

Biomass to Biofuels

Establishment of website, “valuable wastes”, to enhance productivity and “green method” of biomass to Bio-fuels

Tag Words: Biomass; Biofuels; Anaerobic; Aerobic; Green Energy; Methane; Carbon Dioxide; Green House Gas; Landfills; Biological Waste

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Summary

Biomass is any waste that can be biologically degraded anaerobically or aerobically to produce bio-energy / “green” energy. Sadly its great potential are not used efficiently and all kinds of wastes end up in landfills where it greatly contributes to global warming. The decomposition of bio-waste releases methane gas into the atmosphere. Methane gas is considered a much more effective green house gas compare to carbon dioxide in the terms of its ability to trap heat. However, methane also is a major constituent of natural gas and some landfills use its emission as energy source. Even though municipal waste disposal is regulated by each State and individual county there are many illegal landfills and small unregulated farms, all negatively impacting our environment. For instance, food waste attracts wild life, which portrays a potential danger to humans and domesticated animals by carrying viruses like SARS and rabies. Soil and groundwater contamination, as well as air pollution are issue that could be reduced by the proper disposal of biodegradable waste to sites that make use of its potential. Therefore, it is important to manage biomass by collecting methane gas or recycle into other goods. Our project is to allocate the sources of biomass and create a network that can connect the sources with recycling stations or companies that would like to generate “green” energy from biomass.

The Issue: Biomass

Biomass:

To be specific, biomass is categorized as a renewable energy source (energy generated from natural resources that naturally replenish), derived from biodegradable waste including plant materials, animal wastes, and food residue which can then be used as green energy source for fuel, or industrial production purposes. These energy sources can be used as solid, liquid, or gaseous fuels. The biological material, biomass, is from either living or dead organisms. Four common sources of biomass are

- 1) agricultural waste;
- 2) wood materials;
- 3) municipal waste;
- 4) energy crops.

Biomass is composed of complex mixtures of organic materials; carbohydrates (75%) and lignin (25%) are main components, but varies depending on plant type and source.

Common Sources of Biomass

- 1) Agricultural waste: wide array of wastes, categorized either dry residues or wet residues. Sources can include crop residues (i.e. straw, husks, weeds); animal manure and sludge; animal bedding; and excessive organic material from market surplus.
- 2) Wood materials: Woodfuel can be derived from forestry practices, forest/land residue, demolitions, construction, etc.
- 3) Municipal waste: Biomass materials that are by products, wastes, residues, from another product or operation.
- 4) Energy crops: Crops that are grown specifically for fuel.

Biomass Benefits:

a) Economic: Biomass Industry can lead to new job opportunities by creating new markets. New employment opportunities include, but may not be limited to, processing, distribution, farming, and forestry. Biomass can develop new ways for farmland use; and therefore generating farmland revenue and land ownership.

-National Energy Security: Reduce U.S. trade deficit, oil imports are the largest component of the US trade deficit. In 2007, oil imports accounted for more than 65% of the entire US trade deficit. By reducing our dependency on foreign oil and other sources of energy, we can improve our national energy security.

b) Environmental: One very influential environmental impact from biomass is that it can be used in conjunction with fossil fuels, thus reducing Greenhouse gas emissions (GHG). The transportation sector of fossil fuels is accountable for one third of the US carbon dioxide emissions. Corn ethanol, for example, can reduce GHG emissions by 52% compared to petroleum-based fuels. When harvesting crops to produce bio-fuel and energy, the mass can absorb carbon dioxide as they are being produced. Biomass matter as stated before, is biodegradable; capable of breaking down by natural biological activity in the environment into harmless 'environmentally friendly' compounds. This function allows reduction in groundwater as it bio-degrades in soil and water without leaving behind harmful pollutants and compounds. Recycling biomass wastes reduces the need to create and expand landfills contamination.

Biomass Categories and Subtitles

Biomass is biological material derived from living, or recently living organisms. Biomass can equally apply to both animal and plant derived material. Using biomass offers environmental and social benefits.

Biomass Categories:

Waste and Residues: compounds cultivated from some other process, industry, or operation where biomass forms as a byproduct, residue, or wastes.

Food Wastes: wastes resulting from production, handling, processing, and distributions for consumption. Food wastes are divided into two categories; Dry wastes (solid) and Wet Wastes (liquid). These categories rely on the measurement of moisture content. The processing stage of foods produce food wastes by discarding inedible or unneeded food materials. Other areas of biomass food wastes and residues can result from excess preparation, health and safety concerns, unused ingredients, manufacturing practices, and food scraps.

Benefits: With appropriate techniques, recycling and reusing food wastes will divert wastes from landfills, decrease water run-off pollution, and decrease trash disposal and collection.

Recycling Methods: anaerobic digestion, fermentation, hydrothermal, composting, re-feeding, incineration.

Fiber Wastes: paper or fiber based products rendering from industrial production, manufacturing, handling, processing, distributions, or not otherwise recycled. Many fiber wastes have useful energy components that can be effectively utilized for energy conservation. Examples of fiber wastes include, but are not limited too: paper products, packaging, newspapers, and cardboard.

Benefits: With appropriate techniques, recycling and reducing fiber wastes greatly impacts emissions by reduction, energy conservation, and landfill usage.

Recycling Methods: reuse products/waste reduction methods, anaerobic digestion, thermal recycling (pyrolysis and gasification), and composting.

Agricultural Wastes: wastes produced from the agricultural sector of food, meat, and other animal products, and crops (industrial or energy). Agricultural wastes can be divided into two categories; crop plants or animal products.

Crop Plants: uneaten crop plants or residues from crop products

Animal Products: farm animal wastes that includes manure, slurries, bedding, soil, other liquids, hair, and feathers.

Benefits: With appropriate techniques, recycling agricultural wastes offers a partial solution to our energy and pollution crisis. Recycled agricultural wastes produces valuable sources of energy and acts as a natural fertilizer for crops. Agricultural wastes increase soil aggregation, and therefore increase soil nutrients, water movement, plant rooting, and soil productivity.

Recycling Methods: anaerobic, digestion, re-feeding, land application, composting, and incineration.

Problems

With an ever growing population, not only in the United States but worldwide, we are facing many problems: space availability, energy deficiency, increased pollution, a higher unemployment rate and an increased occurrence of illnesses caused by pollution. The demand for the production of green energy is higher than ever. Many people are finally recognizing the potential of wind, sun, and waste. Some schools / universities compost their food scraps and yard waste, few actually make use of methane emissions. One wonders where food residue from supermarkets and restaurants go. It is probably more convenient to throw all waste in one trashcan than separating it properly for recycling purposes. The same can be said for residents who should also become more active in waste recycling. The conceitedness that one individual cannot change the world is the first blocking stone that needs to be removed in order to accomplish a better and more enjoyable life for all individuals on this planet. For this reason we propose to develop a web site which features biomass availability information for sites that want to utilize bio-waste for the production of green energy.

The Service Project: Proposal

Mission and Goal

Our proposal focuses on Biomass Research and Development with the mission to create a website that will function as a biomass “trading” domain to ensure the proper reuse of biomass from various sites within the northeastern region of the USA. We are proposing this website with the goal to reduce the amount of biomass disposed into landfills by promoting to reuse waste to generate “green” energy. We believe that the numerous benefits of the implementation of such a featured website will convey people to make use of the beneficial properties of bio-waste.

Justification

Biomass is a renewable energy source which naturally replenishes. Thus, no extra costs are associated with its production since it is biodegradable waste derived from plant residues, animal waste (manure), and food scraps. We believe that many people are unaware of the fact that organic waste can be used to generate “green” energy. A large portion of waste entering landfills daily consist of food scraps. Most of the counties do not feature a community composting thus the potential of biomass is neglected. Food scraps tossed into landfills do not decompose and therefore generate methane gas which is emitted into the atmosphere where it greatly contributes to global warming. The number of natural disasters has been increasing and more devastating over the past years. This cascade effect needs to be interrupted to stop the devastating effects of global warming. Another critical factor of landfills is that the increasing population thus decreasing space availability forces states such as New Jersey to dispose their municipal solid waste (MSW) out of state. NJ already features many legal and illegal landfills of which the public to some extent is unaware. Pollution is a serious issue not only in the US but worldwide. However, the USA in proportion to other countries in the world produces a majority of waste. The USA generates about thirty percent total MSW worldwide, 236 million ton yearly. Almost 27million ton of the total consist of food scraps which most likely enter landfills. New Jersey, one of the northeastern regional states with the highest population, generated almost twenty million ton of MSW in 2003 with an average of 6.4 lb waste a person per day. These numbers are demonstrated to underline the necessity of the implementation of our proposal.

This website will work as collaboration between two parties, producer of biomass and the prospective customer who wishes to buy and recycle/reuse the biomass. Therefore, we would develop the domain to indicate specific information including location, amount, and type of biomass available. Methane is a major constituent of natural gas and the decomposition of bio-waste yields bio-methane which can be derived and collected from all organic and agricultural waste from i.e. restaurants, supermarkets, schools/universities, farms, food processing companies, catering services, slaughterhouse, and water treatment plants. Producers and recipients/buyers are required to register with our website so that we can maintain their information.

At this time there is no reference available that allows for the “trading” of waste. Knowing that biomass has the great potential to be used for the generation of bio-energy it is a necessity to make availability information accessible to sites that are willing to pick up biomass to recycle/reuse it properly. Thus, reducing our dependence on foreign oil, decreasing the amount of waste disposed into landfills which will ultimately reduce greenhouse gas emission, and greatly lowering the risk of ground and surface water contamination. Another important benefit is that the government grants incentives for those who are generating “green” energy. Therefore, it should be very appealing to companies to adjust and become more environmental friendly. Also, biomass producers are going to reduce their waste disposal cost when using our approach and may actually get paid by the companies that would like to use their waste for energy production.

Plan of Action

To ensure expansion of our project, several courses of action will be implemented before and during our project developments and uploading. First, our team would actively engage in the website design and continue to actively provide upgrades. Other plans would be to vigorously communicate to the public, specifically, to the market of interest and concern (as stated above), and provide education on the numerous benefits. Attempts to uphold scheduled meetings within the Northeastern region will be executed to gather large and small corporations, along with, biomass producers.

In the United States, nearly 62% of households have Internet access at home (Census Bureau, 2007). For people, of the age of 25 or older and have a bachelor’s degree, 87% reported that they had used Internet services in many locations. Also, about half of people interviewed with only a high school diploma reported that they had used the Internet. Thus, most people in the United States have Internet access today; it is not just for highly educated people, but also for the average American. Internet becomes a part of our daily lives; and it works as the best, easiest, most cost effective, and fastest tool to spread information. Therefore, we choose the Internet to spread our information and allocate the biomass sources through a website.

Generally, the website that we will establish will have all the information about biomass, but in order to do this we would need some basic Internet technical supports and advices. Website hosting, security, storage, maintenance, and some other basic website functions, are necessary for establishing a website. Because, all three of us have no experience on Internet service or website design, we would therefore need to hire resources and/or services specifically skilled in website and Internet design. After we establish our internet design goals, we would then need to gather some general information about biomass; including particular information of the benefits of

using the website; how the website works; its functions; and directions for the proper usage. Other information on organic waste regulations will also be researched to improve our efficiency.

So how exactly will our website operate? First, the producers will be required to create an account in order to post their items in the proper categories. The specific categories would separate different types of bio-waste for better and easier traceability. Establishing an account on our website would be free of charge, however the producers would have to provide us with their contact information and follow some basic guidelines. Each account would also have a message box, enabling them to receive inquiries from the other parties. Next, the bio-waste recycle organizations would use the search function to retrieve the item that they are interested in. However, unlike the producers, an account would not be necessary from inquiring parties. The search function would be a very important tool of allocating bio-mass sources. Not only would buyers be able to pick different locations within the northeastern region of the US and different types of biomass, but they would also be allowed to type in specific needs to match the specific items that they would want. If the questioning user wishes to make contact with the biomass producer, they can only do this by sending them a message through the website. Not only will these allow an open communication path, but it would also protect the account user's personal information. However, the account user has the option of providing their contact information with the other party. It would be up to the communicative parties to establish a transporting method, or terms of possible payment methods.

An increase in demand of accounts would lead to more detailed information provided from our project team, and information provided by the users. Including successful stories, provided from users, would set a positive example on a how simple action of collaboration has the ability to change our world. As more users login to the website, we hypothesize that more organizational approaches will be needed on the website, in order to search for available bio-waste that they desire for reuse and energy conservation. The bio-waste producer can easily get rid of unwanted waste without any or low cost. As the popular slogan goes, "one man's trash, is another's treasure". The prospective customer of the biomass is able to pick it their biomass source, with only its transportation cost, or a small fee depending on the producers' requirement. Obtained biomass would provide a form of supply of "green" energy to run parts of their business more environmentally friendly thus benefiting the whole environment.

Timetable:

2010 first half

- Engage with NRBP committee and state agencies and local interested parties to identify key participants and approaches.
- Prepare initial website
- Invite researchers, agencies and public institutions within northeast metropolitan area for informal conference discussion regarding purposes of the project.

2010 second half

- Update website design, sources and networks.
- Establish core project team and partnerships to facilitate interaction and collaboration of key project areas.
- Marketing and promotion to expansion project.
- Follow up meetings with project committee and partners

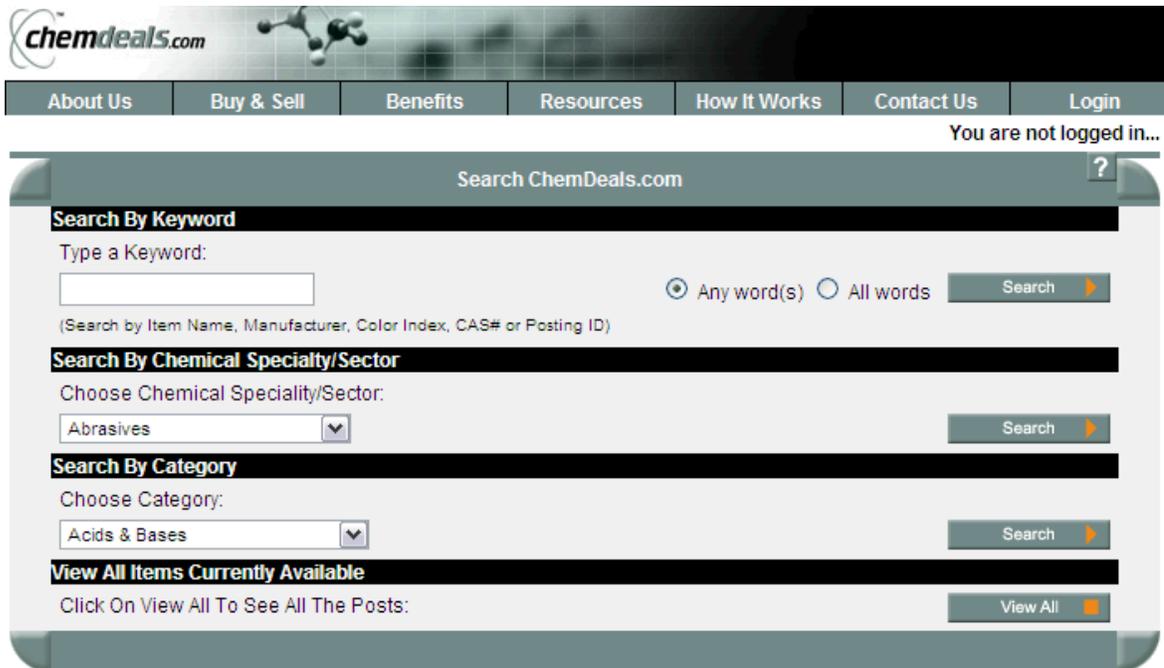
Example of website set up

About Us	Buy & Sell/Free	Benefits	Resources	How it Works	Contact Us
Home	Post Items	Benefits for Environment	Biomass	Frequently Asked Questions	Email Phone#
Corporate Profile	Search Items for Sale	Seller Benefits	Waste Report	User Guidelines	
Services	View All items for Sale	Buyer Benefits	Useful Tools	How it Works	
Site Map	View Wanted Items		Business Services		

The screenshot shows the chemdeals.com website. At the top is a navigation bar with links: About Us, Buy & Sell (highlighted), Benefits, Resources, How It Works, Contact Us, and Login. A dropdown menu is open under 'Buy & Sell', listing: Post Items (Sell), Search Items for Sale, View All Items for Sale, and New! - View Wanted Items. Below the navigation, there are several text blocks: a paragraph about ChemDeals.com as a full-service marketplace, a section for 'ChemDeals Account Managers', and a 'Get Started Today...' section with a 'Register Now!' link. On the right side, there are several call-to-action links: 'Login To My Account', 'Sell Your Surplus', 'Search for Chemicals to Buy', and 'Click Here to View All Postings!'. At the bottom, there is a contact number 'Call Us Today! - 888-310-4416' and a copyright notice: 'Copyright© 1999-2009 ChemDeals, Inc. All Rights Reserved. [Legal Info | Privacy]'.

This is our example of website setup. The idea of this website (chemdeals.com) is very similar to ours. Basically, this website provides services for chemical surplus, so any companies with chemical that they don't want it or they have too much of it, can post their unwanted chemical for very low prices. As you know, chemical is considered as hazardous material, so companies cannot get away of it easily like the regular trash, and most of the time they need to pay to disposed. Therefore, this website provides networks for companies, so they can trade their stuffs and also save the environment by recycle the chemical for better used. Our idea is using biomass instead of chemical waste, and the website structure could be very similar to this website. On the

top of the table is the possible menus in our website, and the other pictures shows that the structure of the website that will be on our website.



The first picture is the search function that will be similar to ours, and we will replace the chemical specialty into our biomass specialty or categories, and we will also have the search by

keywords function. The next two pictures show how the list will look like, and after you click the specific one item, and the whole descriptions of the item will appear.

Budget

To start our project, we calculated a minimum requirement of \$1500. These are subdivided into marketing costs (public meetings and refreshments), phone and internet service including online security and hosting costs (\$190 per month), one time website design (minimum \$699 not including any features). Therefore we estimated annual cost for the first year to be about \$4739.24. The grant would be spend mainly for keeping in touch with the public and for website maintenance.

Basic website design.....	\$700.00
Additional features.....	\$100.00
Customer/client profile functionality.....	\$200.00
Message board integration.....	\$100.00
Internet and phone service.....	\$1200.00
Travel expenses (for ten participants).....	\$5200.00
Catering/meeting expenses.....	\$2500.00
<hr/>	
Total annual budget.....	\$10,000.00

Possible solution for our community project:

Our goal is allocate the resource of organic biomass by establish a website so that biomass can be easily located for other interested parties that want to turn the biomass into energy or other goods. The “producers” of organic biomass have to log into the website in order to post their biomass items which has to include what type and amount of biomass, as well as their location. The other side of this party would be potential “buyers” of the requested biomass. Any waste disposal expenses for the “producers” using this type of waste trading would be minimal since they will be the once profiting by properly “getting rid” of their biomass without any costs associated. The “buyers” may have to pay for the biomass since they greatly profit from its reuse. They are the once that take the materials to their specific processing sites to generate “green” energy from organic waste. Thus reducing our dependence on foreign oil, decreasing the amount of waste going to landfills that would ultimately reduce greenhouse gas emission that otherwise would go into the atmosphere as well as reducing the risk of groundwater.

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Editorial

11-04-09

Submit to environmental-expert.com

Feiin Lou

From the USDA's most recent estimate on the cost of waste were \$96 billion and the average four people household wastes about \$600 of food each year. However, when we look at the obesity rate in American, and the number of hungry people in the world, this number is ridiculous. How can we waste so much food?

In this food abundance century, the traditional ethic "clean your plate" has already being forgotten, and it has evolved to "eat what you like". People buy more foods, serve more foods and certainly eat more foods than they actually need it. Therefore, people are getting extra calories and extra body weight. However, this extra body weight can lead us to some serious health condition, such as diabetes, hypertension, and health diseases. Not only considering the effect of our health condition but just the wasting practice, it is actually very common to us. When we look at our kitchen trash, and check what is in there? Lots of eatable food item that we had forget to cook and passed the expiration data, and other excess cooked item that we cannot finish it. A brown color beef that is supposed to be a steak last few days, and a bowl of salad that should be finished today. Every day in grocery stores, I see lots of people with cart full of foods and items in the cashier's line and spend over hundred dollars with their foods. How many items in that cart are actually going into our trash can? It is about 600 dollar each year. We should definitely think about it and do something about it.

Actually there are many ways to recycle our food waste. The simplest way is to reduce our leftover food. Checked our refrigerator before going for the grocery shopping, and also checked the recipe for portion sizes, therefore we can avoid buying extra unwanted food items, or excess amount of foods and this can also save our money. To portion size in mind can prevent consuming extra calories, so we can keep us fit and healthy. When we eat in the restaurant, consider taking the leftover food or ask for the portion size before ordering. The simple idea is to keep in mind that "if we do not eat the food, then it is going to landfills."

Maria Elfar

Editorial

submitted to Rutgers Daily Targum

Waste to Treasure

Does anyone ever wonder what really happens to their dinner leftover once you throw it in the trashcan? Sure, we are all able to connect the dots - once in a trash bag it goes into a landfill. But wait, do you think about the unintended consequences that are associated with its disposal in such ways? Food scraps are considered organic waste which is just one part of MSW (Municipal Solid Waste) that enters landfills daily. However, organic waste does not decompose in landfills and instead contributes greatly to global warming by the emission of methane gas,

and pollutes ground and surface water. Methane gas is considered a more effective greenhouse gas compared to carbon dioxide in terms of its ability to trap heat.

I am about to shine some light on our waste issue with the intent to open the eyes of some of you. Being of German origin I have been quite disappointed in the way many Americans separate their household garbage. I came to America a few years ago to live with an American family to take care of their children and enjoy the typical American life. It was a wonderful journey, but unfortunately confirmed some preconceptions of the American lavish lifestyle that I picked up during my adolescence in Germany. Ever since I was helping my mom in the kitchen we had separate trash bins for all sorts of garbage. There was one for glass which had to be sorted by color also, paper/cardboard, plastics including milk and juice cartons (pretty much everything that had the so called “green dot”), food scraps excluding bones and meat/fish, and last but not least one tiny trash bin for whatever was not considered recyclable. Sounds like a lot of work, but in reality it is not. Now I live here, in New Jersey one of the most populated states of the US and I only own one trashcan for everything excluding cans, plastic bottles and paper/cardboard. All of your food scraps end up in landfills unless your town features a community composting site or you own your own composter. I find it bizarre that according to News Twelve New Jersey, NJ only recycles plastic packaging that feature the small triangles marked with either a number one or two. Why is it that Germany recycles all sorts of plastic including plastically lined packaging? Also, food scraps in Germany are either composted to produce soil for landscaping, or used for the production of food pellets for agricultural animals and pets.

According to [PlanetThoughts](#) 30 percent of the worlds waste are produced in the USA alone with a total of 236 million ton every year. The Environmental Protection Agency (EPA) states that 30 percent of the total is either recycled or composted. The remaining 168 million tons MSW which are tossed consist of almost 27 million tons of food scraps alone. Now I am wondering how it is possible that there are starving children in the US with all this food going to waste. According to the New Jersey Department of Environmental Protection (NJDEP), NJ features 578 landfills with twelve still in operation. NJ’s growing population thus decreasing space availability forces the state to dispose waste out-of-state. In 2003 New Jersey citizens generated 19.9 million tons of solid waste with an average of 6.4 lb waste a person per day. German citizens produce one third of this that.

I would like to ad a rather unusual example of a third world country that used to recycle 80 percent of all MSW produced by Cairo’s citizens. The movie ‘Garbage Dreams’ by May Iskander (<http://www.garbage dreams.com/>) describes the World’s largest garbage village on the outskirts of Cairo (Egypt). It is the home to 60,000 Zaballeen, Arabic for “garbage people”. They collect garbage and recycle it by hand. These very poor people use only few machines to shred plastic and then sell the raw materials to countries in Europe to make a living. Cairo’s residents do not separate any garbage, so the “garbage people” need to sort it. Food scraps were fed to pigs that they own and the manure was used as soil. Sadly they are not supported by their Egyptian Government. Instead a few years ago the government decided to employ foreign garbage collection and disposal companies. This decision is not only devastating to our environment but also to the Zaballeen who now have no work at all. All sorts of trash enter landfills now and its maintenance is expensive.

With an ever growing population, not only in the United States but worldwide, we are facing many problems: space availability, energy deficiency, increased pollution, a higher unemployment rate and an increased occurrence of illnesses caused by pollution. The demand for

the production of green energy is higher than ever. The US Government is now more than ever recognizing the potential of wind, sun, and waste. Some schools / universities i.e. Harvard University, Penn State University and Michigan State University, compost their food scraps and yard waste. But where do food residues from supermarkets and restaurants go? I can hardly imagine that many donate their leftover foods to shelters or to sites that reuse the biomass for green energy production or composting for the generation of soil. Not only is it probably more convenient to throw all waste in one trashcan than separating it properly for recycling purposes, but also there are many liability issues when donating food that are easily avoided by tossing it out. The same can be said for residents who should also become more active in waste recycling and composting.

Biomass is any waste that can be biologically degraded an-aerobically or aerobically to produce “bioenergy” or “green energy”. Sadly as stated many times its great potential are not used efficiently and all kinds of wastes end up in landfills where it is rather harmful in many ways mentioned above. The idea to use biomass to generate "green energy" would reduce our dependence on foreign oil, decrease the amount of waste going to landfills that would ultimately reduce greenhouse gas emission, as well as reducing the risk of groundwater contamination. The conceitedness that one individual cannot change the world is the first blocking stone that needs to be removed in order to accomplish a better and more enjoyable life for all individuals on this planet for many more generations.

November 4, 2009

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Editorial: Proposal of Biomass Website of classified ads, notices and information for Northeast Region

If you are individual ‘going green’ and looking for biomass wastes, products, and/or produce biomass – here is your chance to the information you need! With the environment’s quality deteriorating, landfill sites filling up, and energy use a problem – why aren’t we all jumping on the biomass wagon to help solve these issues? As I’m sure you know, biomass can either be plant, animal, agricultural, and/or municipal wastes that can be recycled and used for different fuel and energy purposes. The United States is the leader in CO₂ emissions with 5,762,050 metric tons (nationmaster.com), and is also a leading producer of water pollution, and wastes produced per capita. With a view to help eliminate greenhouse gases, foreign oil dependency, landfill use, water pollution, and energy conservation; a new technique to improve biomass availability and conversion methods is necessary.

Whether it’d be from buying or selling, promoting an event, cause, and innovation, or simply to branch out and communicate with others about a central topic, people are depending on the Internet to accomplish these things. Rtoonline.com states that in 30 days, 71% of US citizens used global Internet services (2005), and in 2005 the US leads the world in wireless Internet

access through PC and wifi awareness. Craigslist, Facebook, Ebay.com, and Monster.com are just a few popular sources that individuals use to connect to others worldwide. For example, Craigslist offers people a site to gain information about a particular topic and enables them to buy/sell services or products. Websites and the power they hold are right at our fingertips. Why not use America's dependency on the Internet, and sites like the ones stated above, to help us decrease our economic and environmental problems?

With that question arises a proposal of a biomass website that will use techniques similar to Craigslist and Facebook that will focus primarily on biomass and biomethane products, sources, and services. The object of the website is to increase the potential use of biomass and methane to thus, help reduce our environmental dilapidation. The website would be a 'log-on' style, free for users, and would offer users to identify sites of biomass production and inquiries. Producers of biomass could have the option to sell (for a low cost) or give away their wastes for others to process these materials for energy conversion and conservation. Biomass will be sorted by type – offering users an easy, precise searching tool. There, the specific types can be broken down by amount, location, and possible costs. Tentatively, the focus area of this site would be the Northeast Region of the United States, including all 11 states.

With this website, our goal is to design an organized database where the focus is increase biomass and methane uses and availability to ultimately help our environment and economy.

With the popularity of websites and Internet communication on the rise, we aim to connect eco-friendly supporters, as well as to also provide a site where others can gain perspective about the benefits of biomass. Help us branch out our proposal in hopes to help our main environmental deficiencies and to spread the move of 'going green'.

Feel free to contact me at anytime for additional information or questions. Thank you for your time and hope to hear from you soon.

Sincerely,

Lindsay Childs

Co-Founder Valuable Wastes