Trenton Renewables

Food Waste Recycling: ↓ Waste Management Costs ↑ Environmental Sustainability

Audience:
NJDEP

Presenter:
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Trenton Renewables

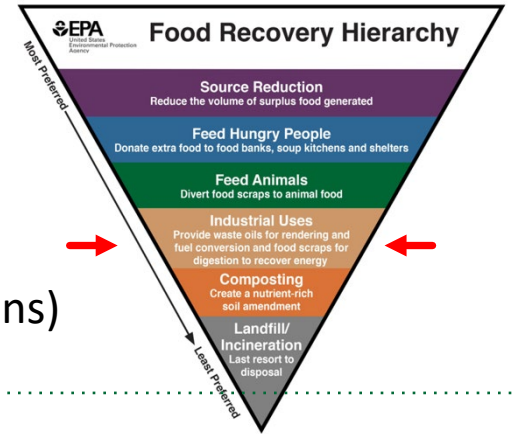
Who We Are	450 ton / day food waste recycling and Class I renewable energy facility located in Trenton, NJ
What We Do	Work to reduce organic waste disposal costs and improve environmental sustainability
How We Do It	By combining advanced material handling technologies with a biological process called anaerobic digestion to recycle food waste into renewable energy and soil nutrients

Trenton Renewables

Primary Focus

Food / organic waste that can't be donated
(e.g., safety, demand, economics, certified destruction required)

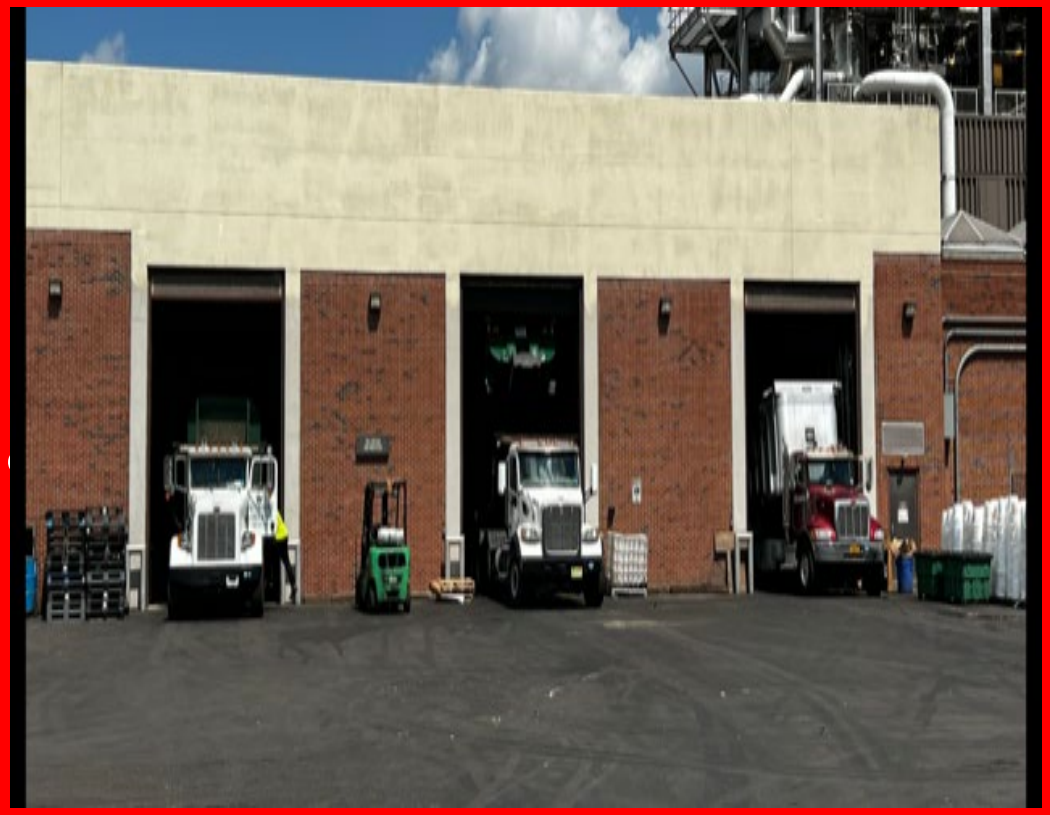
Packaged Food Waste
(e.g., sustainability, cost-savings, ease-of-use, integrated operations)



Primary Function

Separate complex packaging from Food Waste
Extract energy from the food
Replenish soil nutrients
Reduce carbon emissions / sequester green house gas

Trenton Renewables >> Receiving

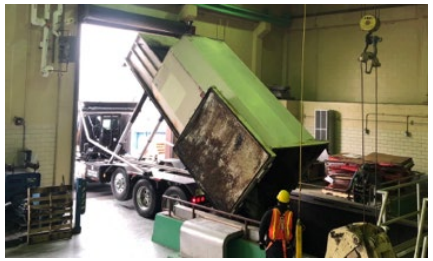


Trenton Renewables >> Nutrients / Compost

Trenton Renewables >> Energy

Trenton Renewables >> Overview

- Our potential environmental impact each year:
  - 110K tons of food waste diverted from landfills
  - 480K tons of CO_2 emissions eliminated from landfill
  - 29K MWh Class I renewable power generated
  - 23K tons of premium compost produced
  - Lifecycle Analysis = Net -200+k tons CO2e
- Addresses solid waste and environmental issues.
- This overview video goes into more detail about our facility and position in the market



1. Compactor Dumping Food Waste

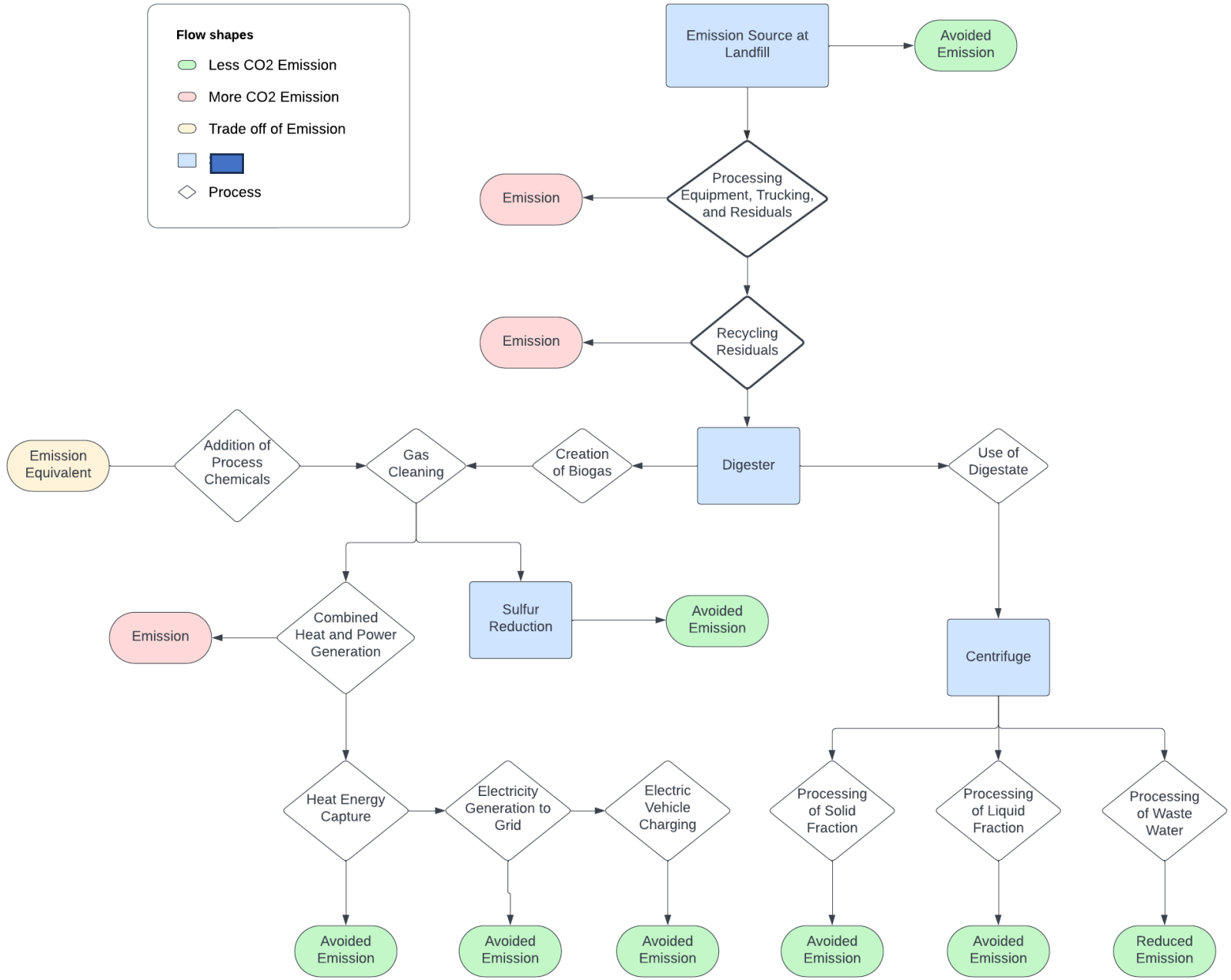
2. Walking Floor Dumping Material

3. Receiving Hopper Processing Cans

4. Scrap Plastic for Re/Upcycling

5. Three Biodigesters

6. Compost / Soil Amendment


Flow shapes
Less CO2 Emission
More CO2 Emission
Trade off of Emission
Process
Emission Source at Landfill
Avoided Emission
Processing Equipment, Trucking, and Residuals
Emission
Recycling Residuals
Emission
Digester
Creation of Biogas
Gas Cleaning
Addition of Process Chemicals
Emission Equivalent
Use of Digestate
Centrifuge
Sulfur Reduction
Avoided Emission
Combined Heat and Power Generation
Emission
Heat Energy Capture
Electricity Generation to Grid
Electric Vehicle Charging
Avoided Emission
Avoided Emission
Avoided Emission
Processing of Solid Fraction
Processing of Liquid Fraction
Processing of Waste Water
Avoided Emission
Avoided Emission
Reduced Emission

Anaerobic Digestion >> Energy and Environment

- **Recognition / Awareness / Necessity**

  - **GWRA NJDEP 80x50 Report – "**in order to combat the impact of climate change, a greenhouse gas emission reduction program is in the public interest to set a goal to reduce emissions of greenhouse gas by 80% below 2006 levels by the year 2050"

  - **Executive Order No. 89/ October 29, 2019 -** it is the policy of the State that Executive Branch departments and agencies take proactive and coordinated efforts, where appropriate, to protect public health and safety and to promote and protect the physical, economic, and social vitality and resilience of New Jersey's communities from the current and anticipated impacts of climate change

  - **NJ report on Climate Change-** Focused on the deleterious impact of climate change on many aspects of the quality of life in New Jersey and, more particularly, indicates that New Jersey emits approximately 97 million metric tons of CO2 equivalent (GHG) per year, of which 19% (18,430,000 tons) is from the energy sector and 5% (4,850,000 tons) is from the waste sector.

  - **SAB report -** "New Jersey must implement an economy-wide transformation that steadily phases out the use of fossil fuels and expedites the deployment of renewable energy resources and other measures." The report concluded that with current technologies, up to approximately **150 million m3 of biogas could be produced annually**. If cleaned up to acceptable standards and fed into the existing natural gas pipeline system and combusted in natural gas-burning power plants, this would allow for the generation of 0.7 TWh of yearly electrical production.

Anaerobic Digestion >> Energy and Environment

- **Realities**
  A - ***Technologies like this are critical to carbon reduction and environmental concerns but are not sustainable without recognition of the of energy produced.***

- **These technologies must receive full value for the carbon negative energy produced or they will disappear.**

- **1. In the years since the enactment of EDECA, the BPU has put in place financial incentives for several types of Class I renewable energy. The solar industry has enjoyed decades of financial incentives via grants, solar renewable energy certificates ("SRECs"), the "TREC" and "SuSi" REC initiatives, administrative programs under which the State's EDCs were required to purchase SRECs, and, more recently, the Board's community solar initiatives. Similarly, the Board has developed the Offshore Wind Renewable Energy Certificate ("OREC") program to provide financial incentives for developers of offshore wind projects.**

- **2. No similar programs exist for biomass facilities, even though they are the most carbon-negative of all the Class I renewable technologies recognized under New Jersey law.**

Anaerobic Digestion >> Energy and Environment

- **Realities**
  B- ***Food Waste Law needs modifications to be more effective***
- **It is possible to align the interests of landfill operations and incentives without creating a financial burden**
- **Increase the radius from 25 miles to 50 miles**
- **Increase the waiver requirements as it relates to region and cost**
- **Enforce N.J. S.A. 13:1E-99.123 Requirements for large food waste generator; violations, penalties.**
- **Require commercial haulers to present food waste recycling options to its customers**

Current bill in legislature requiring county districts to re-work solid waste management plans to reflect food waste. This should be accelerated but it will only work if there is a fair rate for carbon negative electricity that considers the Social Cost of Carbon

Trenton Renewables – Closing Comments

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