



At Recology, sustainability means supporting our employee owners, engaging our local communities, and protecting our natural environment.

In December 2019, we published our first comprehensive Sustainability Report. This year, we are proud to present our second report and continue to build upon measurable progress made throughout the past year.

In this report, you will learn about Recology investments in recovery technology, improvements in greening our fleet, and efforts to source more renewable energy to power our facilities.

You will also read about the meaningful progress we have achieved while advocating for policies that govern the materials we collect and process.

Included are highlights of company initiatives to further celebrate diversity among our workforce and foster an inclusive employee owner community.

Finally, you will learn how our company's resilience in the face of this year's extraordinary circumstances serves as a testament to the dedication and resolve of our employee owners.

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This report contains links to supporting external resources, as well as embedded videos that offer unique insights into Recology partnerships and resource recovery operations. Keep an eye out for this icon to see Recology in action!  $\rightarrow$ 



learn more!

# **CEO Statement**

2020 was a historic year marked by unprecedented challenges for individuals, families, and businesses around the globe.

As an essential workforce, Recology employee owners navigated the uncertainties of the COVID-19 pandemic and immediately rose to the challenge—quickly adapting to the changing circumstances to keep our employee owners safe while continuing to provide reliable service to our customers.

Across the company and virtually overnight, our teams implemented rigorous sanitizing practices and precautionary measures, procured appropriate protective equipment for our workforce, altered operating protocols and staffing assignments to promote social distancing, and helped transition hundreds of employee owners to remote work environments.

### Ultimately, our operational success in the face of the pandemic was-and is-driven by our commitment to safety and to the adaptability and resolve of our workforce.

Amid the pandemic, the world also witnessed—and participated in—a global outcry for racial justice and equality. At Recology, we reinforced our commitment to diversity and inclusion and took the opportunity to listen, learn, and evaluate our own practices and performance.

We held listening sessions to create space for employee owners to hear from one another and provide feedback directly to management. We hired third-party consultants to help conduct a company-wide survey to understand Recology-specific needs and shape our vision for a more diverse and inclusive workplace.

Looking forward, we know that the achievement of a more just and equitable society will require us to continue to examine every facet of our operations, including continued education around our individual biases and their impacts on society and among our employee owners. This past fall, many communities throughout the west coast were impacted by a historic wildfire season that burned more than 10 million acres and 12,000 structures over the course of nearly a month.<sup>1</sup> In many of our communities, our customers—and even our own employee owners and company operations—were forced to evacuate as fires blazed out of control and air quality reached hazardous levels. These catastrophic fires are part of a new trend of increasingly destructive disasters rooted in our changing climate.

The impacts of the fires serve as a critical reminder of the importance of our work to mitigate greenhouse gas emissions and fight climate change through resource recovery, carbon sequestration, and sustainable business operations.

Despite the challenges and unique circumstances of this past year, we have continued to innovate and invest in our recovery infrastructure—installing advanced optical and robotic sorting technologies to increase material recovery and investing millions of dollars to expand our composting capacity, including opening a new state-of-the-art composting facility in Wheatland, CA.

We have also continued to advance the sustainability of our operations—decreasing our reliance on fossil fuels, procuring renewable electricity for our facilities, reducing emissions, and providing reliable alternative energy to our community energy partners.

2020 also marked a significant leadership transition for Recology, with long-time President and Chief Executive Officer Michael J. Sangiacomo retiring after 37 years with the company. We cannot thank Mike enough for his contributions and leadership during his more than 30 years as CEO. Mike oversaw the transformation of the organization from a California-based waste hauling company into an industry leader in environmental services and resource recovery—nearly quadrupling in size and growing to include more than 35 operating companies in three states. The innovations and achievements made under his direction— including the company's significant investments in recycling and composting infrastructure and emergence as the largest employee-owned company in our industry—are testaments to Mike's vision and leadership.

#### 2021 begins a new chapter for Recology as we build upon our past achievements and embrace our strong ownership culture to take on some of the greatest environmental challenges of our time.

As CEO, I am excited to champion our investments in recycling and composting programs and advocate for responsible resource recovery in our communities. We will continue to foster diversity, inclusion, and respect within our workforce. And we will continue to innovate—leading the industry with advanced processing technologies, a sustainable fleet, and the expansion of our resource recovery infrastructure—efforts guided by our vision to create a world without waste.

I am profoundly optimistic about our company's future and the future we can create together.

Salvatore "Sal" Coniglio Recology Chief Executive Officer





# A Century of Innovation



1850

#### RECOLOGY ROOTS

Genoese Italian immigrants begin hauling San Francisco's discards in horse-drawn wagons. An early form of recycling, these "scavengers" sort and sell whatever materials they can—including metal, wood, and fabric—during an era of unregulated disposal which continues until the 1920s.





1970





Sunset Scavenger Company and Scavengers Protective Association incorporate, becoming the official waste haulers for San Francisco.

- **1927** Sunset Scavenger Company and Scavengers Protective Association merge to form Norcal Solid Waste Systems Inc.
- **1958** Norcal Solid Waste Systems expands beyond San Francisco, acquiring operations in Mountain View, CA.



**1967** The company acquires the Hay Road landfill in Vacaville, CA.

#### **TRANSFER OPERATION**

The San Francisco transfer operation opens as the growing disposal needs of San Francisco require waste to be transported to landfills outside of city limits. The site will eventually grow to 60 acres and include facilities to accommodate increasing tons of organic waste and construction and demolition debris, as well as a dedicated facility for the public to drop off recyclables and household hazardous waste (HHW).

The company continues to expand into the Bay Area peninsula, purchasing 1974 a collection and transfer operation in San Bruno, CA.

**1975** The acquisition of a collection operation in Humboldt County, CA, gives the company its first operation outside of the San Francisco Bay Area.

The company expands beyond California, acquiring operations in Portland, OR. **1978** Later additions of composting facilities and collection and transfer operations will bolster the company's presence in Oregon.





Artist: Samuel Levi Jones, Photographer: Micah Gibson



The company partners with Butte and Colusa Counties (CA),acquiring collection and transfer operations in the region.

#### **EMPLOYEE OWNERSHIP**

The company becomes 100% employee owned, bringing stock ownership to all vested employees. The company remains to this day the largest employee-owned company in the waste and recycling industry.



#### FOCUS ON RECOVERY

1986

1988

1990

The company begins robust investment in recycling programs and infrastructure, launching one of the country's first residential curbside recycling programs.

#### **ARTIST IN RESIDENCE**

Local artist and activist, Jo Hanson, inspires the founding of the Recology Artist in Residence (AIR) Program through her street sweeping practices, anti-litter campaigns, and community activism. The AIR program has since expanded to include residencies in Oregon and Washington and has hosted over 275 artists to date.

The Jepson Prairie Organics composting facility opens in Vacaville, CA, marking the company's entry into the commercial composting industry.



#### 1997 FANTASTIC 3

Norcal Waste Systems becomes the first in North America to incorporate food scraps into its curbside compost collection program. The iconic three-bin system (known at the time as Fantastic 3) is made available to all San Francisco residents and businesses to collect source-separated organics like food scraps and yard trimmings, in addition to recycling and trash.







#### 2000 ZERO WASTE GOALS

The City of San Francisco sets ambitious waste diversion goals, leading the company to invest millions of dollars into what will eventually become the largest and most advanced recycling facility on the west coast—Recycle Central at Pier 96.



#### **NEW NAME, SAME VALUES**

Recology becomes a household name in San Francisco, as the company officially rebrands from Norcal Waste Systems to better reflect the company's focus on resource recovery and waste reduction.



Recology expands into the state of Washington and begins providing collection and processing servicesin Seattle and surrounding municipalities.



The addition of a 200-acre composting facility in Lamont, CA strengthens the company's composting infrastructure and includes organic material from Los Angeles County.

#### **COMMITMENT TO RECOVERY**

Recology reduces the size of its standard trash receptacle in San Francisco to 16 gallons, further encouraging customers to rethink waste generation. Daily tonnage of collected organics exceeds recycling for the first time and Recology implements significant technological upgrades at Recycle Central at Pier 96 to better sort and market the city's nearly 700 daily tons of mixed recyclables.

#### **POSITIONING FOR THE FUTURE**

Recology celebrates 100 years of service in San Francisco and continues to champion environmental progress by leading the charge on plastics reduction policy, investing in advanced sorting technologies, expanding its composting infrastructure, and exploring the use of 100% electric collection vehicles.



2020

2015

2009

# Recology at a Glance

### **Our People**

As a 100% employee-owned company, Recology provides a comprehensive array of environmental services that benefit our communities, economies, and ecosystems.

RECOLOGY AWARDS & RECOGNITION

2020 COMPANY OF THE YEAR

Awarded by the California/Western States Chapter of the ESOP Association

#### 2019 SUSTAINABILITY INNOVATION AWARD

Awarded by Oracle

#### 2019 GLOBAL ENTERPRISE RISK MANAGEMENT AWARD OF DISTINCTION

Awarded by the Risk Management Society



Lake Sammamish Volunteer Event, Issaquah, WA



# **Our Communities**

Recology is comprised of individual operating companies that provide integrated resource recovery and environmental services–from local collection companies that encompass a fleet of more than 2,000 vehicles, to a comprehensive network of material recovery facilities (MRFs), composting facilities, and transfer stations.

Together, our fleets and processing infrastructure provide the essential framework necessary to collect, process, and recycle **nearly 3 billion pounds** of materials each year.

### **26** COLLECTION COMPANIES THAT SERVE:

- $\rightarrow$  136 Communities
- $\rightarrow$  2.5 million+ Individuals<sup>2</sup>
- $\rightarrow$  100,000+ Businesses

#### **DID YOU KNOW?**

**100% of Recology collection companies** provide curbside recycling and compost services.



Lamont

### Our Environmental Services & Impact

#### **RECOLOGY EMISSIONS**

Recology business activity results in the generation of greenhouse gas emissions from three main sources– vehicle fuels, facility energy, and landfill operations.

Our 2020 emissions—including quantity and type generated by each source–are illustrated below. Our complete 2020 emission inventory, as well as definitions of key terms, can be found in the Appendix.



#### **RECOVERY ACTIVITY**

#### In 2020, Recology collected and processed 1.45 million tons of recyclable and compostable materials.

Reintroducing these resources into our supply chains and ecosystems through recycling and composting provides direct energy and climate benefits. Energy savings achieved by reducing the need for extracting and refining virgin resources translates to reduced greenhouse gas (GHG) emissions. Moreover, methane emissions associated with landfilling of organic wastes are virtually eliminated through composting.

Together, Recology recovery activity in 2020 avoided more than 1.65 million MTCO<sub>2</sub>e of GHG emissions<sup>3</sup> making Recology a net reducer of carbon.



COLOR KEY Anthropogenic Emissions Those associated with human activity. Read More Biogenic Emissions Those associated with the earth's natural carbon cycle. Read More

# Beyond Waste

Simnar

Recycle Central at Pier 96, San Francisco, CA

The state of the

# Recovering Materials

Resource recovery requires much more than just curbside pickup of household recyclables. Advancing the limits of material recovery is at the core of the Recology philosophy.

Innovative investments in advanced recycling technologies, pursuit of new markets for post-consumer materials, and efforts to sustain recovery programs amid the challenges of 2020 are the most recent examples of how Recology supports waste diversion goals in our communities.

In 2020, Recology processed **approximately 644,000 tons** of recyclable materials.



Cardboard 138,876 TONS



Crushed Rock 82,763 TONS



Plastics 24,215 TONS



Paper 130,521 TONS



Untreated Wood 69,994 TONS



Electronics 2,287 TONS



Glass 83,683 TONS



Metals 45,320 TONS



Sheet Rock 1,949 TONS



#### SUPPORTING A RESILIENT SUPPLY CHAIN

Recycling has long been associated with environmentalism, driven by its inherent benefits of energy savings, resource conservation, and waste reduction. But did you know recycling plays a critical role in providing raw materials to manufacturing supply chains for many of the products we use every day? Over the past year, supply chain disruptions due to the impacts of the COVID-19 pandemic have solidified the critical role that recycling plays in providing valuable feedstock for global manufacturers.

Many of the materials used to produce everyday goods like cardboard boxes, bath tissue, consumer product packaging, and medical supplies get their start in your recycling bin. Since the beginning of the pandemic, however, public health restrictions, business closures, and economic stagnancy have led to critical shortages of many recycled materials. In fact, in May 2020, the US EPA issued a news release urging the American public to continue recycling during the pandemic, citing a critical need for raw materials for manufacturers.<sup>5</sup> Cardboard boxes, for example, contain an average of 50% recycled fiber,<sup>6</sup> while glass products are comprised of 20-40% recycled glass.<sup>7</sup> More than 70% of each aluminum can is recycled aluminum sourced from curbside recycling programs,<sup>8</sup> and some bath and facial tissues may contain up to 100% recycled paper fiber.<sup>9</sup> The products that arrive at your door and at grocery stores, hospitals, and schools across the nation—as well as the packaging they arrive in—are largely dependent upon recycling access and participation in recycling programs.

Recology is committed to sustaining recycling infrastructure and collection programs amid these challenging circumstances. In partnership with the communities we serve, we have been able to avoid any reductions or interruptions to curbside recycling programs on account of the pandemic. As a steadfast environmental partner, Recology is equally proud to serve a critical need within the global manufacturing network and help ensure a more resilient future.



#### At Recology, we continue to partner with local communities to find creative, real-world solutions that prioritize responsible management of recovered plastics and transparency into the materials recovery process.

Meghan Butler Recology Vice President & Chief of Staff Director, Business Development

#### Addressing the Plastic Waste Crisis

Over the past several years, Recology has invested significant time and resources collaborating with environmental organizations, advocacy groups, scientists, and industry partners to develop solutions to the plastics crisis.

As recyclers, our primary objective is to recover materials from the waste stream and close the loop on products we use every day that's what we consider making a product truly "recyclable." Plastics, however, present a set of challenges and complexities that reach, in many ways, beyond those present for other recyclable materials–metals, cardboard, glass, and paper.

While many plastics can be recovered by our advanced sorting technology, others generally single-use products—currently have no stable end-market for recovery and therefore have little to no value as commodities. Further exacerbating these challenges, these single-use products often create contamination in otherwise valuable commodity streams, adding to the expense and difficulty of recovering truly recyclable products.

The World Economic Forum expects global plastic production to double over the next 20 years, while scientists anticipate that there will be more plastic in the ocean than fish by as early as 2050.<sup>10</sup> Meanwhile, global commodities markets and trade of plastic materials continue to adapt to environmental and social concerns over responsible materials management practices and available processing and recycling infrastructure across the world. One such global policy, the Basel Convention, seeks to address issues surrounding global plastic trade head-on through a series of Plastic Waste Amendments.

The Basel Convention is an international treaty designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries.

In 2021, the scope of materials covered by the Convention increased to include the international import and export of certain types of plastic waste.

While the United States has not yet ratified the Basel Convention, in late 2020, Recology urged the incoming Biden administration to do so and end the export of controlled plastic waste from the United States. Taking such action would propel our country and the world toward a future with improved plastics management, increased responsibility from plastics manufacturers, and reduced plastic pollution in vulnerable communities across the globe.

Recology has committed to comply with the Basel Convention Plastic Waste Amendments by no longer exporting low grade plastic materials received after January 1, 2021.

Our investments, made in partnership with our customers, illustrate these commitments-implementing advanced processing technologies that consistently improve our ability to recover valuable materials from the waste stream.

#### PLASTIC FREE CA: A PEOPLE'S BALLOT INITIATIVE

Infrastructure investments alone will only take us so far when it comes to plastics recovery. While Recology continues to partner with our communities to invest in sorting technologies to properly identify and sort plastic products, the key to making meaningful improvements in recovery is through the development of fair and reliable domestic markets.

In 2019, after supporting California Assembly and Senate legislation that sought to resolve this plastics issue, Recology spearheaded a ballot initiative, known as the California Plastic Pollution Reduction Act.

The goals of the initiative align with national and global policies aiming to achieve similar results:

- Reduce the overall amount of plastic packaging used
- → Improve design of plastic products to conform to standards of recoverability
- Ban harmful plastic products like polystyrene food containers
- → Hold plastics manufacturers financially responsible for the end-of-life management of materials they create

The initiative seeks to create a funding mechanism to improve recoverability through infrastructure investments and remediate environments impacted by plastic pollution.

Together with a dedicated coalition of environmentalists, environmental justice advocates, sustainable brands, and concerned citizens, we began the signature gathering process for this people's initiative. The early results of this process signaled to many that California residents are ready for change. However, in early 2020, as was the case across the globe, our plans were interrupted; impacts of the COVID-19 pandemic halted signature gathering.

After pursuing legal action to accommodate the unprecedented impacts of the pandemic, the timeline for gathering and submitting signatures was extended, allowing the initiative to gather more than 872,000 signatures—significantly more than the roughly 623,000 needed to qualify.

The initiative is likely to be certified by July 2021 for the November 2022 election. This will be an important opportunity for California voters to weigh in on the issue of plastic waste and vote for meaningful progress on the issue.

#### PLASTIC WEIGHT VS. VOLUME

Recycle Central at Pier 96 receives nearly 750 tons of recyclable material every day. Plastics are lightweight but are being used in increasing volumes across a widening array of consumer applications. The result—more plastics in the recycling stream.

While plastics account for only 5% of materials received by weight, they constitute nearly 22% of materials received by volume.<sup>11</sup>



Too much plastic, used in too many applications, clogging waterways, impacting vulnerable populations across the globe, and devastating our natural environment, all in the name of 'convenience.' Enough is enough.

Sal Coniglio Recology Chief Executive Officer

44 Automation is the next step toward technological advancement in recycling.

Maurice Quillen, General Manager of Recology San Francisco

#### Click to read the article in Waste Today Magazine

#### Artificial Intelligence: Advancing Recovery Technology

UPDATES TO RECYCLE CENTRAL AT PIER 96, THE COMPANY'S PREMIER RECYCLING FACILITY IN SAN FRANCISCO

In 2019, Recology added four Max AI AQC (Autonomous Quality Control) units and one VIS (Visual Identification System) to Recycle Central at Pier 96, the company's largest and most advanced recycling facility. The AQC robotic system, implemented in partnership with Oregon-based Bulk Handling Systems, has advanced our ability to recover a key material in the waste stream: plastic.



Click to watch the Max AI in action!





#### Cleaning Up Construction Debris

#### IMPROVEMENTS AT THE RECOLOGY SAN FRANCISCO IMRF

In October 2020, Recology completed an 8-month improvement project at our construction and demolition (C&D) recovery facility in San Francisco. The Integrated Material Recovery Facility—or iMRF—originally opened in 2003 and was designed to recover recyclable materials like scrap metals, wood, concrete, and sheetrock from construction and demolition projects. To address changes in the C&D waste stream and increase material recovery rates, Recology set out to leverage advanced processing technologies specialized for construction and demolition recovery facilities.

Improvements included the installation of two **Pellenc optical sorters**—machines that rely on sensory technology to sort mixed wood and recyclables. Using compressed air density separators, each optical sorter is designed to accurately identify and sort hundreds of pieces per minute and can differentiate between natural wood suitable for recovery and painted or treated wood that cannot be recovered.

Additionally, Recology invested in five AMP robotic sorters that use camera-based recognition and artificial intelligence to perform quality control functions, including identifying sheetrock and recyclable wood.

These robots are the first lightweight mechanical sorters actively employed to identify C&D material in North America and can each perform up to 65 picks per minute. The facility renovation also included electrical upgrades, the installation of material shredders, and the addition of two magnetic belts to capture metals such as steel and iron.

The San Francisco iMRF is the company's largest C&D facility, processing nearly 400 tons per day of mixed debris and helping manage a unique and challenging material stream. Our investments in this space come at an important time. In addition to traditionally being difficult to recover, construction and demolition debris has recently emerged as the largest sector of waste generation nationally—exceeding 600 million tons in 2018 alone.<sup>12</sup>



Recent capital investments at both the iMRF and Recycle Central at Pier 96 highlight the company's larger mission to dig deeper into the waste stream and push the envelope on resource recovery and landfill diversion.

# **Diverting Organics**

Recology organics collection and processing programs play an essential role in diverting organic wastes from landfills and mitigating climate change through the production and application of compost and mulch.

In 2020, through our curbside organics collection programs and network of eight composting facilities, Recology processed more than 810,000 tons of food scraps, yard trimmings, and other materials to produce three varieties of nutrient-rich compost. Recology compost is used as a soil amendment in a vast—and growing—array of agricultural settings, including farms, vineyards, ranches, and even backyard gardens. Compost application reduces the demand for synthetic fertilizers and herbicides, supports the sequestration of carbon from the atmosphere, avoids greenhouse gas emissions and short lived climate pollutants that would have been produced from landfilling, and increases the nutrient content, water retention capacity, and overall microbial activity of the soil community. The result: healthier soils, more resilient agricultural ecosystems, and a powerful tool to combat climate change.

Meanwhile, our mulching operations processed more than 54,000 tons of dimensional lumber, scrap wood, and timber waste to produce 20 varieties of mulches and wood fines for use in parks, school playgrounds, and commercial and residential properties.

#### Understanding the Compost Process

#### FEEDSTOCK ARRIVAL

Each day, more than 2,000 tons of feedstock arrive at Recology composting facilities. This includes collected food scraps and yard trimmings from residential and commercial customers, as well as grocery store spoilage and agricultural surplus wastes.





Click to watch Recology organics collection in action!

RECOLOGY SUSTAINABILITY REPORT 2021



Click to watch how Recology creates nutrient-rich compost

#### **PRE-PROCESSING**

Feedstocks undergo a rigorous process of size-reduction and non-target material removal before the composting process begins. After material is ground to increase surface area, an array of screening systems, air density separators, and human sorters work to separate the ground material into light and heavy fractions and remove non-compostable items like plastics, glass, metals, and painted wood.



#### **TROMMEL SCREEN**

The trommel screen rotates to separate material by size. The smaller pieces (Unders) fall through the screen mesh, while the larger pieces (Overs) ride atop the screen and are deposited in a separate pile.

Trommel screens are extremely effective at separating materials and can process more than 100 tons of feedstock per hour.

**Unders** are mostly organic materials, including leaves, grass clippings, and small fragments of food scraps, twigs, and wood chips. Prior to composting, some of the larger 'Overs' will be reintroduced with the 'Unders' to enhance the material's porosity and carbon ratio.



**Overs** are typically a combination of larger wood fragments and non-target items such as plastic bags, food packaging, and other materials not intended for composting. 'Overs' are directed to secondary pre-processing-often through hand-sorting stations or air density separators-to remove the non-target items. Some of the remaining 'Overs' are re-incorporated with the 'Unders' to begin the composting process.

#### COMPOSTING

Many Recology composting facilities utilize some of the most advanced Aerated Static Pile (ASP) systems available. The centerpiece of ASP infrastructure is a dynamic air vacuum system that introduces oxygen to the composting material, thereby helping to maintain proper temperature and aerobic composting conditions.



ASP systems mitigate odors and other emissions produced during the material degradation processes while also reducing the time frame required to turn raw feedstocks into finished compost. After approximately 30 days in the ASP system, material is moved to a curing area for an additional 30 days. Here, the material is tested for pathogens, metals, and nutrients prior to its final screening and sale.

**Biofilters** made of wood chips and soil help mitigate the emission of volatile organic compounds (VOCs) and odors produced during the compost's decomposition. Air drawn through the compost is channeled through the aeration pipes and exhausted through the biofilters. **Compost Windrows** are long, narrow piles of pre-processed feedstocks placed atop perforated aeration pipes. While in the ASP phase, windrows are regularly turned and watered to maintain appropriate moisture content and to thoroughly mix carbon-rich materials like twigs and leaves with nitrogen-rich materials like food scraps and grass clippings.



**Computer Controls** regulate the entire ASP process, allowing facility operators to monitor and adjust airflow and water in response to changing environmental conditions. The system also ensures the compost reaches and maintains appropriate temperatures to eliminate harmful bacteria and pathogens. Aeration Pipes pull air through the windrows, thereby introducing oxygen into the decomposing material. The control of oxygen within the windrow is essential, as it maintains the aerobic conditions and specific temperature ranges necessary to support the microbial activity that drives the composting process.



#### FINAL SCREENING AND SALE

Following the 30-day curing and testing stage, material is screened a final time to remove any remaining non-target materials, such as plastic, glass, or stone. Once screened, the compost is ready for sale to farmers, ranchers, landscapers, and nurseries. Recology also creates a variety of custom blends by mixing compost with other soil amendments like gypsum, sand, and wood fines.

#### Growing Our Organics Products

The Recology Organics team provides product solutions and technical services for a growing list of customers and industries. In addition to traditional agricultural markets, growing demand from landscapers, nurseries, construction firms, and public agencies has served to further broaden the applications for compost and other organics products.

Across all sectors, compost sales continue to grow. Overall, Recology has seen a 36% growth in sales since 2011, including a notable 53% increase within our retail and landscaping sector since 2019.

We attribute this surge in retail sales to the greater emphasis placed on home landscaping and the planting of 'victory gardens' during the pandemic.

Recology compost products are tested regularly by independent, accredited laboratories to ensure rigorous safety and quality standards are achieved. All Recology compost carries the U.S. Composting Council's (USCC) Seal of Testing Assurance and many of our compost varieties are registered with the Organic Materials Review Institute (OMRI), a third-party certifier that evaluates soil inputs under standards set by the USDA's National Organics Program.



Commercial composting is a constantly evolving process—one where composters continually seek new technologies, processing techniques, and variable feedstocks to improve the quality, yield, and effectiveness of compost products.

In 2019, Recology began exploring VermiCompost, a specialized and small-batch composting technique that employs the decomposing power of earthworms to produce an exceptionally nutrient-dense variety of compost.

The digested organic matter—or casting—each earth worm leaves behind as it feeds, contains high concentrations of nitrogen and phosphorus, and exhibits elevated microbial activity compared to traditional compost.



These qualities—combined with the earthworms' ability to further improve the compost's water retention capabilities while also neutralizing contaminants like heavy metals—make for a highly effective and valuable soil amendment. VermiCompost joins the more than two dozen varieties of composts, mulches, and custom blends offered by the Recology Organics team.



#### Expanding Our Organics Infrastructure

Since the debut of our first commercial-scale compost facility in 1995, Recology processing capacity has grown to encompass new locations and incorporate cutting-edge technology.

Our capital investments, grant partnerships, and experimental compost varieties drive our goal to expand the reach and capacity of our composting infrastructure and bring more—and better—organics products to an ever-widening market.

When combined with our company-wide organics collection programs, Recology composting facilities support progressive organic waste diversion policies set forth by legislators—most recently through California Assembly Bill 1826 and Senate Bill 1383.

Our Organics teams have been busy preparing for the influx of organic materials as communities throughout California pursue compliance with these and other waste diversion legislation. In 2020 alone, we invested millions of dollars in advanced composting equipment and facility capacity expansions in both California and Oregon.

Collectively, we grew our overall permitted composting capacity by an additional 6% this past year, to more than 2.8 million tons annually.

Meanwhile, our communities are answering the call: **Tons of feedstocks received at our composting facilities have increased nearly 60% since 2011.** A proud partner in the fight against climate change, Recology is well positioned to continue to provide a diverse collection of organics products to our communities and play a key role in the implementation of local and regional waste diversion and climate legislation.

#### RECOLOGY OSTROM ORGANICS

In Fall 2020, Recology opened a new stateof-the-art composting facility—Recology Ostrom Organics—in Wheatland, CA.

Technology at the facility includes the most advanced aerated static pile (ASP) system available for commercial-scale composting, including a computerized monitoring and analytics system that returns live data to facility operators. This real-time feedback provides the opportunity to track and control oxygen content and temperature, as well as manage the timing and movement of material during each stage of the composting process. These controls allow the facility to produce finished compost in as little as 60 days.

Recology Ostrom Organics runs on 100% renewable energy! The site's electricity is sourced from an adjacent renewable energy system that generates electricity from landfill gas created at the nearby Recology Ostrom Road Landfill.

Though recently opened, Recology Ostrom Organics is poised for growth. While the current 10-acre site can process up to 78,000 tons per year of organic feedstock, facility expansion plans include a 60-acre plot that would offer an additional 620,000 tons per year of processing capability.



#### OREGON ORGANICS EXPANSION

Recology continues to invest in our composting infrastructure in Oregon, recently completing the first phase of an expansion of our composting facility in Aumsville and beginning an expansion project at our facility in North Plains. The enlarged ASP system in Aumsville will increase the facility's annual capacity by more than 65%, to over 50,000 tons per year. A similar phased expansion is underway in North Plains, with an anticipated completion of Phase 1 in summer 2021 that is expected to increase the facility's processing capability by more than 45%.

Together, these investments will bring an additional 45,000 tons of annual composting capacity to Recology communities in northern Oregon and aid in the region's ongoing efforts to mitigate climate change and support sustainable agriculture practices through compost production.





#### SUPPORTING HEALTHY SOILS

The California Department of Food and Agriculture (CDFA) launched its Healthy Soils Program in 2015 to support the development of regenerative and restorative agricultural practices that promote carbon sequestration. Funded through proceeds from the California Climate Investments, more than \$40 million has been made available to grant recipients since 2016.<sup>13</sup>

Recology has been an enthusiastic partner in the program, supporting nine projects in the past two years and providing more than 6,500 tons of premium compost to grant recipients.

In 2019, Recology partnered with Kistler Santo Domingo Ranches in Oakdale, CA, in support of their grant initiative. Members of the Recology Organics team worked closely with the Kistler family, providing consultation services and helping coordinate delivery and application of 1,600 tons of Recology compost over 100 acres of rangeland.







Results from independent soil measurements taken ten months following the first compost application exhibit a more than 75% increase in the soil's organic matter, as well as enhanced concentrations of phosphorus, potassium, and other key nutrients.

Through partnerships like those made through the Healthy Soils Program, Recology has the opportunity to support regenerative agriculture in California and beyond—working to evolve the perception of composting from a component of the waste system to a component of the food system and closing the loop on our soil's resource ecosystem.

## Reaching Our Communities

A t Recology, our education and outreach programs are tailored to meet the unique and evolving needs of our customers. The variability in recovery programs from one city to another is a challenge for our industry, and is ultimately driven by factors including local and regional policies, service agreements between municipalities and service providers, availability and capability of processing and recovery infrastructure, and marketability for post-consumer commodities and organics products.

Educating customers about waste and its impacts—notably the importance of proper recycling and composting behaviors—is the cornerstone of successful resource recovery programs. As we work toward advancing goals to reduce waste generation, divert organics from landfills, and recover more material from recycling bins, our dedicated team of education and outreach specialists bring localized messaging to each Recology community. In response to the COVID-19 pandemic, Recology teams—like educators across the globe—took their outreach efforts online. From digital presentations and virtual tours to socially distanced trainings and waste assessments, this shift to a more virtual platform enabled our teams to reach customers in a safe and efficient way, more than tripling the number of education and outreach activities performed in 2020 compared to 2019.

As the pandemic continued to evolve and homes became the new offices and classrooms, Recology education and outreach teams created interactive media content to allow tour 'attendees' to virtually experience recovery facilities and produced digital resources for teachers and students now learning at home. As some pandemic restrictions lessened, Recology outreach professionals implemented robust safety protocols to continue in-person waste assessments and consultations.

In 2020, our Waste Zero education and outreach teams conducted more than 900 in-person customer presentations and nearly 100 facility tours before shifting to virtual platforms to host an additional 200 virtual presentations and tours that reached over 2,700 online attendees.











Clockwise from top left: Heather Rockwood, Recology San Mateo County; Vanessa Loop and Kevin Terrado, Recology King County; Yvette Madera, Recology San Mateo County; Vanessa Loop, Recology King County; Alexandra Rinear, Recology San Mateo County



#### Waste Zero Spotlights

#### ENGAGING CUSTOMERS THROUGH OUTREACH: RECOLOGY SAN MATEO COUNTY

With families spending more collective time at home, forming proper at-home recycling habits is especially important. In May 2020, Recology San Mateo County partnered with the region's public waste



authority—RethinkWaste—to launch a targeted campaign to increase customer engagement and encourage proper waste sorting behaviors.

Through creative social media content, newsletters, and signage on Recology trucks, Recology and RethinkWaste are helping customers 'rethink' their waste generation and disposal behaviors, thereby improving landfill diversion rates and reducing contamination in the recycling and organics streams.

#### EXPANDING COMMERCIAL ORGANICS: RECOLOGY SONOMA MARIN

The education and outreach team at Recology Sonoma Marin has been hard at work bringing food scraps collection to restaurants and other commercial customers over the last several years.

Since Recology began serving the region in 2018, collected commercial organics tonnage has increased to more than 25,500 tons per year, an improvement of over 50%.

Through a comprehensive program launch that included site-specific technical assistance and trainings, our Recology Sonoma Marin education and outreach team paved the way for successful organics diversion programs in the area.

In addition to helping reduce customers' bills and fostering a closed-loop and local resource ecosystem, composting food scraps rather than sending them to the landfill supports local and regional waste diversion and climate-related policies.

#### KIDS' CORNER: CREATING RESOURCES FOR STUDENTS

As teachers throughout the country moved courses online, Recology jumped at the opportunity to develop exciting, educational, and sustainability-focused content for children and students.



Outreach teams created standards-based curriculums and Earth Day messaging for various age groups, including an engaging Better at the Bin coloring book in partnership with artist Sirron Norris, a Zero Waste Bingo game highlighting creative ways to reduce, reuse, and recycle, and a printable sorting game for craft-loving children and adults alike!

#### BRINGING ART TO THE COMMUNITY: RECOLOGY ARTIST IN RESIDENCE (AIR) PROGRAMS

Since the inception of the AIR program more than 30 years ago, Recology has supported over 275 artists at four different sites through innovative residency programs that provide artists with the materials and platform needed to create artworks using discarded materials. Despite the challenges of 2020, the AIR programs continued to bring art to the community through modified residencies, artist spotlights, webinars, and virtual artist talks.



Click to watch our "Cultivating Common Ground" virtual artist panel

#### PARTNERING WITH THE SAN FRANCISCO GIANTS: RECOLOGY GOLDEN GATE

From direct outreach to curbside residential customers, to targeted campaigns for large businesses and apartment complexes, Recology education and outreach teams work with customers big and small. This even includes the occasional sports franchise—in this case the San Francisco Giants.

For years, our local outreach teams have provided the recovery equipment and industry expertise needed to properly sort and help manage the 3.2 million pounds of waste generated each year at Oracle Park along San Francisco's waterfront.

In addition to partnering with stadium staff to train employees and engage fans with recycling best practices and know-how, **Recology has been a proud partner in helping Oracle Park exceed 90% waste diversion**.

With help from Recology, the San Francisco Giants have been awarded the prestigious MLB Green Glove Award 12 times since the program began in 2008.



In addition to these impressive waste diversion efforts, the stadium houses a solar array and a LEED Platinum certification, demonstrating environmentally-sound sporting events are achievable. The San Francisco Giants continue to serve as a role model for other professional sports teams and large venues looking to improve the sustainability of facility operations.



Click to learn more about our partnership with the San Francisco Giants!

# Leveraging Landfill Technology

or materials not diverted to recycling or composting facilities, landfill disposal is the most likely destination. Landfills are highly engineered and controlled environments where waste degrades slowly, producing landfill gas as a natural byproduct. This gas is comprised principally of methane, a potent greenhouse gas with 28 times the impact on climate change as carbon dioxide.<sup>14</sup>

When harnessed appropriately, these gases represent a usable resource. Our owned landfills employ a comprehensive network of underground gas extraction wells that capture and direct landfill gas to specialized on-site engines that convert the gas into electricity. These gas-to-energy engines provide two key benefits—both generating power that is supplied to the electrical grid and minimizing the release of harmful greenhouse gas emissions. By using this technology, **Recology-owned landfills** function as energy plants, generating renewable electricity that powers local homes, businesses, and even our own operations.

> In 2020, landfill gas engines at Recology landfills provided

38,000+ Megawatt-hours of energy

to the electrical grid<sup>15</sup>





While landfill gas systems are designed to optimize gas collection, some gas is still emitted directly through the landfill surface. These 'fugitive' emissions effectively escape the gas collection system and, due to the methane content in the gas, are significant contributors to climate change.

Despite owning only two active landfills, fugitive landfill emissions constitute the greatest share of Recology operational emissions, accounting for approximately 152,000 MTCO<sub>2</sub>e in 2020.<sup>17</sup> It is important to note the generation of these gases is directly related to the volume of organic materials–including food scraps, yard trimmings, wood, paper, and cardboard–disposed of within the landfill. Thus, the most direct pathway for reducing the production of methane in landfills is to reduce the volume of organic materials.

To support this goal, Recology works in partnership with community stakeholders across our service areas to provide comprehensive recycling and composting programs, consistently prioritizing access to resource recovery over landfilling. In 2020, our recovery efforts ensured more than 1.45 million tons of recyclable and compostable materials were diverted from landfills.

In 2020, our recovered materials exceeded landfill tonnage by



Recology will continue to champion resource recovery by investing in advanced processing technologies and expanding access to recycling and composting programs in our communities.

Electricity generated from the Recology landfill in Wheatland, CA is distributed to the neighboring Recology Ostrom Organics composting facility, where it provides enough electricity to power 100% of the composting operation. Excess landfill gas that cannot be converted to electricity is directed to on-site flaring systems that combust the gas, thereby destroying methane and helping reduce impacts on air quality and climate change.

In 2020 alone, flaring systems at Recology landfills combusted more than 9,700 metric tons of methane,<sup>15</sup> displacing more than 242,500 MTCO<sub>2</sub>e of greenhouse gases<sup>18</sup>-an amount equal to the emissions produced from driving 52,000 cars for one year.<sup>16</sup>



# Advancing Sustainable Operations

### **Greening Our Fleet**

Recology manages a fleet of more than 2,000 vehicles that collect and transfer materials and support our overall operations. Easily our most recognizable asset, collection and transfer vehicles present critical opportunities to improve company-wide environmental performance by:

- → Reducing potent greenhouse gas emissions generated during operation
- Supporting a market for renewable fuels and distribution technology in California, Oregon, and Washington

Since piloting compressed natural gas (CNG) collection vehicles in the mid-1990s, Recology has continued to advance the adoption of sustainable fleet fuels, partnering with municipalities, vehicle manufacturers, and policymakers to support the company's transition away from conventional fossil fuels. This shift aims to leverage both the vehicles we operate and the fuel we use to provide a cleaner and more sustainable presence in the community.





The Recology fleet is powered by a diverse energy portfolio of more than 13 fuel types and blends, including an increasing portion of renewable diesel, biomethane, and electricity.

**Renewable Diesel** is an advanced biofuel sourced from renewable feedstocks including animal fat, used cooking oil, and plant biomass. It provides the same vehicle performance as conventional diesel fuel but is entirely renewable and greatly reduces vehicle emissions, thereby providing safer conditions for vehicle operators and cleaner air for our communities. Known as a "drop-in fuel," renewable diesel can be used in existing diesel-based vehicles, requiring no engine modifications or additional investments often required with changing fuel types.



of purchased fuel was renewable diesel in 2020, a 3% increase from 2019

Renewable natural gas (RNG), also known as biomethane, is another advanced biofuel used with increasing frequency throughout our operations. Another "drop-in fuel," biomethane replaces traditional compressed natural gas and is sourced from wastewater treatment facilities, dairy operations, and landfills that have specialized anaerobic digestion infrastructure. RNG provides renewable energy while virtually eliminating emissions that would have been produced by conventional fossil-derived natural gas.



78% of fuel used to power our natural gas-based fleet in 2020 was renewable biomethane

**Electricity** is an emerging energy source for the resource recovery industry.

Since piloting the nation's first 100% electric rear-load collection truck in 2019, Recology has further committed to fleet electrification, purchasing two additional 100% electric collection vehicles.

As states continue to develop regulations that pave the way for fleet electrification—such as California's Advanced Clean Truck (ACT) regulation that mandates 100% of medium and heavy duty trucks sold in California must be zero emission by 2045-Recology will continue to prioritize investments in zero emission fleet technologies. Our ongoing partnerships, like those with the City of Seattle and key manufacturers in developing EVs that will serve our business needs, will continue to mark deliberate and strategic progress toward developing the sustainable fleet of the future.

#### IMPACT ON RECOLOGY EMISSIONS

The emissions produced from biomass-based fuels like renewable diesel, biomethane, and biodiesel have fewer adverse climatic impacts when compared to conventional fossil fuels. These emissions-known as biogenic emissions-are associated with the earth's natural and current carbon cycle and do not introduce fossil-based carbon into the atmosphere.

#### At Recology, our increasing use of biofuels has resulted in an emission profile where 71% of our fleet emissions are classified as biogenic.<sup>19</sup>

We view sustainable resource recovery as not only a priority of our stakeholders, but also a universal responsibility for service providers like Recology. Recognizing fleet emissions as the area of our business activity where performance improvement can yield the greatest environmental benefit, we are committed to pursuing operational efficiencies and continuing to work with fuel vendors and vehicle manufacturers to further explore and expand our use of renewable and alternative fuels.



# **Powering Our Facilities**

From transfer stations, maintenance shops, and customer service centers, to our expansive network of recycling and composting operations, Recology facilities form the backbone of our material recovery infrastructure. These facilities serve as essential processing hubs where materials are prepared for sale in domestic and global commodity markets.

Many recovered materials—including metals, glass, construction debris, some plastics, and cardboard—are sold to domestic recyclers in the United States, while compost and organics products are distributed to local farms, vineyards, and other agricultural outlets. As these facilities draw their power from electrical and natural gas grids, the adoption of cleaner, greener grid-based energy is a top priority for Recology.

Recology partners with ten (10) Community Choice Energy (CCE) programs in California that provide sustainable energy portfolios to power Recology facilities. We have also launched a company-wide initiative to 'opt up' into renewable or carbonfree electricity options offered by energy providers, and have elevated our efforts to generate—and use—renewable energy at our facilities.

Producing the energy needed to power our operations on-site, paired with a concerted effort to source more sustainable power from our 20+ energy providers has yielded some exciting results.



#### POWERING OUR FACILITIES WITH RENEWABLE AND CARBON-FREE ENERGY



of electricity used at Recology facilities was generated from renewable or carbon-free sources



of our most energy-intensive processing facilities were powered by 100% carbon-free electricity

Recology continues to identify opportunities to maximize energy efficiency. Our cloud-based utility software allows us to monitor energy and water consumption, identify usage spikes and areas for improvement, and track the impact of efficiency projects.

Though representative of a relatively small fraction of companywide environmental impact, facility-based emissions can be mitigated as we improve energy efficiency and increase the share of our purchased electricity sourced from renewable or carbon-free sources. In 2020, improvements in facility energy sourcing led to a 33% reduction in emissions\* compared to 2019, which translates to over  $660 \text{ MTCO}_2$ e of greenhouse gases avoided,<sup>20</sup> an amount equal to the emissions produced from driving a car over 1.5 million miles.<sup>16</sup>



\*33% reduction in sum of company-wide Scope 2 indirect and Scope 1 direct emissions from purchased electricity and natural gas.

# Supporting Our Employee Ovners

# Our Employee Ownership Culture

Recology is the largest 100% employee-owned company in the waste and resource recovery industry and brings together a diverse and dynamic team of more than 3,700 employee owners across 140 communities throughout California, Oregon, and Washington.

Our employee owners reflect the diversity of these communities, as does the variety in job skills performed by our workforce—from vehicle mechanics and heavy-duty equipment operators, to customer service representatives, Waste Zero educators, and environmental engineers.

Recology has a unique workplace culture that guides how we support employees, interact with our customers, serve our communities, and care for the environment. Our strong culture of employee ownership is built on the Recology Guiding Principles:

- → Aware: Know yourself and others
- → Approachable: Connect with others
- -> Accountable: Own your actions
- → Agile: Be a change agent
- $\rightarrow$  All Inclusive: It takes all of us













Clockwise from top left: Mimi Cheung, Recology San Francisco; Israel Chavez, Recology Golden Gate; Israel Enriquez, Recology Golden Gate; Carlos Mancilla, Maria Juarez, Manny Cordova, Recology King County; Bradley Washington, Recology San Mateo County; Angie Fisher, Recology Auburn Placer

The Recology Employee Stock Ownership Plan (ESOP) maintains ownership in the hands of our employees, not external shareholders. The results of this model include broad diversity among owners, with more than 55% of Recology shares owned by employees who identify with a racial or ethnic minority. Our employees understand that both individual and collective hard work and dedication can directly impact the success of the company in the long term, as ESOP shares provide employees with a supplemental retirement plan, allowing employees to share in that success.

- → Recology was awarded "2020 Company of the Year" by the California/Western States Chapter of the ESOP Association.
- → In 2020, Bennie Anselmo, Recology Vice President and Sr. Director of Equipment, Maintenance & Facilities, celebrated 60 years with Recology. As a 100-year-old company, the Recology workforce has spanned five generations.

Despite operating in a historically male-dominated industry, Recology is committed to hiring and supporting female employee owners at all levels of the organization. Women employee owners continue to represent a growing share of the Recology community, including 30% of the company's management team.

We are proud of the progress we have made to foster an increasingly diverse and inclusive workforce, though we realize this journey is far from over. Through our strategic planning, recruitment, and internal advancement initiatives, Recology will continue to champion diversity and inclusion as core tenets of our company culture.







#### ADVANCING DIVERSITY, EQUITY, AND INCLUSION AT RECOLOGY

Over the past year, the national conversation on racial justice in our country reinforced existing Recology strategic commitments to diversity, equity, and inclusion (DEI). Alongside individuals, advocacy groups, and corporations throughout the United States, Recology showed support for the Black Lives Matter movement, taking the opportunity to listen, learn, and formulate strategic action for change. This was not a political statement; it was a rallying cry for justice, respect, and empathy for lives that have been affected by discrimination and prejudice.

More work remains ahead of us and will require an earnest and thorough examination of every facet of our operation. It will require continued education around our individual biases and a collective understanding around systemic racism and its impact on society. More importantly, it will require measurable action on behalf of all Recology employee owners.

Recology has taken immediate and strategic action on social justice. Some of those actions to date include:



Recology employee owners support

- the Black Lives Matter movement in San Francisco and Santa Rosa, CA.
- → Launching a company-wide Diversity, Equity and Inclusion Committee to support diversity projects and policies throughout the organization
- → Enlisting the support of third-party experts to help us understand Recology-specific needs and shape our vision for a more diverse and inclusive workplace



- → Garnering feedback from our employees through a company-wide DEI Culture survey
- Providing a regular and accessible outlet for employee owners to share their voices and ideas

<sup>44</sup> It is up to each of us to help foster a culture of respect and inclusivity. We must come together to listen, learn, and adequately prepare ourselves for the complex but necessary conversations we are dealing with both as distinct communities and as a nation.

Sal Coniglio Recology Chief Executive Officer

- → Offering Listening Sessions for employees to come together with management to share concerns and ideas
- → Hiring a dedicated DEI Manager to grow Recology DEI programs

#### **Professional Recruitment & Advancement**

Recology employee owners are united through a shared pursuit to cultivate an inclusive work environment where people of all backgrounds and races feel welcome, are respected, and have equal opportunities for career development.

We offer a number of advancement and training programs designed to recruit and develop talent within our employee owners and promote the exploration and implementation of new ideas and operational practices. While our core programming was temporarily paused due to the COVID-19 pandemic, we look forward to continuing these—and more—career programs in the coming year.

#### **Recology Internship Program**

This 12-week paid internship provides hands-on experience for those interested in sustainability and the resource recovery industry. Interns complete a summer project, conduct job shadowing sessions, and learn many facets of the business while helping communities reach sustainability goals.



#### **Recology Mentorship Program**

Launched in 2019, the Mentorship Program pairs enthusiastic employee owners poised for professional growth and responsibility with experienced company managers, including department directors and regional managers. Mentorship partners develop a series of goals intended to expose the mentee to various aspects of the business over the six-month program period.

50 Mentor-mentee pairs since program started in 2019

#### **Recology Academy Foundation**

In 2002, Recology launched this educational program to further develop high-performing management and professional employees. The program is designed to help participants develop leadership skills and network with fellow colleagues, all the while working on a comprehensive project intended to improve one or more aspects of the Recology business.

**70** Participants since program started in 2002

# Safer Workforce, Safer Communities

A t Recology, our top priority is to ensure the health and safety of our essential workforce and the communities we serve. Perhaps never more than today has the integrity and timeliness of our services been more critical in keeping our communities clean, functioning, and resilient.

Recology employee owners work in fast-paced and demanding environments—as drivers, material sorters, equipment operators, and maintenance teams often experience strenuous circumstances under normal working conditions. Not unlike other essential workforces in the United States and globally, the COVID-19 pandemic has presented a unique set of newfound challenges for our operations.

<sup>44</sup> Our safety culture is an embodiment of our employee ownership model. Through innovation and accountability, we have created a culture focused on promoting the safety, health, and wellness of our workforce and communities.

Sal Coniglio Recology Chief Executive Officer





Juan Carlos Pacheco and Daniel Gonzales, Recology Sunset Scavenger

#### PROTECTING OUR ESSENTIAL WORKERS

Despite these unprecedented working conditions created by the pandemic, the Recology Health and Safety team addressed the evolving situation head-on. In February 2020, management teams rapidly employed **comprehensive preventative measures** to mitigate the evolving pandemic situation.

Virtually overnight, dispatch offices, breakrooms, and other communal areas were closed, access to facilities was restricted to only those required to be on site, employee hand-scanning devices used to begin and end work shifts were replaced with in-vehicle radio calls, and cleaning protocols were greatly expanded, including frequent sanitizing of horizontal surfaces, restrooms, vehicles, and doorknobs. Collection routes typically comprised of two employees were reduced to a single operator, while some employee owners were reassigned to other work locations.



At Recology recycling and composting facilities, workstations along sorting lines were adjusted to allow for physical distancing and employees were instructed to avoid congregating before or after work shifts. The swift and serious nature with which our management teams approached COVID-19 safety requirements, together with the flexibility and resilience exhibited by our employee owners to adapt to new protocols, resulted in largely uninterrupted services to our communities.

In the months that followed, Safety teams were responsible for ensuring employee owner access to appropriate personal protective equipment, implementing ongoing facility and equipment sanitation efforts, adapting company operations to facilitate physical and social distancing, monitoring and implementing recommendations from local health and safety officials, and working to transition hundreds of employee owners to remote work setups.

The protection of our employee owners–especially front-line workers like drivers, equipment operators, mechanics, and material sorters–has been critical to our operational success.



#### TRANSITIONING TO REMOTE WORK ENVIRONMENTS

In addition to our front-line workers, Recology employs industry professionals in capacities such as customer service, environmental engineering and compliance, finance, human resources, and community engagement. For these and other technical employees, Recology quickly transitioned traditional in-office work environments to remote setups.

Our information technology, human resources, and operations management teams worked tirelessly to accommodate technology needs and technical assistance to facilitate the transition of more than 500 employee owners to remote work environments.

Like many during this time, kitchen tables and spare bedrooms became the new 'office' for dispatching collection vehicles, responding to customer inquiries, and balancing month-end financials—all essential requirements for keeping our business running smoothly.









Since 2012, Recology has seen a 63% reduction in Lost Time Incident Rate (LTIR) and a 17% reduction in Total Recordable Incident Rate (TRIR)–both key industry metrics that quantify organizational safety performance with respect to workplace incidents.

#### SAFETY TRAINING AND PERFORMANCE

In 2019, Recology launched a comprehensive effort to formalize and implement an Enterprise Risk Management (ERM) program to identify and minimize organizational risk. In addition to creating a risk escalation policy, the new program included new training strategies, safety committees, and a safety culture campaign to promote program ownership within our supervisory and management teams. Recology also created a series of training videos that feature Recology drivers and equipment operators. Produced in partnership with a local marketing firm, these videos bring a professional—and relatable—element to the training experience. Based on the positive feedback from employee owners and internal stakeholders, we plan to expand this initiative to incorporate other safety and wellness topics. In addition to formally recognizing employee owners who demonstrate exemplary safety performance, the ERM program included the production and launch of an internal safety performance scorecard. The scorecard tool allows Recology supervisors to ensure certain safety and wellness-related tasks are completed each week. This focus on continuous safety performance improvement has played a major role in allowing our safety and management teams to target specific areas for improvement, reduce organizational risk, mitigate workplace liabilities, and minimize workplace accidents and injuries.

# Awards

#### ERM AWARD

In 2019, Recology was awarded the Global Enterprise Risk Management Award of Distinction from the Risk Management Society (RIMS) for integrating ERM practices into our company culture to manage risk, improve safety performance, and help ensure long-term organizational viability.

#### **DRIVER OF THE YEAR AWARDS**

Each year, the National Waste and Recycling Association (NWRA) recognizes top industry vehicle operators throughout the county with their distinguished Driver of the Year award. Recipients are selected for their exemplary safety performance and responsible driving behaviors, contributions to their communities, and actions that foster public support and appreciation for the waste and resource recovery industry.

After winning the award in 2018, Recology drivers were again honored with this distinction in 2019 and 2020, making it three consecutive years Recology employee owners have been recognized with the NWRA's prestigious award.



Ted Vrell, Recology King County, 2019 NWRA Residential Driver of the Year Ted exemplifies the Recology commitment to safety and customer service, driving for more than four decades in the solid waste industry without a single accident or injury. Ted has served Seattle's Queen Anne neighborhood for over 20 years and is an important fixture of the local community.



George Humlie, Recology Western Oregon, 2020 NWRA Residential Driver of the Year After 24 years with Recology, George was recognized for his outstanding safety record and contributions to the McMinnville, Oregon community. A musician at heart, George founded the Humlie School of Music, inspiring hundreds of local students (and customers!).

# Looking to the Future

Despite the challenges of this unprecedented year, Recology employee owners remain committed to sustainability and to further improving the efficacy and capacity of our resource recovery infrastructure.

n the coming years, we will continue to adopt renewable fleet fuels and transition to carbon-free energy to power our facilities. We will continue to invest in advanced material recovery technologies and advocate for market development, so that we may better sort and redistribute recyclables to domestic commodity markets. And we will further expand our composting capacity to help more communities divert organic waste from landfills—all the while enhancing the quality and yield of organics products that aid in carbon sequestration and support the proliferation of regenerative agriculture. As we look to the future, we will continue to work with our stakeholders to realize our vision of a world without waste, while exploring new and innovative ways to realize that vision. We will continue to champion diversity and foster our culture of accountability and employee ownership, where we promote respect and inclusion among our workforce and where business decisions are made in the best interest of both our employee owners and the natural environment. Through partnership and strategic innovation, we aim to share in the sustainable futures of the communities where we work and live.

# **OZAppendix**

#### **RESOURCES & METHODOLOGIES**

- 1. Wildfire impact data was sourced from the Geographic Area Coordination Center database.
- 2. Number of individuals served was estimated using Recology customer account information and U.S. Census data (2019).
- **3.** Emission avoidances for organics and recycling activity were calculated using a combination of the California Air Resources Board (CARB) Recycling Emission Reduction Factor (RERF, 2011) and Composting Emission Reduction Factor (CERF, 2017) tools, as well as the US EPA's Waste Reduction Model (WARM, 2020).
- **4.** The '8x' figure was calculated by comparing the sum of emissions avoided through Recology resource recovery activity to the sum of Scope 1 and Scope 2 emissions generated from mobile and stationary sources.
- **5.** US EPA news release: EPA Stresses the Importance of Recycling and Proper Disposal of Personal Protective Equipment (May 2020).
- **6.** Recycled content of cardboard products was sourced from Resource Recycling, per the Corrugated Packaging Alliance.
- 7. Recycled content of glass products was sourced from Owens-Illinois (O-I).
- **8.** Recycled content of aluminum cans was sourced from Recycling Today, per the Aluminum Association and Can Manufacturers Institute (CMI).
- **9.** Recycled content of bath tissue was sourced from the American Forest & Paper Association (AFPA).
- **10**. Plastic data references were sourced from the World Economic Forum's The New Plastics Economy: Rethinking the future of plastics (2016).
- **11.** Volume and weight statistics of recovered plastics and other materials was calculated using US EPA's Volume-to-Weight Conversion Factors (2016) and internal Recology material tonnage data.
- **12**. National C&D tonnage data was sourced from US EPA's Sustainable Management of Construction and Demolition Materials online resource (2018).
- **13.** Financial resources made available for the Healthy Soils Program was sourced from the California Department of Food and Agriculture.
- 14. Climate impact of methane was sourced from US EPA's Landfill Methane Outreach Program.
- **15.** Landfill gas volume, flaring activity, and electricity generation data were provided by vendors Golder Associates, G2, Aptim, SCS Field Services, and American Solar Corporation.
- **16.** Emission equivalencies were calculated using the US EPA's online Greenhouse Gas Equivalencies Calculator.

- 17. For calculating stationary Scope 1 and Biogenic emissions generated from landfills, Recology gathers landfill gas data from vendors and uses the Local Government Operations Protocol (LGOP) equations 9.1, 6.2, 8.7, 8.8, and California Air Resource Board (CARB) implementation of IPCC's First Order Decay Model.
- **18.** Conversion of landfill methane to MTCO<sub>2</sub>e value was calculated using Climate Action Reserve's Landfill Project Protocol version 5.0 (2019).
- **19.** For calculating Scope 1 and Biogenic emissions generated from mobile sources, Recology gathers fuel volume data from internal accounting sources and fuel providers and applies emission factors using the Climate Registry Information System (CRIS) mobile emission calculator and Simple Estimation Method (SEM) tools.
- **20.** For calculating stationary Scope 1, Scope 2, and Biogenic emissions generated from purchased electricity and natural gas, Recology gathers utility usage data though an integrated utility management software and applies emission factors provided by the US EPA's regional eGRID database, the Climate Registry, and from utility service providers.

#### DEFINITIONS

• Greenhouse Gases (GHGs): Any gases that absorb and trap infrared radiation (e.g. energy from the sun) in the atmosphere, leading to increased global temperatures and disruptions to natural climate systems. Many GHGs are caused by human activity and include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases.

Sources: Overview of Greenhouse Gases—US EPA | Global Warming of 1.5 °C Report Glossary—IPCC

- Metric Tons of Carbon Dioxide Equivalent (MTCO<sub>2</sub>e): A unit of measure that standardizes the climatic impacts of various greenhouse gases by accounting for each gas' heat-trapping potential and persistence in the atmosphere compared to carbon dioxide (CO<sub>2</sub>).
- Anthropogenic Emissions: Those associated with human activity, most commonly generated through the burning of fossil fuels (e.g. carbon dioxide from oil, coal, and natural gas) or other human activities that result in the emission source (e.g. methane produced in landfills). Anthropogenic emissions result in a net increase in atmospheric greenhouse gases and thus have an adverse effect on climate change.

Sources: Report on the Environment: Greenhouse Gases—US EPA | Global Warming of 1.5 °C Report Glossary—IPCC

• **Biogenic Emissions:** Those carbon emissions associated with the earth's current carbon cycle, most commonly generated from the natural decomposition of organic materials and combustion of biomass-derived fuels (e.g. biodiesel, renewable diesel, and ethanol). As biogenic sources do not introduce fossil-derived carbon into the atmosphere, they do not result in a net increase in atmospheric carbon and therefore have fewer adverse climatic impacts when compared to anthropogenic emissions.

Source: Science and Climate Definitions—UC Davis

#### 2020 EMISSION INVENTORY

Our voluntary emission inventory includes the three (3) internationally recognized greenhouse gases generated from company business activity: Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), and Nitrous Oxide (N<sub>2</sub>O). Recology does not participate in activities that generate SF<sub>6</sub>s, HFCs and PFCs above de minimis levels and therefore these gases are not quantified.

Scope	Description	Anthropogenic (MTCO <sub>2</sub> e)	Biogenic (MTCO <sub>2</sub> e)
1	Direct Emissions from Stationary Combustion Source-fossil portion of fuels used in stationary assets, natural gas usage at facilities, landfill flaring	1,535.52	N/A
1	Direct Emissions from Mobile Combustion Source-fossil portion of vehicle fuels	34,968.32	N/A
Biogenic	Biogenic CO <sub>2</sub> Emissions from Mobile Combustion Source-biomass portion of vehicle fuels	N/A	84,740.73
1	<b>Direct Fugitive Emissions</b> Source–fugitive landfill emissions	152,067.66	N/A
Biogenic	Biogenic CO <sub>2</sub> Emissions from Stationary Combustion Source–landfill flaring, biomass portion of vehicle fuels used in stationary assets	N/A	50,431.35
2	Indirect Emissions from Electricity Use Source-purchased electricity	1,338.73	N/A
Biogenic	Biogenic CO <sub>2</sub> Emissions from Electricity Use Source-biomass portion of electricity	N/A	26.12
	TOTALS	189,910.22	135,198.20

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