



FOOD 2 ENERGY

TRAINING GUIDE



Marin Sanitary Service
CONSERVATION — OUR EARTH, OUR MISSION, OUR JOB





FOOD 2 ENERGY TRAINING GUIDE

The Food 2 Energy (F2E) program was designed from the ground up in a public/private partnership between the Central Marin Sanitation Agency (CMSA) and Marin Sanitary Service (MSS). This cutting edge program diverts food scraps from the landfill and then uses those scraps to generate renewable energy to power the central Marin wastewater treatment facility. It's a winning combination!



IN THIS GUIDE

- ✓ Solving the bigger issue
- ✓ How the program works
- ✓ The benefits of participation
- ✓ Tools for success
- ✓ What material is accepted or not accepted
- ✓ FAQs

WE ARE HERE TO HELP!

Our F2E & Commercial Organics program coordinator will work with you and your employees to help your business keep food scraps out of landfill and potentially save money!

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Monday-Friday 8 a.m. to 5 p.m.



@mssrecycles

**KEEP
FOOD SCRAPS
OUT OF
THE LANDFILL
AND SAVE**



SOLVING THE BIGGER ISSUE

COMBATING CLIMATE CHANGE



Removing organic material (food scraps and other compostables) from the landfill is not only a top priority for Marin Sanitary Service (MSS), it is an essential step toward achieving Marin County and the state of California's recycling and greenhouse gas emission goals. When organic materials are sent to a compost facility instead of a landfill, two things are achieved: an organic soil amendment that farmers can use to grow food and a significant reduction in green house gases in the atmosphere.

CALIFORNIA'S COMMERCIAL ORGANICS RECYCLING LAW

As of January 2019, Assembly Bill 1826 requires California businesses (including public entities) that generate four (4) cubic yards or more of municipal solid waste per week to arrange for organic waste recycling services.

Learn more on page 7 of this guide.

MARIN'S ZERO WASTE GOAL

Marin County adopted a goal of Zero Waste by 2025. Zero Waste Marin, comprised of Marin County representatives, helps residents and businesses meet the county's goal and ensures county compliance with state recycling mandates.

Learn more at:
zerowastemarin.org



THE CRITICAL ROLE YOU PLAY IN ACHIEVING THESE GOALS

A 2014 Marin Sanitary Service Waste Characterization study found that 27.1 % or 4,700 tons of solid waste delivered to Redwood Landfill by MSS is food scraps. That makes it the second largest sector of municipal solid waste.

There are many food waste generators such as your self in Central Marin County, who, together, produce tons of food scraps every day!

That is why it is so important that you actively compost and participate in the Food 2 Energy program. It's simply not feasible for Marin, or the state of California to reach our diversion goals without your participation!



HOW THE PROGRAM WORKS

TURNING YOUR FOOD SCRAPS INTO ENERGY

THE PRIMARY GOAL OF F2E IS DIVERSION OF ORGANIC MATERIAL FROM THE LANDFILL AND INTO THE ENERGY GRID.

The F2E program converts food scraps to energy through anaerobic digestion which converts organic material into a methane biogas. The gas is then utilized as a power source, which will provide additional sources of energy for the operation of Central Marin Sanitation Agency's (CMSA) sewage treatment facility.

A co-benefit of the conversion process is the avoided methane emissions at Redwood Landfill from the decomposition of organic materials and the reduction of truck trips from San Rafael to Novato.

A NOTE ABOUT FOOD SCRAPS ACCEPTED IN F2E

The F2E program accepts any kind of food scrap that comes from a plant or animal. See page 10 for a list of specific examples of food scraps we accept in the F2E program.



MSS engages and trains participants, providing signage and carts, to help produce pure food scraps as a resource.



A trained driver inspects the collection cart for contamination before a specialized truck picks up the food scraps.



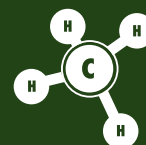
The food scraps are delivered to the MSS transfer station where it is inspected again for contaminants and ground into 1-inch size pieces or smaller.



The ground food is taken to CMSA where it is combined with fats, oils, and grease.



The combined resources are pumped into anaerobic digesters where microorganisms break them down creating methane biogas and biosolids.



The methane is piped into a filter removing any impurities before the fuel is finally run through a generator creating renewable electricity for CMSA.



The F2E program comes full circle when the biosolids are used as a Class B soil amendment for crops.



ANAEROBIC DIGESTION VS. COMPOSTING

While both Anaerobic Digestion (AD) and Composting are essential for Marin to reach Zero Waste by 2025, AD is a better use of food scraps as evidenced by the EPA's Food Recovery Hierarchy and various other academic resources. However, the Food to Energy (F2E) program established by Marin Sanitary Service and Central Marin Sanitation Agency can only accommodate food scraps from large suppliers like grocery stores, restaurants, and facilities with a commercial kitchen due to feedstock regulations and economic limitations. **This is why it is crucial for all available resources to be incorporated into the F2E program.**



ANAEROBIC DIGESTION

AD is the preferred method of organic resource recovery for a variety of reasons. The most obvious is the production of a biogas that can be used as an energy source. This energy becomes a local renewable energy source that can be used to power the Central Marin Sanitation Agency's sewage treatment facility. Excess gas produced can be exported to the grid to reduce the county's dependence on fossil fuels.



Because of its biogas generation and methane gas avoidance, **AD has a much smaller carbon foot print than composting.** If composting is not properly aerated it can actually produce an abundance of methane gas, which is 21 times more powerful than carbon dioxide. Even with proper care, composting still releases some methane, nitrous oxide, and carbon dioxide all of which is captured in an AD facility.

COMPOSTING

MSS will still rely heavily on composting for its curbside composting services. While the composting program does collect food scraps in small amounts, they are mixed with green yard waste and other organic material that cannot be anaerobically digested.

All materials collected from the composting program are sent to the [WM EarthCare Composting Facility](#) located at the Redwood Landfill where they are composted using a Covered Aerated Static Pile (CASP) system that minimize green house gas emissions.

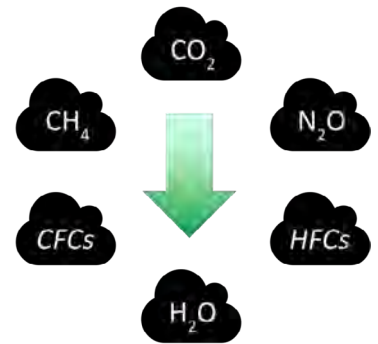


WHY PARTICIPATE?

IT'S GOOD FOR THE ENVIRONMENT

GREENHOUSE GAS REDUCTION

When food byproducts are sent to the landfill they undergo a type of decomposition without oxygen. This process creates an abundant amount of methane gas that is 21 times more harmful than carbon dioxide and seeps into the atmosphere.



BENEFICIAL IMPACT ON CLIMATE CHANGE

Greenhouse gas (GHG) emissions —such as methane gas — resulting from the decomposition of organic waste in landfills have been identified as a significant source of emissions contributing to global climate change. The F2E program helps mitigate climate change by reducing the amount of food waste sent to landfills and capturing the harmful methane gas released by food scraps decomposition.

RENEWABLE ENERGY SOURCE

The Biogas that is captured from the food scraps collected by the program is used to power the water treatment plant at CMSA around the clock. Furthermore, this biogas can be used as a replacement for natural gas and the energy generated can be exported to the grid as another source of renewable energy for Marin County.

CLOSED-LOOP ZERO WASTE PROGRAM

The solids collected after the anaerobic digestion process can be used in many non-agriculture projects. These solids are a valuable soil amendment that increase vegetative growth.

LANDFILL DIVERSION

MSS has found that 27.1% of all material sent to Redwood Landfill is food waste. Diverting the food reduces the amount of solid waste sent there, which increases the longevity of the site.



WHY PARTICIPATE?

IT'S GOOD FOR BUSINESS

COMPETITIVE ADVANTAGE

Consumer research conducted by the *The Natural Marketing Institute* has found that customers are 58 percent more likely to buy a company's products or services if they know that company is conscious of its impact on the environment.

COMPLIANCE WITH CALIFORNIA STATE LAW

Participating in the F2E program will help you comply with California's Mandatory Commercial Organics Recycling law AB 1826, and other upcoming organics recycling laws. See page 2 for more details.

ADVERTISING OPPORTUNITIES

Participants will receive program window decals and are able to use the F2E logo on print materials and on your website to assure customers that you are actively practicing environmental stewardship and helping Marin achieve Zero Waste.



CASE STUDY



WEST BROOKLYN PIZZA

900 Andersen Drive, San Rafael

West Brooklyn Pizza is a small, family owned Pizzeria that has been serving Marin for over 25 years.

Recently, the owners decided to try and become a greener business by enrolling in the F2E program along with a comprehensive recycling strategy.

The programs were a tremendous success and allowed West Brooklyn to cut their garbage service in half. They're now saving a few hundred dollars a month and are well on their way to become a certified green business.



WHY PARTICIPATE?

IT CAN SAVE YOU MONEY

F2E participants are likely to reduce the amount of garbage put in landfill containers, which in turn will likely result in the decrease of your landfill service and could lead to monetary savings.

While the F2E program does have a standard rate, this rate is severely discounted compared to standard garbage service. In most jurisdictions, there is a 30% discount when compared to an equivalent garbage service.



COMBINE FOOD 2 ENERGY WITH FULL UTILIZATION OF ALL OTHER RECYCLING SERVICES TO SAVE MONEY!



U.S. Department of Agriculture/Lance Chueng/Visual Information Specialist/USDA [Public domain]

According to the Food Waste Reduction Alliance, for every \$1,000 in revenue a grocery store generates, 10 pounds of food waste is created.

That adds up to tons (literally) of food wasted each week. If businesses can divert their food scraps from the garbage service and into a food recycling program like Food 2 Energy, there's potential for serious monetary savings.



WHY PARTICIPATE

TO COMPLY WITH COMMERCIAL ORGANICS RECYCLING LAW



In 2014 Governor Brown signed AB 1826 the Mandatory Commercial Organics Recycling Bill aimed at helping the state reach its diversion goals, keep resources out of the landfill and reduce greenhouse gas emissions. In addition to being the right thing to do for our communities and the environment, recycling their organic material is also required by the law for most businesses.

AB 1826

As of January 2019, Assembly Bill 1826 requires California businesses (including public entities) that generate four (4) cubic yards or more of municipal solid waste per week to arrange for organic waste recycling services.

The law's tiered implementation schedule phases in requirements over time based on the amount and type of organics or waste produced on a weekly basis.

JANUARY 1, 2017: Businesses that generate 4 cubic yards of organic waste (food scraps, green waste, landscape and pruning waste and nonhazardous wood waste) per week shall arrange for organic waste recycling services.

JANUARY 1, 2019: Businesses that generate four (4) cubic yards or more of municipal solid waste per week shall arrange for organic waste recycling services.

SUMMER 2021: If CalRecycle determines that the statewide disposal of organic waste in 2020 has not been reduced by 50 percent of the level of disposal during 2014, the organic recycling requirements on businesses will expand to cover businesses that generate two (2) cubic yards or more of municipal solid waste per week.

HOW WE HELP YOU COMPLY

Our goal is to ensure our commercial customers have the information, tools, resources and support to reach the highest level of diversion potential that is practical, best suits your individual needs, and results in contaminant free material.

- ✓ **SUBSCRIBE TO ORGANICS RECYCLING**
MSS offers organics (compostables) recycling services for a discounted rate for commercial customers. When service is set up, a commercial recycling outreach coordinator will work with you to help set up the right services needed.
- ✓ **SUBSCRIBE TO THE F2E PROGRAM**
Large food scrap generators (restaurants, delis, grocery stores, facilities with a large commercial kitchen) such as yourself are eligible to participate in the F2E program and receive the F2E program rebate.
- ✓ **SITE VISITS AND WASTE AUDITS**
Commercial customers who meet the threshold of AB 1826 will be contacted by our organics recycling coordinators to arrange for a site visit to perform a complete walk-through and identify opportunities for greater waste reduction and diversion.
- ✓ **ONGOING SUPPORT**
We provide ongoing technical, educational, and training workshops and assistance.



F2E TOOLS FOR SUCCESS

WHAT MSS PROVIDES

✓ **ASSISTANCE FROM A COMMERCIAL RECYCLING OUTREACH COORDINATOR**
They will provide all necessary trainings and will be your guide through the implementation process.

✓ **SLIM JIM INTERNAL SORTING CONTAINERS**
MSS provides up to two (2) brown, blue, and green bins for convenient internal source separation.



✓ **CURBSIDE CARTS**
MSS provides as many curbside collection containers needed to divert all the recyclable material from the landfill, including the organic material. Amount and sizes of containers are dependent on amount of recyclable material generated.



✓ **EXTENSIVE AUDITING PERIOD**
Your carts will be audited following implementation of the program to determine adequate service levels and contamination issues.

✓ **WASTE AUDITS**
A MSS representative will conduct a visual audit to estimate the amount of food scraps you generate along with any other recyclables. We will then make a recommendation to customize and “right size” your landfill, organics, and recycling services.

✓ **LABELS AND SIGNAGE**
All signage and labels are provided free of charge and replacements can be supplied by your outreach coordinator.

✓ **PARTICIPATION DECAL**
Certifies that you participate in the program and shows the public you are doing your part to combat climate change and make Marin a Zero Waste Community.

✓ **ONLINE RESOURCES**
Visit www.marinsanitaryservice.com/food2energy for printable resources and information.



GETTING STARTED CHECKLIST

7 STEPS TO GET STARTED RIGHT

1. GET STAFF ON BOARD
Educate your entire staff on what is accepted in the program and what is not accepted. Contact MSS to schedule any additional trainings.

2. LABEL YOUR INTERNAL SORTING CONTAINERS
Clearly label your Slim Jim (or any other) internal sorting containers in the kitchen designating at least one each for Food Scraps (F2E), Container Recyclables, Paper Recyclables, and Garbage/Landfill.

3. MAKE YOUR SLIM JIMS EASY TO FIND
Place the Slim Jims in a high traffic, convenient area so your staff can find them and utilize them easily.

4. COLLECT YOUR FOOD SCRAPS INSIDE
Add all acceptable food to the F2E Slim Jim. It is critical that only approved F2E food scraps go into your F2E containers. Do not put food scraps in plastic bags. No paper or plastic items of any kind are accepted.

5. TAKE IT CURBSIDE
When the Slim Jim is full, empty it into the appropriate curbside F2E cart(s).

6. CHECK FOR CONTAMINANTS
Double check your curbside for contaminants. Remove any material that doesn't belong.

7. GET IT OUT FOR COLLECTION
Wheel your F2E cart (along with your other service carts) to the curb the night before your regular pick up day.

DOWNLOAD LABELS

Make it easy for your employees to put the right materials in the right cart with our downloadable labels and posters at marinsanitaryservice.com



WHAT IS ALLOWED

FOOD SCRAPS ONLY IN YOUR F2E CART(S)

To ensure that the food scraps delivered to the Central Marin Sanitation Agency are appropriate for the anaerobic digestion process, it is critical that you only place acceptable material into your F2E cart(s).

FOOD SCRAPS ONLY



FOOD SCRAPS



FRUIT
VEGETABLES
BREAD
MEAT

BONES
NUTS
EGG SHELLS
PASTA

FISH
SEAFOOD
SHELLS
COFFEE GROUNDS



WHAT IS NOT ALLOWED CONTAMINANTS

Please do not place any of the following items into your F2E cart(s).

NO CONTAMINANTS

NO PLASTIC



NO PAPER



NO CONTAINERS



NO GLASS OR METAL



NO OIL/GREASE



NO YARD WASTE



WHAT IS NOT ALLOWED

CONTAMINATION PREVENTION

WHAT YOU CAN DO ABOUT CONTAMINATION

Being aware that contamination is an issue is a great place to start! Now you can keep an eye out for it. Make sure everyone who might use the green bin knows how to properly sort food scraps and knows not to put plastic bags in the curbside cart.



YOUR F2E DRIVER WILL HELP

We understand that sometimes contamination is inevitable, especially when your cart is in a public area. Luckily, the F2E Driver is dedicated to helping you keep contamination in the garbage. All drivers are equipped with tools to help pull out small amounts of contamination that are bound to end up in the green cart.

We also run all of the food scraps on a conveyor belt which gives sorters a better opportunity to pull out contaminants you might have missed!

WE WANT YOU TO BE SUCCESSFUL!

The MSS Outreach staff is here to support you. We are always available to do additional trainings, provide signs, and labels. We want you to be successful!

NO PLASTIC BAGS

Please do not put any kind of plastic bag in your F2E cart.

Do not bag your F2E materials or line your F2E cart with plastic. When plastic and other contaminants get into the F2E system they clump together in the digester pumps and can clog pipes, potentially destroying the machinery. Even if the plastic does manage to get through the system, the microorganisms cannot break down the material and it can potentially poison them.



FREQUENTLY ASKED QUESTIONS

HOW CAN I LET MY CUSTOMERS KNOW THAT I PARTICIPATE IN THIS PROGRAM?

Each participant will receive a F2E window decal that can be placed in a high visibility area. The F2E logo will also be available for use on your company website or other printed materials. MSS staff is working diligently to increase the public awareness and understanding of the importance of this program and your participation will help. See page 4 for more information.

WHAT IS THE GOAL OF THE PROGRAM?

The primary goal of the F2E program is diversion of organic food scraps from the landfill and into the energy grid which has a positive impact on reducing greenhouse gases and helps Marin County achieve its goal of becoming zero waste by 2025. See page 1 for more information.

WHAT HAPPENS TO THE FOOD SCRAPS AFTER THEY ARE COLLECTED?

MSS transports them to their Pre-Processing facility where the food scraps are filtered and ground into a slurry-like mix. The slurry is then transported down the road to CMSA where it is added to the facility's anaerobic digester and converted into a biogas to be burned in the facilities generator to power the water treatment plant around the clock. See page 2 for more information.

WHY CAN'T ALL COMPOSTABLE MATERIALS BE PUT IN THE F2E CONTAINER?

Cellulose based materials like napkins and chopsticks don't break down at high enough rates in the digester because they are not a fuel source for the microorganisms. They also can clog and break the equipment.

IF I CAN'T USE PLASTIC BAGS IN MY FOOD WASTE CARTS, HOW DO I KEEP THEM CLEAN?

Weekly washings with a hose should be able to keep the cans clean. However, MSS will steam clean your F2E carts for a small nominal fee. Please call our customer service department at (415) 456-2601 to schedule a steam cleaning.

IF I PRODUCE LARGE AMOUNTS OF FOOD SCRAPS AND OTHER NON-FOOD ORGANIC MATERIAL, WILL I NEED TO ENROLL IN THE COMMERCIAL COMPOSTING PROGRAM TOO?

Yes. In addition to the F2E program for your food scraps, you will need to enroll in our commercial compost program which accepts food soiled papers (like napkins and paper towels) and plant material (like plant and flower waste) along with small amounts of food scraps. By participating in these programs, your business will keep organic material out of the landfill.

