gas, transportation fuels and fertilizer.

Anaerobic digestion is a naturally occuring process which can be integrated into waste management and reduce costs significantly. Every tonne of food waste recycled by anaerobic digestion as an alternative to landfill prevents between 0.5 and 1.0 tonne of CO2 entering the atmosphere, one of the many benefits of anaerobic digestion. During the anaerobic digestion process organic materials are fed into a sealed tank and effectively fermented without oxygen for a long period of time; this process creates two by-products, methane and a nutrient-rich organic fertiliser. The methane can then be used to directly power a generator to create electricity for industrial or domestic supply, or can be purified, have a little propane and odorizer added (which gives gas the distinctive ‘eggy’ smell) and pumped onto the National Grid for use for cooking or heating in the home. The process of anaerobic digestion can be divided in four stages: pre-treatment, digestion, gas upgrading and digestate treatment. The biogas produced during the digestion stage, needs to be upgraded because it contains impurities that can damage boilers and engines. Hydrogen sulphide and water vapour need to be removed for boilers and combined heat and power units. Removal of carbon dioxide will be required if the gas is to be used as natural gas or vehicle fuel.

**Cost of initiating Ecopure Fuel**

A large anaerobic digestion plant (1380m) can be purchased with all needed equipment to initiate business for $60,000. The whole biogas system includes pretreatment system, biogas digester, biogas dehydrator and desulfurizer equipment, biogas generator set, solid liquid separator for biogas digestate. Ecopure Fuel food waste management services includes food waste collection from your business, transportation to Ecopure Fuel’s anaerobic digestion plant where it will be processed into renewable resources. This means that besides purchasing the anaerobic digester, Ecopure Fuel has to invest in two specialized trash collecting vehicles which costs are in the range of $25,000-$35,000. Ensuring that 0% of all food waste collected by Ecopure Fuel goes to landfill, sustaining our vision of zero waste to landfill.

The challenge is to introduce this idea in a way that captures business owners their attention sufficiently for them to participate in this movement. It is a fact that not all businesses have the environment as their first priority when initiating a company. However, businesses are always looking for ways to reduce costs. Through a clear explanation of the vision of the company, the benefits of anaerobic digestion and the benefits for the company (reduced costs) and the environment, Ecopure Fuel will be able to convince businesses to participate.

Trash collecting companies on the island of Aruba (Serlimar, Ecotech) simply collect trash and have do not have the education on how to process it, causing the waste to end up at landfill.

Food waste that ends up in landfills produces a large amount of methane – a more powerful greenhouse gas than even CO2. For the uninitiated, excess amounts of greenhouse gases such as methane, CO2 heats up the earth’s atmosphere, causing global warming and climate change.

Besides the workplace and transportation, Ecopure Fuel has to offer it’s dedicated employees the necessary education regarding waste management to ensure that the staff handles this in the correct manner and a salary so that they are able to sustain themselves. Salary per employee who works in the field ranges from $1,000-$1,500 depending on their qualifications and job performance within the company. These numbers are simply an indication of the investment needed to successfully initiate business on Aruba. Ecopure Fuel needs manpower, it is not necessary to have people working behind their desks in offices. This would mean that there are a total of 6 employees necessary to start the process. A driver for each vehicle and a partner who can assist in collecting the trash from companies and two employees to receive the trash at the anaerobic digestion plant and start the process of converting it into a renewable resource.

Since Ecopure Fuel has the environment as their number one priority, the company aspires to eliminate flyers to promote business, not participating in sending payment notices per mail and we want to offer all customers the efficiency of performing all payments online in your own personal account to avoid combustion of fossil fuel, which happens when a vehicle needs to get from point “A” to point “B”, a process that emits gasses and affects the environment negatively.

All these positive benefits complete the business proposal Ecopure Fuel delivers to its potential new clients.

A short overview

* $60,000 large Anaerobic Digestion plant
* +/- $60,000 for two vehicles specialized in trash collection (with water retention)
* $6,000 as a combined starting salary for 6 employees in the work field

Which is a total of $126,000

**Conclusion**

The anaerobic digestion plants are being introduced in various countries around the globe. Companies who introduced this waste management tactic are publicly sharing their experiences and results through websites in hopes of convincing other aspiring business owners to invest in a project like this. In countries with a bigger population than Aruba, this new initiative is introducing drastic positive changes and these are not left unnoticed. As mentioned above in this report, the benefits outweigh the negative by far because the main resource used is simply food waste which is not a product that is interesting to business owners. On a small island such as Aruba, waste may not seem as an issue just yet because the government thinks to have it “covered” for the upcoming years. That might be true, but what happens when there isn’t any more places available to bury waste? On an island the possibilities are very minimal and it is important to think of long term solutions since it is important to protect the environment which is the number one thing that attracts tourists, the number one source of income of a small island.

Ecopure Fuel is determined to make a change in the way of thinking, allowing people to be part of the process so that they are aware of the positive impact they are contributing to.

If everything goes as planned, by 2030 the sustainable development goal “Actions for the environment” for Aruba can be considered reached. Aruba will have introduced a way to create several forms of renewable energy, reaching the goal that 20 percent of total energy generation is renewable.

**References**

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