Small scale and quick pulse

Middle scale and slow pulse

Large scale and disastrous pulse

A Prosperous Way Down | Odum & Odum | 2001
Alternate Futures

Assets and Information

Present Time

Time
Seminar: Modeling For All Scales

Studio: Analysis | Synthesis

Studio: Development
S.E.A.R.C.H.
SUSTAINABLE ENERGY & AGRICULTURE RE[SEARCH] HUB

JULIA MAY - TAYLOR STEVENS

With 32,000 dairy cattle, a limited municipal solid waste (MSW) program, and a distant, often disrupted energy source, Tillamook has the opportunity to convert its varied waste streams into energy, increasing its independence and facilitating the transition from fossil fuels.

The Port has a richly layered history of agriculture, manufacturing, tourism, and aviation. After studying the infrastructure, demographics, ecology, and Future Land Use Plan (FLUP), we have identified that a waste to energy facility can help to alleviate many of the issues created by unsustainable waste management practices.

Tillamook People’s Utility District (PUD) is a customer-owned utility providing electric service in Tillamook and neighboring counties. The PUD purchases power from the Bonneville Power Administration (BPA), approximately 122 miles from the Port. Since Tillamook is prone to severe flooding and relies on a distant energy source, power outages in the area are a common issue impacting the lives of its community members.

Our design intervention for the POTB is a waste management facility located on the site of Hangar A. This scheme expands on the existing anaerobic digester, increasing capacity to 9,000 cattle while creating a Waste to Energy facility that processes municipal solid waste to generate electricity for the region. An efficient and productive waste management system is vital to the longevity of our natural ecosystems and a necessary step to a more sustainable future (in Tillamook).
The Port has a richly layered history of agriculture, manufacturing, tourism, and aviation. After studying the feasibility of its community members, outages in the area are a common issue impacting the lives of its community members. The PUD purchases power from the Bonneville Power Administration (BPA), approximately 122 miles from the Port. Since Tillamook is prone to severe flooding and relies on a distant energy source, power outages in the area are a common issue impacting the lives of its community members.

The Tillamook People's Utility District (PUD) is a customer-owned utility providing electric service in Tillamook and neighboring counties. The PUD purchases power from a jointly owned utility providing electric service in Tillamook and the neighboring counties.

In 2010, the PUD began to examine alternative energy options. As a result of this effort, the PUD identified that a waste to energy facility can help to alleviate many of the issues created by unsustainable waste management practices. Using the Future Land Use Plan (FLUP), we have identified that a waste to energy facility that processes municipal solid waste to energy can generate enough electricity for the region. An efficient and productive waste to energy facility that processes municipal solid waste to energy will produce an average 10 carcasses and 200,000 gallons of manure per year. The manure and carcasses break down in anaerobic digesters and generate 715,000 gallons of diesel fuel equivalent per year.

The POTB have over 7,000 cattle and produce on average 50 carcasses and 25,000 gallons of manure per day. The POTB have a fleet of 30 refuse trucks that collect municipal solid waste from 149,241 tons of municipal trash per year, sorted and hauled to generate enough electricity for 7,000 homes.

Compressed natural gas from the digesters can fuel a fleet of 30 refuse trucks that collect municipal solid waste.

This scheme expands on the existing anaerobic digester, management facility located on the site of Hangar A. The POTB have over 7,000 cattle and produce on average 50 carcasses and 200,000 gallons of manure per year. The manure and carcasses break down in anaerobic digesters and generate 715,000 gallons of diesel fuel equivalent per year.

Our design intervention for the POTB is a waste to energy facility that processes municipal solid waste to energy. An efficient and productive waste to energy facility that processes municipal solid waste to energy will produce an average 10 carcasses and 200,000 gallons of manure per year. The manure and carcasses break down in anaerobic digesters and generate 715,000 gallons of diesel fuel equivalent per year.

Each day the local dairy produces on average 70 carcasses and 200,000 gallons of manure.

### Population:
- Population: 27,349
- Homes: 19,000
- Cows: 33,000

### Oregon Waste Management Practices:
- Landfilling: 42% (including drop-off and curbside)
- Recycling: 25.8% (percentage of total MSW burned)
- Composting: 13% (percentage of total MSW burned)
- Incineration: 2% (percentage of total MSW burned)
- Bioenergy: 0%
- Other: 0%

### U.S. Waste Management Practices:
- Landfilling: 50%
- Recycling: 15%
- Composting: 13%
- Incineration: 13%
- Bioenergy: 0%
- Other: 0%

### Source:
- Tillamook has the opportunity to convert its varied infrastructure, demographics, ecology, and Future Land Use Plan (FLUP).
Methane capture from this waste from 9,000 cattle.

The new digester will have the capacity to process the digesters will be tested on various crops in order to maximize plant growth and the lab is a state of the art greenhouse. Manure from the local community.

Trucks will dump waste into the bunker storage zone. There are two gantry cranes that exist in this area, one mixes the sitting drops trash into the furnace/boiler gas fires.

Waste is unloaded on the tipping floor before entering the tipping hall. Waste is weighed and checked in. Trains and self haulers are accepted at the tipping hall. Waste is unloaded on the tipping floor before entering the tipping hall. Waste is weighed and checked in. Trucks and self-haulers are accepted at the tipping hall.

The tipping hall is where the waste is separated into its final treatment. The partially burnt waste will enter into a second furnace chamber for post-combustion and then sent through a boiler. The heat from the furnace is then sent through a boiler.

Water travels in a closed loop system after passing through the heat exchanger. The generated steam is sent through the turbines as steam and is allowed to condense and is sent through the heat exchanger. The generated steam is sent through the turbines as steam and is allowed to condense and is sent through the heat exchanger.

The steam drives the turbine to rotate at high speed kinetic energy into electricity. The steam powered turbine drives the kinetic energy into electricity. The steam powered turbine drives the kinetic energy into electricity. The steam generated turbine drives the kinetic energy into electricity. The steam generated turbine drives the kinetic energy into electricity.

After passing through the heat exchanger, the water is reduced by 90% leaving an inert ash and metals. The fly-ash is sold to market as a landfill daily cover, aggregate and cement blocks. Metals can be reused for new steel and aluminum production.

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