East Metro Food Waste Digestion Project

Creating the model to stop wasting food waste for the next generation

Project Summary

Applicant: Ramsey County

Project partners: Ramsey/Washington Recycling & Energy, Washington County, Dem-Con Companies, Hitachi Zosen Inova, Shakopee Mdewakanton Sioux Community

Project location: Shakopee, Scott County, MN

Total capital cost: $ 100,000,000

20-year operations costs: $ 155,300,000

Legislative grant request: $ 30,000,000

HF 3138 | SF3139

Request: $30,000,000
Total capital cost: $100,000,000

Project Scope

This project will process an estimated 30,000 tons of residential food waste and 20,000 tons of other organic-rich material per year from trash generated in Ramsey and Washington counties. In **public-private partnership** with Dem-Con Companies, Hitachi Zosen Inova and the Shakopee Mdewakanton Sioux Community (SMSC), this waste will be managed using anaerobic digestion.

Anaerobic digestion is a biological process that breaks down food waste with the help of microbes in a large, airtight tank or container. The primary end-product from digestion is clean, renewable energy known as r**enewable natural gas**, which can be used as vehicle fuel or for utilities.

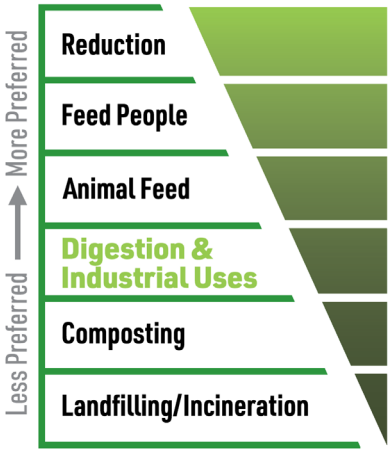
This project also uses pyrolysis technology, a heat treatment process to turn the solid byproduct of digestion into marketable biochar. **Biochar** is used as a soil amendment and a way to sequester carbon. The use of pyrolysis also allows for a first-of-its-kind potential mitigation solution to PFAS in the waste stream.

Ramsey and Washington counties are requesting $30 million from the state for the design, construction and operation of this public-private partnership project. This investment will prevent food waste from going to landfills. This innovative project requires long-term financial commitment to bring next-generation technology to Minnesota.

Project Benefits

- This project aligns with the U.S. Environmental Protection Agency's food recovery hierarchy – reducing the need for landfilling and incineration.
- Ramsey and Washington counties' cutting-edge investment into co-collection system for food waste, coupled with digestion, serves as a commercial-scale **demonstration project for other municipalities** launching their own food scraps collection projects.
- Investment in food waste digestion will create **50,000 tons per year of new organics processing capacity in Minnesota.**
- Dem-Con will put renewable natural gas from digestion into a Minnesota utility pipeline. This means **carbon-negative fuel from food waste displacing fossil fuels in Minnesota's energy system.**
- Greenhouse gas emissions will be **reduced by over 20,000 $MTCO_2e$ annually** compared to if food waste went to a landfill.

US EPA Food Recovery Hierarchy



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Project Background

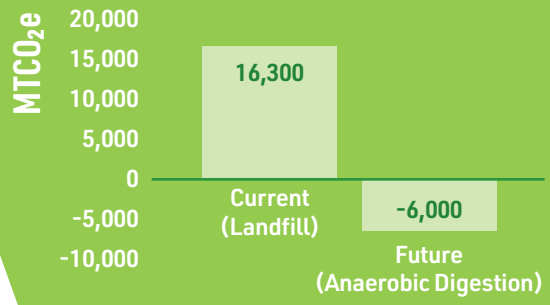
Minnesota's waste management statutes include a 75% recycling goal for the metropolitan area by 2030. Organics (such as discarded food), **make up over 20% of collected trash.** However, no curbside organics collection programs currently exist in Ramsey or Washington counties due to high start-up costs and logistical barriers. The R&E Board developed the **food scraps pickup program** to address this, ensuring all households in the two counties can recycle their food scraps easily and effectively from home.

The program uses specially-designed compostable bags, which are collected with regular trash and separated using robotic sorters at the R&E Center. The recovered food scrap bags and their contents, along with other organic materials recovered from the trash, will then be processed through anaerobic digestion.

A key limiting factor in Minnesota is the infrastructure to process organics into beneficial products. Composting is the traditional method, but **anaerobic digestion** has the added benefit of producing biogas, which can be used to produce clean, renewable energy – including carbon-negative transportation and utility fuel called **renewable natural gas.**

Dem-Con Companies and Hitachi Zosen Inova will build a new anaerobic digestion facility in Shakopee, Minnesota, and partner with SMSC for composting and sourcing wood waste needed for the digestion mix. The new facility will produce 170,000 MMBtu of renewable natural gas and 10,000 tons of biochar each year. This will help reduce greenhouse gas emissions, **equivalent to removing over 4,300 cars from the road.**

Greenhouse Gas Emissions from Ramsey/Washington Food Waste



About R&E

Ramsey/Washington Recycling & Energy (R&E) is the organization through which Ramsey and Washington counties work jointly to manage waste responsibly. R&E owns and operates the Recycling & Energy Center in Newport, Minnesota. This facility processes 450,000 tons of trash generated in the two counties annually, about 14% of the state's trash, producing refuse-derived fuel for waste-to-energy and recovering over 14,000 tons of recyclable metals from the waste stream each year. R&E also administers solid waste resource recovery activities and programming to reduce landfill waste. The counties have a combined population of over 810,000 and 70,000 businesses across urban, suburban and rural areas.

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INNOVATIVE SOLUTION TO RENEWABLE ENERGY

ANAEROBIC DIGESTION

A SOLUTION FROM DEM-CON COMPANIES AND HITACHI ZOSEN INOVA PARTNERSHIP
WITH RAMSEY/WASHINGTON RECYCLING AND ENERGY

RAMSEY/WASHINGTON RECYCLING & ENERGY

DEM-CON

Hitachi Zosen INOVA

MINNESOTA LEGISLATURE BILL

SF 4889 | HF4938

RENEWABLE DEVELOPMENT ACCOUNT REQUEST

$100M PROJECT | COMPLETED IN 2026 | PUBLIC/PRIVATE PARTNERSHIP

INNOVATIVE SOLUTION TO FOOD WASTE

ABOUT THE DIGESTER PROJECT

The Ramsey/Washington Recycling & Energy Board, Dem-Con Companies and Hitachi Zosen Inova propose to implement an innovative renewable energy project that will have substantial clean energy, environmental and community benefits for the next generation. The facility is an anaerobic digester and gasifier that creates renewable natural gas (RNG) and biochar. It will be located in Shakopee, Minnesota serving the seven county metropolitan area.

HOW IT WORKS

DIGESTING FOOD WASTE = RENEWABLE NATURAL GAS & BIOCHAR

ANAEROBIC DIGESTION & GASIFICATION

Anaerobic digesters process organic materials like our yard waste and food waste and turns them into valuable resources like renewable natural gas and compost. An anaerobic digester is just like your stomach, but bigger and breaks down a lot more organic material. The digestion takes place in a sealed vessel which contains complex microbial communities that break down waste. The food waste is converted into renewable natural gas and biochar.

STATE CLIMATE GOALS

The anaerobic digester supports the state's goals of 75% recycling by 2030, 100% clean energy by 2040, and carbon neutral by 2050 as stated in the state's Climate Action Framework.

RENEWABLE NATURAL GAS

Processing 70,000 tons per year of food waste, that would have otherwise went to a landfill, producing Renewable Natural Gas (RNG) and Biochar. Renewable Natural Gas (RNG) is a sustainable energy source reducing powerful greenhouse gases. This facility will reduce emissions by 30,000 tons per year of CO2 equivalent (CO2e) which is equal to removing 6,147 passenger vehicles from the road each year.

BIOCHAR PRODUCTION

Digestate, the remaining material from the anaerobic digestion process, can be made into biochar through gasification. Biochar sequesters carbon helping meet our climate change goals while creating a valuable soil amendment product. Biochar improves soils that grow our food, completing a circular economy. Shakopee Mdewakanton Sioux Community is an operational partner for this project using the biochar to enhance their compost products.

REDUCES 30,000 TONS PER YEAR OF CO2E

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