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An Untapped Resource: Food "Waste"

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Every year, thousands of tons of food enter the waste stream and must be shipped out of Humboldt County — instead of being used towards its intended function (to feed people), as evidenced by food insecure families in the area. There are environmental impacts as well. Producing food consumes water, another vital resource, and estimates show that more than one-quarter of water use is allocated towards food that is ultimately wasted.[1] Aside from water, wasted food accounts for 300 million barrels of oil per year, or approximately 4% of U.S. consumption.[1] In addition, food waste produces methane, a greenhouse gas 25 times more potent than carbon dioxide, as it decomposes in landfills.

In an effort to develop a food waste diversion program to serve Humboldt County, the Humboldt Waste Management Authority (HWMA) is conducting a new local waste characterization study to update the old estimates of food waste from the 1990 study.[2] At that time, local estimates showed that food waste was 18.8% of the waste stream.[2]

Food can be diverted from the waste stream at several levels. Food that is still fit for human consumption may be gleaned by food pantries and kitchens, while scraps that are inappropriate for consumption can be diverted as animal feed or compost.[3] Current food waste diversion in Humboldt County is accomplished through food banks, pig farms, and small-scale composting at homes or in restaurants.[2] None of these diversion options currently have sufficient capacity to handle all of the County's food waste.

This conversation will focus on a new diversion option for the county, a food waste digester, which is gaining traction in California and which the EPA recognizes as a valid industrial use.[3] Waste digestion has also been identified by the Air Resources Board as a "sector control measure" of AB 32, the Global Warming Solutions Act, which mandates that California reduce greenhouse gas emissions by 2020.[4] HWMA is currently undergoing a rigorous process to develop a food waste digester to handle the county's food waste problem.

Anaerobic digesters are used in the U.S. for wastewater and animal waste treatment, although they can be used for food waste as well. Most food waste digesters exist in Europe, although there is one in Canada and two demonstration scale digester systems in California. The process of anaerobic digestion is described fully in HWMA's feasibility study which can be found at www.hwma.net. Digesters are air-tight containers that utilize micro-organisms to

convert organic waste into biogas and soil amendments. The biogas, which is comprised of approximately 60% methane and 40% carbon dioxide, can be used for "direct heating, generating electricity or vehicle fuel."[2] The liquid remaining in the digester can be used as fertilizer and a residual solids can be co-composted with the county's green waste to create a soil amendment.[2]

A food waste digester may be a good option for Humboldt County. HWMA is currently pursuing the permitting for the food waste digester facility. HWMA, along with PlanWest Partners and Ourevolution Engineers, have prepared a California Environmental Quality Act Initial Study / Mitigated Negative Declaration of Impact. This document was released to the state and local responsible agencies for 30 day review ending on February 23rd. Once the review period closes, HWMA will address all concerns put forth, and provided there are no major regulatory or public objections, adopt the Mitigated Negative Declaration of Impact.

Although generally more expensive to construct, digester plants require less space than composting facilities, emit fewer emissions to the atmosphere, and have the advantage of producing renewable energy which can be used to generate revenues to help offset operating costs.[5] Additionally, Humboldt County's yard waste composting facility is not permitted to accept food waste. Siting a new composting facility that could accept food waste is extremely difficult because of neighborhood concerns over foul odors and pests. For these reasons, food waste composting facilities are generally located far from population centers where the waste is generated.

Significant savings can be gained by dealing with food waste within the county. Estimates from HWMA indicate an overall waste disposal cost savings of $12 to $16 million over 20 years if a digester facility can be established.[2]

Currently, all solid waste is hauled to White City, Oregon, or Anderson, California — about average 187 miles each way. The frequency of these trips could be reduced by diverting food waste to a local facility. The HWMA feasibility study calculated annual savings, depending on how many tons of food waste is diverted, as $62,000/year on the low end and $260,000/year on the high end.[2] Fats, oils and greases are not considered food waste, but they are a part of our commercial food preparation system. These wastes are also currently hauled out of county, to Oakland or Chico — a 500 mile round trip, for disposal. These trips could be eliminated if waste oil is added to the digester's feedstock.

Not only will this project reduce long term waste management costs, but the county would also be making efforts towards compliance with two legal mandates:

Humboldt will be decreasing its ecological footprint by reducing greenhouse gas emissions emitted at the landfills and by burning less fossil fuel due to a reduction in long distance hauling. This would further the efforts required by AB 32.[6] Humboldt will also be increasing its waste diversion efforts, which will help local jurisdictions reach or maintain compliance with California's AB 939 mandate of 50% diversion of waste away from landfills.[7] In the 2010 legislative session, AB 737 (Chesbro) would have further increased the diversion goal to 75% by 2020, but this bill was vetoed by Governor Schwarzenegger.[8] No doubt, more bills will be introduced to help California work towards achieving zero waste. With the development of a food waste digester, Humboldt County would greatly further its diversion rate.

In addition, the digester will produce two valuable resources: energy, in the form of electricity, and compost.[2] The electricity will be used to operate the digester system and the excess electricity can be sold back to the utility grid.[2] The compost is a nutrient rich soil amendment that can be used for landscaping, parks, and erosion control.[9]

Policy is Needed to Support a Digester

A stand-alone food waste digester is a relatively new concept for the United States. Few examples exist in urban areas, and none in rural locales. Although a digester will be effective for reducing waste and harmful greenhouse gases, the county must be adequately prepared to support such an undertaking. For one thing, it will be important that the digester have access to enough food waste to be productive, and so county-wide participation is essential.

Since a large amount of food waste is from business, collection from the commercial sector should be the first phase of the digester collection strategy. By

doing so, the waste going to the digester will likely have less contamination because commercial waste such as farmers markets, food processing plants, large restaurants and grocery stores can often assure a more pure feedstock.[9] The residential sector will eventually be included in food-waste collection. This is the strategy that HWMA is planning on implementing should the digester come to fruition.[2]

Some larger cities, such as San Francisco, found that their voluntary organics program participation rates were low and eventually adopted policies that made composting mandatory. This ensured survival of the program. Other urban municipalities, particularly those that have been using digesters, have adopted mandatory waste separation policies.[10] Nantucket, Massachusetts, mandates composting, as does Seattle, Washington. Similar policies may need to be enacted in Humboldt County as the digester is set up.

Effective food waste diversion policies will require continuous outreach and education in addition to enforcement. For example, some municipalities that require separate food waste collection have added a surcharge onto those customers that deliver contaminated loads, then used direct follow-up with people as an opportunity to educate about proper separation.[11] In commercial collection, one community uses color-coded carts depending on where they are located in the food service chain so that contamination point can be quickly identified and addressed.[11]

Some states, though not California, have banned yard trimmings from the landfills to help reach waste-diversion goals. No states have banned food from landfills, however, in some Canadian provinces, where food waste diversion is more established, food waste is banned from landfills.[9] This puts the onus on the food hauler or the food waste generator to maintain uncontaminated food loads for the digester.

Flow-control ordinances have been enacted in some communities to control the destination of solid waste. If needed, ordinances could be established to direct additional feedstock, such as fats, oils, and greases to the digester, but only if certain requirements are met. Recently, a U.S. Supreme Court decision created a new test for the validity of flow-control ordinances where those that direct waste delivery to publically owned and operated facilities and do not discriminate among haulers are likely permitted.[12]

Typically, weekly trash collection is required as a public health and safety issue. Often when municipalities offer food-waste collection, they do so in conjunction with the incentive of bi-weekly trash collection at a reduced rate.[13] Alternatively, weekly garbage services may be offered, but will require an extra fee.[13] However, if food waste is collected weekly, it is less likely that trash will pose the same health risks. Currently, Humboldt County ordinances require that putrescible waste is collected either twice or once per week depending on the location.[14] Each city in the county has a slightly different ordinance for solid waste collection, but most require pick up at least once a week — although some cities allow for exemptions if the citizen composts.[15,16] A similar county-wide exception should be in place to promote diversion of food waste to the digester.

When food waste collection is extended to residential areas, a large amount of outreach and education must be planned as well since residents must be aware of the reasons behind the strategy and proper sorting techniques. Many cities that have collected food waste can provide examples of effective education and marketing.

Some cities, counties and states have adopted "zero waste" policies or strategic plans to help promote waste reduction and diversion efforts of all types. Locally, Arcata has a goal of zero waste.[17] Del Norte has also adopted a zero waste plan that Humboldt could use as a local rural example.

Conclusion

Food waste is a huge national problem, and also one that is felt close to home. By diverting food waste to a locally established digester, there will be fewer trips to distant landfills and less reliance on fossil fuels. The Redwood Coast would be a pioneer if such a project is implemented.

An untapped resource, food waste creates biogases that can be harvested in weeks and used within the county. The initial capital cost of the digester is greater than alternatives such as composting, but more feasible and cost-effective over time. With nearly 18,000 tons of food waste currently hauled out of county, it will be vital that policies support projects like a food waste digester.

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Endnotes

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