JULY 2011

BioCycle

ADVANCING COMPOSTING, ORGANICS RECYCLING & RENEWABLE ENERGY

77% AND GROWING TO 0

City Of San Francisco On Steady March Toward A Zero Waste Future

BIOMASS TO GREEN POWER AT MONTANA LUMBER MILL
FOOD SCRAPS COLLECTION AND COMPOSTING • ZERO LANDFILL IS NOT ZERO WASTE
COMPOSTING IN ALASKA • ANAEROBIC DIGESTER DEVELOPERS

Recology vehicles collect trash and recyclables together, followed by organics on the same day.

TEAM EFFORT

ZERO WASTE ON SAN FRANCISCO'S HORIZON

Diversion rate of 77 percent (and climbing) is a reflection of sound policy, committed municipality and willing waste hauler.

Part I

Dan Sullivan

WHEN *BioCycle* visited San Francisco in April, we were invited to tag along with a British film crew making a documentary on how the world deals with its trash. Hosted by Academy Award winning actor Jeremy Irons, the project had landed in San Francisco because of the city's innovative and pioneering strides in turning refuse into resources (programs *BioCycle* has been tracking for more than 15 years). San Francisco was the first major U.S. city to implement a three-stream sorting system for residential MSW that included food waste. Financial incentives for diversion, including "pay-as-you-throw" trash metering, date back decades and include favorable tip fees at the Alameda County's Altamont Landfill that will have to be renegotiated once 15 million tons of trash have been tossed.

In 2006, the city directed its contracted waste hauler, Recology, to institute the Commercial Recycling Discount, giving businesses a break of up to 75 percent on their trash bill for recycling and composting (customers could actually track the correlation between their diversion rate and their bill for service online). In 2009, the San Francisco Board of Supervisors passed an ordinance requiring every property in the city to recycle and compost. "It was the first mandatory composting law of its kind in North America," says Recology spokesman Robert Reed. "Recology delivered additional collection bins, and customers across the city embraced composting."

The program now recycles nearly 220,000 tons of organics annually, producing compost utilized by area farms, vineyards and residents. These achievements and a host of others are due in large part to a successful partnership between the city of San Francisco, its residents and commercial and institutional sectors, and Recology, an employee-owned company that provides landfill diversion and resource recovery services to homes and businesses through collection, recycling and composting.

"Our ultimate goal is 'zero waste' or 'waste zero,' depending on whether you're talking to the San Francisco Department of Environment [SFDE] or Recology," says Jack Macy, Commercial Zero Waste Coordinator at the Department of Environment, noting that the slogans are two ways of stating the same goal. That doesn't mean people won't have discards, he explains, it just means the city won't be landfilling or burning them.

"A key point about San Francisco is that we have pursued maximum source separation for the highest and best use of materials, especially food scraps and other organics for composting," adds Macy. "After years of comprehensive three-stream collection programs for all sectors and strong financial incentives, outreach and assistance — the carrot approach — participation and diversion started to level off."

That's when the mayor announced bold plans for mandatory recycling and composting. A law was passed in June 2009 and went into effect that October "with a lot of good press along the way," he says. "This has given us our strongest tool to date to increase source separation with the biggest benefit in increasing composting participation and diversion."

Macy and the people who make Recology tick admit that, just as the particular climate of the nearby Napa Valley makes it an ideal place for growing wine grapes, a relatively environmentally aware populace and a location in the heart of California agriculture combine to make such an extensive organics recycling program viable. But the public/private partnership — with both staffs equally dedicat-

ed to the mission — offers the glue that binds.

Macy started with the city in 1994, serving his first eight years as the SFDE's Organics Recycling Coordinator. Before San Francisco's zero waste (by 2020) goal was morphed into his title, he was simply the Commercial Recycling Coordinator. The title changes have everything to do with the city's evolving relationship with its garbage.

The partnership between the city and Recology hinges upon an ethical bottom line that includes "people" and "planet" as well as profit. "Our focus is recycling," explains Reed. "This partnership is about doing right by the environment, being cost-effective and providing superior service. All those things work together, and that's what's going on here in San Francisco. People like that and want to support that. We've got great momentum, and everyone wants that to continue."

San Francisco's geography, architecture and demographics — estimated local population 850,000, increasing by roughly 50 percent with commuters and tourists factored in — present particular challenges. A staggering number of restaurants and typically small yards amounts to a lot of food waste (around 75 percent) and not a whole lot of green waste (around 25 percent). Now add narrow and steeply graded residential streets, a significant percentage of multifamily units, cramped commercial corridors and a booming new construction and renovation trade. About two-thirds of all refuse collected in the city is from commercial accounts. "We currently have 20 separate and distinct recycling programs," Reed says. "You need a different program in every sector to maximize recycling, and it's working. The city's diversion rate is increasing every year. I would say we're marching toward zero waste and making steady progress. We meet with the city each week, and we're pulling in the same direction. It's a real collaboration."

A Recology driver picks up recyclables and trash, emptying them in a two-chamber truck.

In 1989, California passed AB 939, a law that required municipalities to divert 50 percent of waste from landfills by 2000 (or else pay $10,000 a day in fines). Macy sees the landmark legislation as crucial. "It gave our goals teeth," he says, recalling that the state went from 10 percent diversion in 1990 to 58 percent by 2008 while the city went from about 25 percent to 77 percent over the same time period.

The pivotal year for San Francisco was 1996, when commercial food waste collection began, followed by a residential pilot program in 1997. After testing out a number of approaches and with Recology's cooperation and funds gathered from customer service fees, the city settled on a three-stream collection system for comingled recyclables, compostables and trash. Following success of a 1999 pilot program involving several thousand households, full-scale rollout of the residential program began in 2000 and was completed by 2004. "It took a lot of public and private investment to make that happen," says Macy. Ticking off the multiple environmental advantages of turning food scraps into compost — from landfill diversion and methane reduction to captured carbon — Macy still counts the No. 1 benefit as not wasting a valuable resource.

CHARTING PROGRESS

Recology has a tradition of recycling the Bay Area's waste stream dating back to the original garbage men or "scavengers" who emigrated from Italy in the latter part of the 1800s. With nearly a century of competition, cooperation, mergers and acquisitions in between, the resulting Norcal

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Waste Systems, Inc. emerged as one of the 10 largest employee-owned companies in the United States. In 2009, Norcal changed its name to Recology Inc., to reflect the company's evolving culture and commitment to sustainable practices. The three companies operating in San Francisco include: Recology Sunset Scavenger, which provides collection services in the residential districts of San Francisco; Recology Golden Gate, providing collection services in the financial and commercial center; and Recology San Francisco, which operates a transfer station and recycling centers.

This past spring, Recology reported having composted more than 907,000 tons of food scraps and vegetative waste from San Francisco residences and businesses since launching its pilot program in 1996. The CO_2 emissions avoided, according to the company, were tantamount to removing all traffic that traverses the Bay Bridge for 777 days.

Last August, the city of San Francisco announced that it had already surpassed a bold goal stated in 2002 of reaching at least 75 percent landfill diversion by 2010 when 2008 numbers came in at 77 percent. Mayor Gavin Newsom (now California's lieutenant governor) remarked that the 1.6 million tons of refuse recycled, composted or reused over the span of one year (2008) was double the weight of the Golden Gate Bridge. The most recent figure for trash going to landfill (2010) is 400,000 tons, the lowest in history and has been steadily decreasing by 10 to 15 percent a year.

In less than two years, the number of commercial accounts on the composting program has more than doubled, from 3,500 to more than 7,200. This includes about 95 percent of the more than 4,500 food establishments and 90 percent of the office buildings and is equal to nearly half of all commercial accounts. The number of apartment buildings on the composting program has more than tripled to around 6,000, representing about two-thirds of the city's multifamily housing stock. Compostable material collected has increased from about 400 to 600 tons/day.

"It's the law, and you have to do it," says Macy. "We will help you do it, but you don't have a choice anymore." That law is backed up by the enforcement of three agencies: public works, which writes fines for contamination (they've been issuing tickets); public health, which has the authority to put liens on properties for non-payment of service accounts (power yet to be tested); and SFDE, which has the "good cop" job of outreach and education. "We had the carrot approach, and then we added the stick," says Macy. "That stick is very effective."

Jepsen Prairie Organics is one of two Recology owned compost facilities that together process 600 tons of organics collected daily from the city of San Francisco.

RESIDENTIAL COLLECTION

When the Fantastic Three residential program — the three bin sorting system for recyclables, compostables and trash — was introduced as a pilot program in 1997, most single-family households recycled but few composted. After San Francisco's independent Refuse Collection and Disposal Rate Board approved the 3-cart program for citywide rollout, curbside composting was available across San Francisco, but participation was still voluntary. Before the program became mandatory for all single-family residences in 2009, Recology official estimate that about half of all households fully participated.

Blue bins accept all clean paper, bottles, cans, and most plastics (with the exceptions of plastic bags, wrappers and Styrofoam). Green bins accept all food scraps, soiled paper and plant material. Items in the black cart go to landfill. "The [basic] monthly fee for single-family households is $27.55, and that is set by the independent rate board," explains Reed. "That was the cost in 2010, and it's going to remain the same through June 30, 2012." Single-family residents receive 32-gallon blue, green and black bins and may request larger 64- or 96-gallon recycling or compost bins at no extra charge. Their rate is doubled, however, for a 64-gallon black bin with the contents destined for landfill and tripled for a 96-gallon black bin. (Multifamily households receive 64-gallon bins, and only the building owner can request a size change.) "The carrot is that composting and increased recycling can reduce your trash bill," explains Steven Chiv, Residential Zero Waste and Special Projects Associate for SFDE.

For multifamily dwellings — generally those with more than five households in a building or otherwise lacking individual service — it's typically about gaining buy-in from the building owner. Landlords can realize a

cost savings in trash service through tenant participation, and can pass that savings onto the tenants in the form of rent reduction, suggests Chiv. The primary goals of the residential programs are increased participation and contamination reduction, says Chiv. "The most important things are removing barriers to participation and doing continual outreach to help San Francisco residents understand what goes where. Our recycling and composting program accepts so many types of materials that at the end of the day almost nothing has to go into the black landfill bin."

San Francisco has a highly multicultural population, and for many residents English is not a first language. "We do a good job educating customers," says Recology driver Carlos Martinez. This includes pictograms and multilingual signage about what goes where as well as one-on-one communication with individual customers. "San Francisco is a diverse place, and our company and operation are a reflection of that," notes Martinez. "Generally, the customers are doing a good job."

An automatic lifter on Martinez's Split Autocar/Heil Multitask SL truck allows him to collect 32-, 64- and 96-gallon black and blue (trash and recycling) bins from his accounts singlehandedly. Organics are collected separately on the same day. "San Francisco being so condensed can be a big challenge for drivers, from a safety standpoint," says Derek Nelson, Recology safety and training coordinator. "We've got big trucks that have to negotiate tight streets, go uphill and downhill and get into apartment buildings."

"When we first started picking up yard waste and food waste almost nobody recycled those items," says Fred Stemmler, district supervisor for Recology Sunset Scavenger. "Now almost every single person has a green cart and utilizes it. Maybe a quarter of the people put them out before, but now nearly everyone does." Stemmler adds that these days it's the kids who are developing the automatic behavior to separate out waste streams for their highest and best use. They in turn, are teaching the older generations to relearn their behaviors.

Recology's outreach and education includes its pioneering Artist in Residence Program. Launched 20 years ago to promote recycling and increase environmental awareness, the program utilizing salvaged objects is now being emulated in other cities such as Philadelphia. "We have six artists a year work four months with an onsite exhibition at the end," program manager Deborah Munk says of the highly competitive program. "Artists scavenge for material in public disposal areas, meeting each other along the way. The purpose is to make people think of discarded materials in new ways and to heighten awareness about things that get thrown away in the environment." Three full-time staff in Recology's art program also help coordinate other outreach activities such as public compost giveaways, a vegetable garden at the landfill and educational tours that accommodate more than 5,000 students and adults annually.

A MODEL FOR OTHER CITIES

"Virtually every week we find people taking photos of our three-bin collection system," says Dave Stockdale, executive director of the nonprofit that runs the Ferry Plaza Farmers Market (see sidebar), a popular San Francisco tourist attraction. "We find it kind of funny, but it's often a completely new concept for visitors — they are inspired." What most tourists don't get the chance to ap-

LOCAL FOOD ACCESS CULTIVATED AT FERRY BUILDING FARMERS' MARKET

IF the city of San Francisco's organics recycling program serves as a model for other communities, the Ferry Plaza Farmers Market located at one of the city's most visited tourist destinations (as well as a hub for passenger ferries) offers inspiration at the other end of the food cycle. The market, in front of the bustling Ferry Building, is managed by the Center for Urban Education about Sustainable Agriculture (CUESA), a nonprofit dedicated to cultivating a sustainable food system by setting an example and educating customers.

The Ferry Plaza Farmers market attracts locals and tourists alike (above). Color-coded and labeled bins, volunteers and detailed signage at composting/ recycling stations help shoppers do the right thing.

This includes themed celebrations once a month on Saturdays, when the market is at its busiest (operating hours are 10 a.m. to 2 p.m. Tuesdays and Thursdays and 8 a.m. to 2 p.m. Saturdays). *BioCycle* visited in mid-April during the Goat Festival "celebrating all things goat" and including cooking demonstrations, sample plates of various cheeses for the paltry sum of one dollar and a chance to feed recently born kids with a baby bottle.

"It's one way to engage with the public," says CUESA Executive Director Dave Stockdale. "The farmers get to tell their stories, and the customers get the chance to connect with food production in new ways." The public outreach benefits the farmers, who pay a fee based on the size of their stall. "Part of what we're doing is driving interest to buy the products," adds Stockdale. "Our vision is about supporting sustainable agriculture, not just about farming practices like 'certified organic' and 'certified humane.' What we've found with our customers is that while certification is important for some, it's not important for all of them if they can understand the farming practices being used. We've seen increasing interest from shoppers about location, about distance, about the idea of 'local.' We're located next to one of the richest agricultural areas in the world, so the 'local' concept is relatively easy to live here."

Visitors to the Ferry Plaza are also greeted by the city's pioneering "Fantastic Three" blue, green and black bin collection system for separating recyclables, organics for composting, and for minimizing trash to landfill. Volunteers — when available — hold watch at each of five stations during market days and school out-of-towners in particular as to how the system works. "Most sellers leave their organic waste behind in our compost bins, but a few farmers take it home with them as they do their own composting anyway," says Stockdale. Recology counts the market as one of its commercial customers, adding substantially to the 600 tons of organics the employee-owned progressive waste hauling company composts annually.

The large number of tourists coming to the Ferry Plaza Farmers Market is a mixed blessing, Stockdale says. "They can almost override the locals, and they are typically buying artisan items or single pieces of fruit to snack on but not necessarily buying food in volume like a local would. They're not generally buying four kinds of carrots or celery or sustainably raised pork chops. But we do hope to educate and inspire them. We see jaws dropping and we say 'Hey, if you don't have this where you live, you should, and there's no reason you can't.' Considering where your food is grown, how it's transported and what you do with waste — we educate people on what these things mean. We've got lots of educational resources about what we do and how we do it, and we get visits from market managers from all over the world," he adds.

The CUESA's materials may be downloaded and printed from its website at www.cuesa.org. They include a glossary of sustainable agriculture terms, an A to Z of Sustainable Agriculture mural, recycling signage and more. "Our hope is that people will use them, wherever they live," he says. "We just ask for acknowledgement of CUESA as the source."

preciate, Stockdale adds, is that the successful model at the front of the house is supported by the best infrastructure in the country. "You have to have it at both ends," he says. "Most communities have recycling centers now; fewer communities have access to a community composting center. Of course the ultimate story is that our farmers can access and apply the compost on their fields — we've created a loop."

In August 2010, when Macy was named Recycler of the Year by the nonprofit California Resource Recovery Association (CRRA), the association's Executive Director Stephen Bantillo suggested the program should serve as a model for other communities. "Macy has done a tremendous amount of work creating fabulous programs that could spread across the nation," he said. As this issue of *BioCycle* went to press, the U.S. and Canada Green City Index had just recognized San Francisco as the "greenest" major city across the U.S. and Canada, largely for being the first city to mandate organics recycling.

"The Department of Environment's goals of 75 percent diversion by 2010 and zero waste by 2020 go with Recology's philosophy of trying to divert material from the landfill," says Chris Choate, Recology's vice president for sustainability. "And so we are poised to be able to help the city achieve its goals." But real success in the zero waste arena requires a perfect storm of sorts, he adds. "You have to have policies in place, a municipality ready to take the initiative and a willing partner. We had all three — you have to have all those ingredients to get it to go." ■