



2018 SUSTAINABILITY REPORT

casella

About This Report

To keep our stakeholders apprised of our progress toward our resource renewal vision, we issue a biennial sustainability report. To be sure that our report is a rigorous assessment of our sustainability impact, rather than just a selection of feel-good stories, we follow a widely-respected reporting framework developed by the Global Reporting Initiative (GRI). **This year's report has been prepared in accordance with the GRI Standards: Core option.** These standards are built upon the following principles:

- **Stakeholder Inclusiveness:** In preparing our report, we strive to consider the perspectives of six key stakeholder groups: Customers, Employees, Communities, Government, Shareholders, and Vendors.
- **Sustainability Context:** Throughout our report, we describe the ways that our sustainability initiatives will bring our actions and impacts into alignment with broader societal goals and environmental limits.
- **Materiality:** We report on the topics that are important to our stakeholders and that reflect our largest economic, environmental, and social impacts. These are described in the table below.
- **Completeness:** We strive to provide a full picture of the material sustainability issues within our operational boundaries that best reflect the impacts of our business since our last report.

Materiality:

Through internal surveys reflecting ongoing conversations with external stakeholders, we identify the issues that are both important to our stakeholders and that reflect our largest economic, environmental, and social impacts. We review these results alongside those identified through our enterprise risk management process. The table below summarizes the results of that process.

Time Period: This report is current through mid-2018. Most data points are current as of 12/31/2017, unless otherwise noted.

Material Issue	Our Commitment	Read More
Waste tons securely disposed	We design, build, and operate our landfills with the highest standards for employee safety, community benefit, and stewardship of the land, air, water, and climate.	Page 22-23
Waste tons recycled/used	We develop and deliver sustainable resource solutions to recover wasted resources.	Page 10-13; 16-19; 24-27
Water impacts of our operations	We monitor the impact of our operations on surface and ground waters and act as responsible stewards of our local watersheds.	Page 32
Environmental compliance	As an environmental services company, we adhere to our environmental permits and applicable regulations.	Page 33
Local air and odor impacts	As engaged members of our local communities, and good stewards of the environment, we proactively prevent air impacts, and respond promptly to any that occur.	Page 33
GHG emissions of our operations	We annually measure and disclose the greenhouse gas emissions from our operations and work to continuously reduce our emission rate.	Page 30-31
Economic benefits of our services	We benefit our local economy by providing quality services to local homes and businesses, supporting local jobs, and paying taxes and host community investments.	Page 34-39
Employee health and safety	We provide our employees with the training and tools to do each job safely; Our employees work with the utmost commitment to professionalism and safe conduct.	Page 34-39
Local community engagement	We engage with and invest in our local communities so that customers are proud to hire us, employees are proud to work for us, and communities are proud to host us.	Page 34-39
Environmental responsiveness	If our operations inadvertently impact the environment, we respond promptly and transparently engage our regulators and community until the problem has been corrected.	Page 33
Creating good jobs and workplaces	We create great jobs that offer competitive pay and benefits, safe working conditions, and pathways for continuous learning and career growth.	Page 34-39
Employee training and growth	We cultivate a culture of lifelong learning and growth. Every Casella employee has access to career development pathways to develop their technical and leadership skills and advance their careers within the company.	Page 34-39

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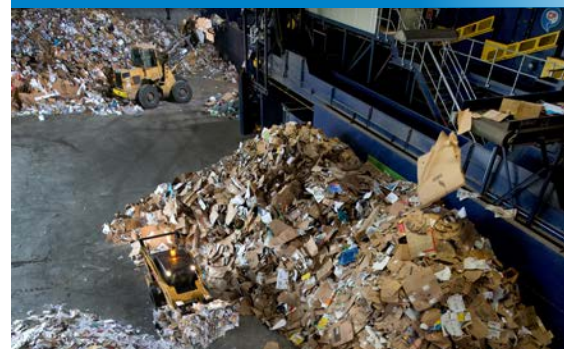
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COLLECTION



ORGANICS



ENERGY



LANDFILLS



About Casella

Casella Waste Systems, Inc.
Headquarters: Rutland, VT, USA
Operating Footprint: VT, NH, ME, MA, NY, PA
Business Units: Eastern, Western, Recycling, Other
Number of Employees: 2,261 (as of 12/7/2018)
Revenue: \$637.2mm for the 12-months ended 9/30/18
NASDAQ: CWST

We invite our readers to send comments or questions regarding this report to:

Casella Waste Systems, Inc.
 Attention: Abbie Webb
 25 Green Hills Lane, Rutland, VT 05701
 abbie.webb@casella.com

A MESSAGE FROM OUR CEO

At Casella, our mission is to protect the environment and strengthen our local communities, and grow our business by creating value from society's waste streams. We create this value for our people, our customers, and our shareholders by seeing the opportunities in emerging and accelerating local, national, and global trends. For example, when faced with challenges like the collapse of the global recycling market, the circular economy, or various regulatory constraints, our expertise and more than 40 years of experience enables us to create value through a nimble approach to sustainable materials management.

Arising from our northeastern U.S. roots, sustainability, in all aspects of the word – people, business, and the environment – is integral to our strategy. We continue to focus our efforts on building critical infrastructure to meet the demands of our society while developing and investing in innovative solutions to support the needs for generations to come. In addition, we are building on a legacy marked by steadfast community stewardship, a sustained focus on offering a great place to work and grow, and delivering environmental solutions which have meaningful returns for our customers and shareholders.

I spend a lot of my time visiting with customers, regulatory and legislative bodies, and our people. It is in each of these discussions that I learn not only about the numerous and complex sustainability challenges that our local communities face, but also how our teams are addressing issues every day for their customers with smart, innovative solutions. Global and local shifts make what we do both simple and complex. Simple? Provide a necessary, everyday service that needs to be efficient, reliable, and cost-effective. Complex? Meet those needs in a rapidly changing local, national, and global environment.

We are thoughtfully managing and approaching these challenges with practical solutions, recognizing both today's technological limitations and tomorrow's possibilities. There are a number of challenges woven throughout this report:

First, **recycling is in crisis** globally and right here at home. Our actions in response to this challenge will have a significant impact on both the economic sustainability of recycling as well as the environmental sustainability it promises. We must solve this problem – creatively, urgently, and collaboratively.

Secondly, our society's evolution towards resource management and sustainability requires a deep understanding of the importance of the entire spectrum of our solid waste infrastructure. At this moment in history, **this infrastructure is deeply integrated**, with each component playing an important role – even landfills. These roles can be – and are – either waxing or waning, but each is key to the bridge we are building to the ideal future where there is no waste, only resources to be given new life.

Next, when it comes to waste and recycling, and resource management, the needs and expectations of many of our customers are growing, in both scope and intensity. This, too, is evolutionary, and ripe with opportunities for progress in the sustainability of resources. Our vision is to bring these **creative, innovative resource solutions** into the mainstream of how we serve an even broader range of customers and tackle a broader range of sustainability challenges.

We are making progress:

1. Recycling over 1M tons per year of organics and recyclables
2. Reducing GHG emissions by over 50%
3. Enhancing our programs to develop our people

A note about balance: environmental sustainability – a noble and necessary goal – must be paired with an equally strong commitment to financial sustainability. Without this balance, without a goal of profitability, our ability to make lasting, meaningful impacts on the sustainability of our environment and our resources is limited. In short, we can do good, and do well – proving to the world that solving the challenges of sustainability and resource limitations is good business, and the most significant economic development opportunity in a generation.

In the pages that follow, you will find a lot more detail around how our business and our strategy is intricately woven around our embrace for sustainability and creating innovative solutions that build a better tomorrow. What excites me most about the years ahead is the team that we are building to advance our mission and to bring you – our customers, policy-makers, regulators and communities – the next generation of leaders in sustainable materials management.

Thank you for your interest in Casella and for reading our Sustainability Report. I hope this brings you closer to understanding our beliefs and the actions we are taking to solve the resource challenges we face.



All the best,

A handwritten signature in black ink that reads "John W. Casella". The signature is written in a cursive, flowing style.

John W. Casella
Chairman & CEO

OUR RESOURCE RENEWAL VISION

Continued on next page...

For decades, organizations across the country have sought to increase recycling rates by encouraging people to put more items in their recycling bins. Unfortunately, this practice benefits no one if those items are not actually recyclable.

It is time to pause and remember why we recycle. Many have come to believe, simplistically, that the benefit of recycling comes from keeping stuff out of landfills. This ignores the crucial fact that environmental impact of landfilling is negligible compared to the extraction and transportation activities that produced them. *The great promise of recycling is not that we can eliminate landfills, but that we can eliminate mining and deforestation.*

A myopic focus on “diversion” has distracted everyone from the daunting but essential work of building a resource-cycling economy in which today's discards consistently become the raw material for tomorrow's new products. With this report, we hope to reset the conversation, reminding everyone that recycling is far from simple, and it doesn't begin or end at the recycling bin. To endure, recycling solutions must be practical, they must be environmentally, economically, and socially-sustainable, and they must be embedded in a resource renewal economy that transforms the supply chains of everything we purchase and consume.

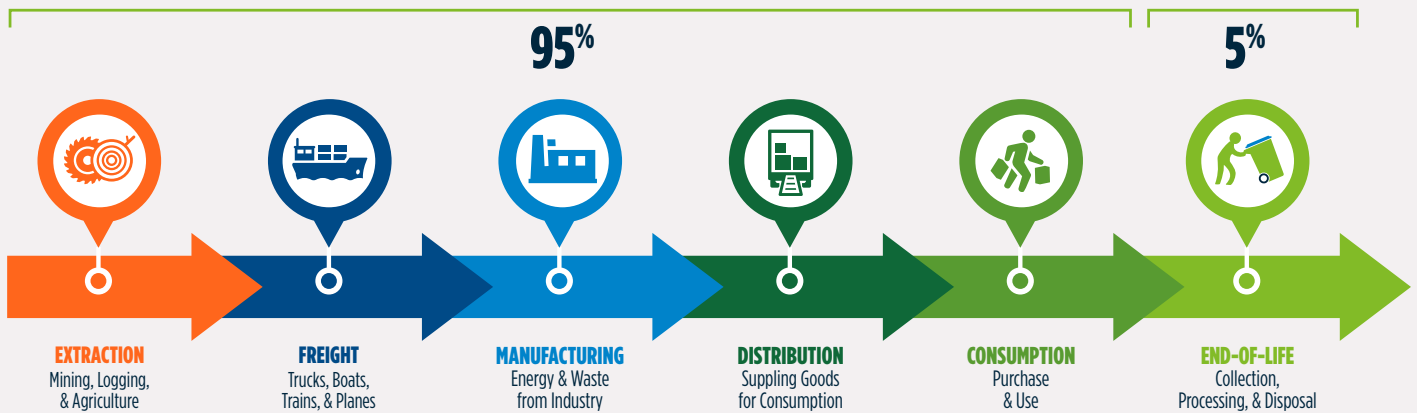
Truly Sustainable Recycling

As a society, we recycle because much of the stuff we toss has value. We can capture that value and put those items to a higher and better use.

To endure, recycling programs must be built on a solid foundation of environmental, economic, and social sustainability. In other words, sustainable recycling solutions must do three things: 1) measurably enhance **environmental stewardship**, 2) demonstrate **economic viability** and sound financial returns, and 3) deliver **social benefit** including improved health, safety, and quality of life for people throughout the supply chain.

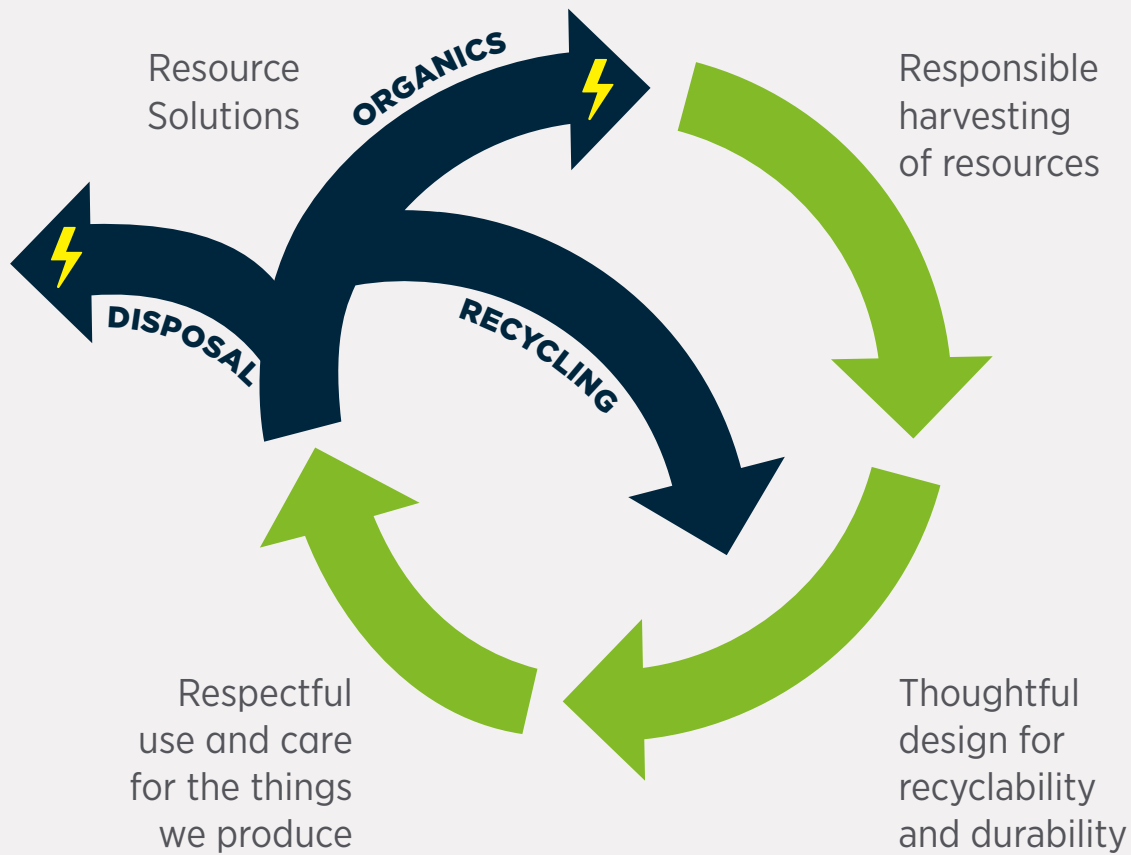


Holistic solutions needed: The stuff you buy has a large environmental footprint, and less than 5% of it comes from end-of-life collection, processing, and disposal. This means that simply moving discards from one bin to another is not enough. To tackle the other 95% of the environmental footprint, society has to design more of its stuff to be durable and recyclable with a high amount of recycled content. We need holistic recycling solutions designed to capture not only quantity, but quality.



Data Source: USEPA 2009 - Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices

Partnering for Resource Renewal



This graphic depicts our role in the resource renewal cycle (also known as the circular economy). It shows the path that all products follow as they flow from raw materials into products and back again. Our job is to provide innovative Resource Solutions to help close the loop when environmental, social, and economic factors align to put materials to a higher and better use. The disposal arrow is for items that are not yet suitable for recovery. The lightning bolts indicate opportunities for energy capture.

Resource Renewal

We envision a resource renewal future in which nothing would be wasted, resource extraction would be all but eliminated, and human society could come into alignment with natural systems.

Achieving resource renewal will not be easy. Roughly 50% of the waste from U.S. homes and businesses consists of materials that could be recycled or composted using technology available today. We need to get those materials into the right bins; but that will get us only halfway to our goal. The rest of the journey will require tougher steps: stop buying stuff that isn't recyclable, engage suppliers to redesign for recyclability, purchase products made from recovered materials, and invest in the next wave of resource recovery infrastructure.

To advance resource renewal, we are helping our customers set smart goals and providing them with a growing suite of Resource Solutions to help them achieve those goals. (Section 1 defines and describes our Resource Solutions). Still, we know that success will

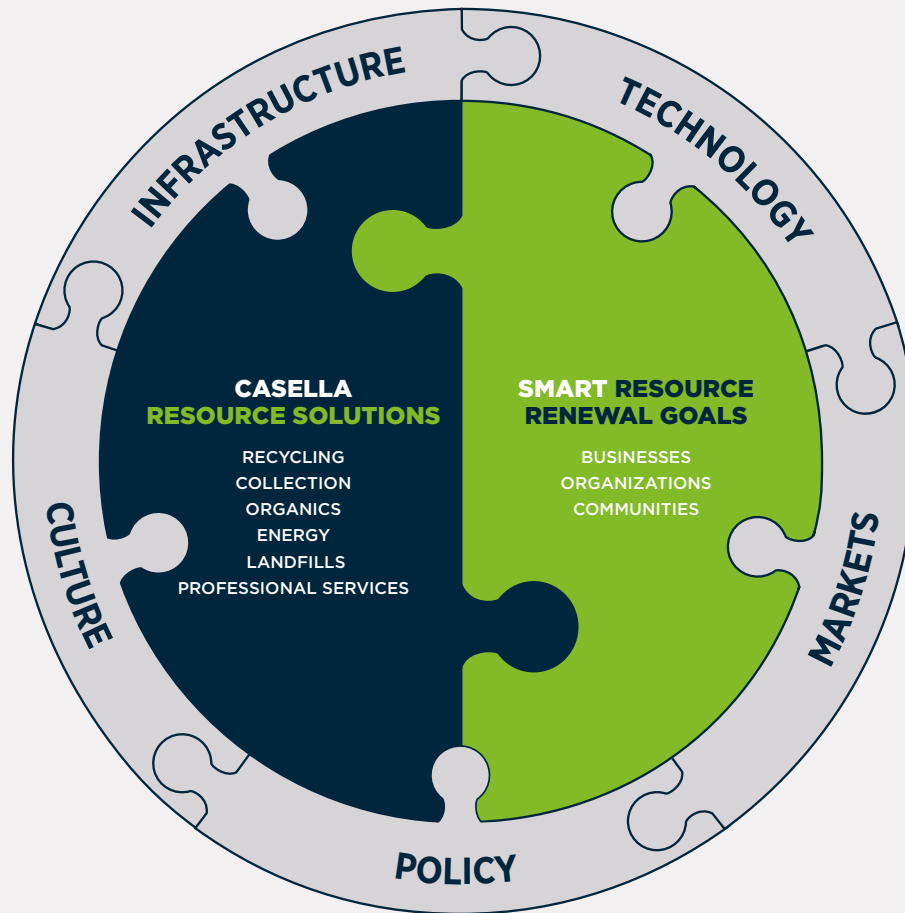
require much more. Our progress will be helped or hindered by systemic factors such as markets, policy, technology, culture, and infrastructure. Only by aligning all of these stakeholders and forces will society achieve resource renewal. This "puzzle" is depicted in the graphic on page 7.

It Begins with Smart Resource Renewal Goals

We have thousands of customers, including manufacturers, colleges, schools, hospitals, small businesses, municipalities, and households, who are actively working to reduce their waste. The most dedicated among them are working with us to set smart resource renewal goals that are data-driven and achievable. We provide these customers with resource renewal plans that go far beyond improved sorting to also include source reduction, procurement policies, supply chain engagement, and more.

With our Core Values as our guide, and decades-long relationships to build upon, we have been fortunate to forge many strong partnerships to advance resource renewal in our region.

The Resource Renewal Puzzle



This graphic shows the primary drivers involved in creating the circular economy: a strong provider of innovative Resource Solutions, companies and communities with smart resource renewal goals, and a commitment to driving systemic change.

Innovative & Reliable Resource Solutions

As one of the leading resource management companies in the country, we are extremely proud of our high-quality environmental services, which we call resource solutions: recycling, organics, collection, energy, and landfills. With over 2,000 employees, 100+ facilities, 500+ front-line vehicles, and over 40 years of experience, we collect, aggregate, sort, process, market, and manage our customers' discards every day.

Every day, we apply our experience and our expertise to enhance our resource solutions and to imagine and develop new ones that propel us into the future. We take an approach of disciplined innovation, seeking the ideas, models, and technologies that fit into a holistic resource management infrastructure for the customers we serve. One of our most exciting areas of investment today is in the development of our people and their resource renewal expertise. A growing number of customers value us not only as providers of the tangible services above, but also as providers of the knowledge and data that help them achieve their goals. Thus, we are rapidly enhancing our professional services such as data reporting, on-site management, waste reduction, life cycle assessment, strategic

sourcing and logistics, supply chain analysis, and more. These skills will be fundamental to achieving our customers' goals as well as the broader resource renewal vision.

Systemic Change in Markets, Policy, Technology, Culture, & Infrastructure

With the strong partnerships, smart goals, and resource renewal expertise described above, we will continue to drive progress toward the vision of resource renewal. However, we know that even the best programs eventually come up against the law of diminishing returns: early projects save money, then some projects even, but eventually we come up against waste streams that are too costly to prevent or recover. At this point, bigger change is required.

Only deep systemic change will drive solutions for the hardest-to-recycle materials, or prevent them from being generated in the first place. Markets and culture need to reward waste reduction and diversion. New technology and infrastructure need to enable diversion of more materials. Smart policy will sometimes need to nudge things along.

SECTION 1

OUR SOLUTIONS

RESOURCE SOLUTIONS FOR OUR CUSTOMERS

We believe that our greatest sustainability impacts come through our collaborations with customers. In the pages that follow, we describe each of our services, which we call Resource Solutions, and we provide case studies to illustrate the ways our customers use our services to achieve their resource renewal goals.

A recurring theme of this section is change. Our customers' goals, processes, and supply chains will always be changing. Markets, policies, technologies, culture, and infrastructure will always be changing too. Against this backdrop, our Resource Solutions will never be static; they should always be adapting and evolving. To this end, we are increasingly focused on approaches that are flexible, modular, and distributed.

Our customers have myriad goals for their solid waste streams, and they call upon us to find solutions that provide multiple benefits: reducing waste, cutting carbon, closing resource loops, building the regional economy, supporting the community, creating supply chain value, and more.

Our Resource Solutions are now capturing over a million tons per year of solid waste from the disposal stream. We are proud of this milestone, but we know that this reflects only one of our customers' many important goals. So, although tonnage will continue to be a metric we track, it cannot be our only metric. As we develop and deliver services for our customers, our focus will be on practical solutions that create multiple forms of value for our customers. These are true Resource Solutions. ◆





10 YD



ZERO-SORT[®]
RECYCLING
a casella service

7800-CASELLA

MAACK

2025 Safety Center
Campus Center
Business Office
Student Center
SPORTS

Handicap
Fire Exit Center
Administration
Old Chapel

STOP

STOP



RECYCLING

Since 1977 we have helped to pioneer the field of resource recovery. In **2018**, led by our Zero-Sort Recycling facilities, we recovered over **800,000** tons of recyclable materials.

Recycling conserves natural resources, prevents pollution, saves energy, and reduces waste sent to disposal facilities. It can also support American manufacturing, create jobs, and increase economic security by providing a domestic source of materials. For all of these reasons, when someone wants to improve the environmental impact of their business or household, recycling is often the first step they take.

An Industry in Crisis

Each week, Americans dutifully wheel their recyclables to the curb, unaware that the service they have come to expect and value is struggling to survive. At recycling facilities across the country, the crisis is clear: contamination levels are too high, commodity markets are too low, and recycled materials have few places to go.

Recycling has reached a crossroads. On its current path, residue rates will continue to

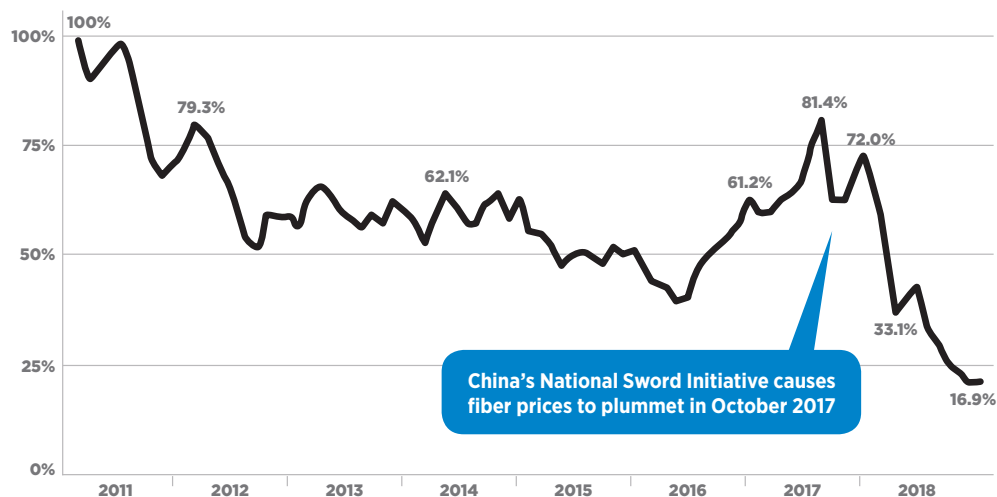
rise, the demand for recycled commodities will dwindle, and recycling could become unavailable to most homes and businesses.

With a forty-year commitment to recycling, we at Casella want to lead the way to another path, a path that is headed toward the full recovery of clean, high-quality recyclables, and toward the establishment of diverse, domestic markets for recycled commodities. Through swift, decisive action, we believe that such a recovery is possible.

In this section, we describe the steps we've taken and our plan of action for the coming months. If all goes well, in our 2020 report, we hope to write that the commodity crashes of 2017 and 2018 were a blessing in disguise, shaking everyone out of complacency, and setting recycling programs on a path to true sustainability.

Recycling Markets Plummet

The chart below depicts trends in Casella's Average Commodity Revenue (ACR) per ton, which is what we are paid for our sorted and processed recycled commodities, less the related processing, residue, and transportation costs.



Made in China



In 2017/2018, China rocked global recycling markets with a swift series of policy changes. The impacts – a 90% drop in market value for mixed paper and a 63% drop in the value of the traditional recycling stream – have left recyclers reeling.

It is no secret that a significant portion of the products in the global economy are manufactured in China. So it comes as no surprise that China became the top importer of recycled plastic and paper, the raw materials for all those products and their packaging. In recent years, Chinese manufacturers developed such a strong appetite for material, that they accepted it even with high contamination.

This lax approach changed abruptly early this year, when China banned the import of 24 types of recyclable materials and established exceedingly stringent quality standards for other recyclables. Even recyclers with high quality standards – including Casella – are now struggling to sell their outputs.

To date, China's actions have had negative consequences. With a shortage of recycled feedstock, demand for virgin wood pulp from timber harvesting has risen. Meanwhile, many recycling programs throughout the western world have been forced to curtail their recycling programs or dispose of recyclables.



Recycling is the right thing to do, but it must be done right. Contamination from items such as plastic bags and trash add unnecessary costs that must be reduced through education and outreach.

What's in your bin?

Over the past twelve years, the composition of the recycling stream has changed dramatically. There are two main drivers: shifts in the types of products and packaging in the marketplace and changes in customer decisions about what goes in the recycling bin. Below we describe those changes and the ways we're adapting.

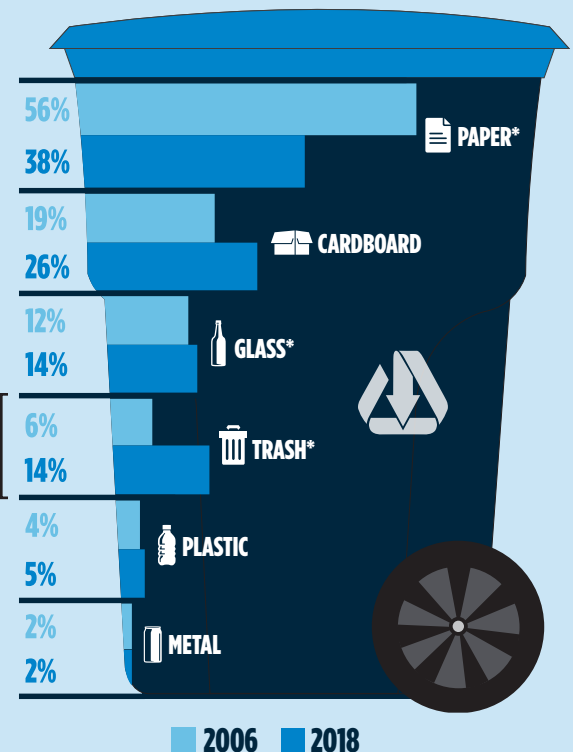
Paper & Cardboard make up most of the recycling mix. Cardboard has increased as more consumers shop online and receive boxes by mail. Paper has declined as customers receive their media digitally rather than in the form of newspapers and magazines. We make processing equipment investments to accommodate these changes.

Glass is a growing percentage of the recycling mix. This strains recycling facilities because glass is expensive to process and markets are very limited. Some municipalities have begun to exclude glass from their recycling mix because of these challenges. We are exploring several ways to make glass recycling economically viable.

⚠️ Trash in the recycling mix has reached alarming levels, due to confusion and carelessness about what belongs in the recycling bin. Our blended average has reached 9%, and individual loads come to us with contamination levels as high as 25% or even 50%! The impacts include risks to employee safety, damage to equipment, facility shutdowns, degradation of recyclable material, increases in disposal costs, and an overall decline in the efficiency and effectiveness of recycling systems. Coupled with recent market disruptions, the entire industry is grappling with this threat. We are working with our customers and partners to improve education and outreach.

Plastic & Metal are the high-value commodities in the recycling mix, and their overall presence (as a percentage of total weight) has not changed significantly. The presence of antiquated container deposit systems in some states continues to siphon valuable aluminum and polyethylene out of the municipal recycling stream, harming the economic equation that enables recycling of lower-value commodities like other plastics, mixed paper, and glass.

As the recycling mix changes, we must continuously innovate, upgrade our infrastructure, update our education programs, and help policymakers rethink legislative models. We must also be disciplined in deploying a business model that can evolve along with the recycling stream to keep recycling programs strong.



*Our focus today is on Paper, Glass, and Trash, which make up over 2/3 of the current recycling mix. We consider Mixed Paper and Glass to be "At-Risk", meaning there's not enough demand for them in the marketplace, and we need to cultivate new markets. Trash obviously does not belong in the mix, and we need to re-educate our customers to bring this number back down to 0%.

Percentages reflect outbound MRF tonnage, updated through June 2018

A Multi-Pronged Strategy to Save Recycling

In our last report, we laid out a 6-part strategy to build a sustainable recycling industry, and we have made important progress. We participated in a collaborative pilot to address recycling contamination. We invested in new glass processing equipment and began developing new outlets for glass. We helped stabilize the business of recycling with a new approach to pricing.

Our work over the past few years has prepared us for the even harder work that lies ahead. In the face of plummeting global commodity prices and skyrocketing contamination, everyone who values recycling needs to join in to correct its course. Here is our multi-pronged approach.

1 Customer Education: We use mailers and signage to tell our customers what's recyclable and what's not. Over the coming year, we will supplement these basic tools with enhanced web content, targeted social media campaigns, a recycling ambassador program, and more. We will also sample more inbound loads to pinpoint contamination sources.

GOAL: Eliminate customer confusion (as measured by survey) and achieve 100% accuracy in sorting (0% inbound contamination)



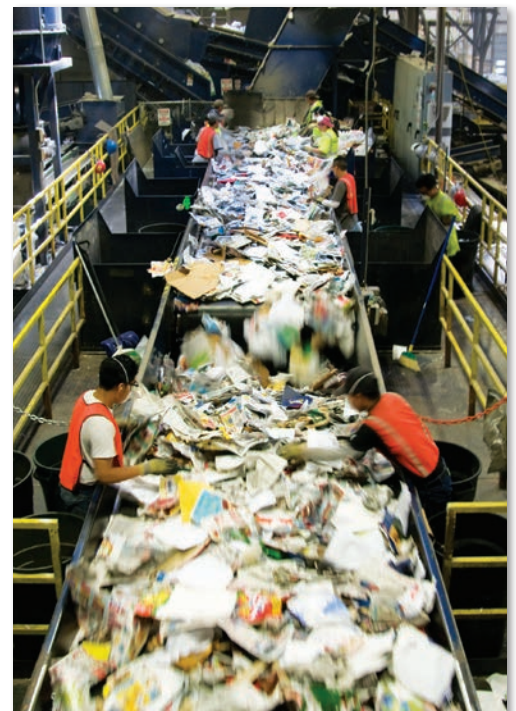
2 New Markets: Recyclers are too often reliant on one or two buyers to purchase their product lines. The closure of a single mill or glass plant can leave an entire region with no home for their outputs. As an industry, we need to collaborate with partners to actively cultivate multiple new markets for each of the products we produce.

GOAL: Establish multiple markets for each commodity, including domestic options



3 Policy Support: We are engaging with industry groups and meeting with elected officials at the local, state, and federal levels to show them the urgency of the recycling crisis. We are requesting their support with measures like education programs, market development, and bottle bill reform.

GOAL: Earn the support and understanding of elected officials throughout the northeast



4 Risk and Reward Sharing: As recycling facilities in other areas are shutting down, we have been able to keep our doors open because an ever-growing proportion of our customers have switched to formula-based pricing in which we all fairly share in the risk and reward of recycling.

GOAL: Get 100% of customer base onto a shared risk/reward pricing program

5 Design for Recycling: Designers and manufacturers are the missing link in the recycling chain. With each new line of products or packaging, they have the opportunity to create something that contains recycled content and is recyclable. Each time they fail to do so, society pays the cost, and the resource renewal vision is further delayed. To achieve 100% resource renewal, we need to get the designers and manufacturers on our side.

GOAL: Increase the proportion of packaging that has high recycling value by engaging product and packaging designers and university programs

GOALS

PUTTING THE
PIECES TOGETHER

RECYCLING



OUR GOAL:
To sustainably grow
our recycling business.

TRACK PROGRESS BY MONITORING:
Total tons processed, residue rate,
at-risk tons, and revenue.

OUR FOCUS OVER THE NEXT TWO YEARS:
Continue to advance the five initiatives,
described on page 12.

✓ **GOAL ACHIEVED:** In 2015, we recycled over **1 million tons** of recyclables and organics. This would not have been possible without our proactive focus and commitment to shaping a sustainable recycling industry.



Recycle Better™

Can you recycle better? The items listed below **DON'T** belong in your recycling bin. For more tips and resources, visit casella.com/RecycleBetter

DO YOUR
PART

Eliminating these sorting mistakes will help to protect our workers and sorting equipment, and safeguard the recyclability of the other materials.



PLASTIC BAGS DON'T BELONG

WHY NOT: They wrap around the sorting equipment.
INSTEAD: Recycle your bags at a participating grocery or retail store.



BAGGED RECYCLABLES DON'T BELONG

WHY NOT: They look too much like trash at the recycling plant.
INSTEAD: Keep it loose by tossing into your bin! Don't bag up your recyclables.



CLOTHING/ TEXTILES DON'T BELONG

WHY NOT: They wrap around the sorting equipment.
INSTEAD: Donate them through a local clothing drive, drop box, or reuse store.



FOOD WASTE/ LIQUIDS DON'T BELONG

WHY NOT: They reduce the recyclability of other items.
INSTEAD: Look up local food waste programs or place in your trash.



TANGLERS DON'T BELONG

WHY NOT: They wrap around the sorting equipment.
INSTEAD: Place your unwanted cords, ropes, hoses, and other "tangles" in the trash.



SCRAP METAL ITEMS DON'T BELONG

WHY NOT: They damage the sorting equipment.
INSTEAD: Look up your local scrap metal recycler that accepts these items.



BATTERIES OF ANY KIND DON'T BELONG

WHY NOT: They can cause fires, endanger workers and harm the environment.
INSTEAD: Find your best disposal option at earth911.com.



EWASTE ITEMS DON'T BELONG

WHY NOT: They get broken during sorting and are unsafe.
INSTEAD: Look up your local electronic waste recycler or retail take-back programs.



COLLECTION

In **2017**, we provided safe, reliable, and environmentally-sound waste and recycling services to over **150,000** businesses, institutions, and municipalities throughout the northeast.

Sustainable resource management would not be possible without safe and reliable collection service. Our collection operations consist of over 500 front-line vehicles and 47 transfer stations located from northern Maine to western New York.

Fleet Modernization

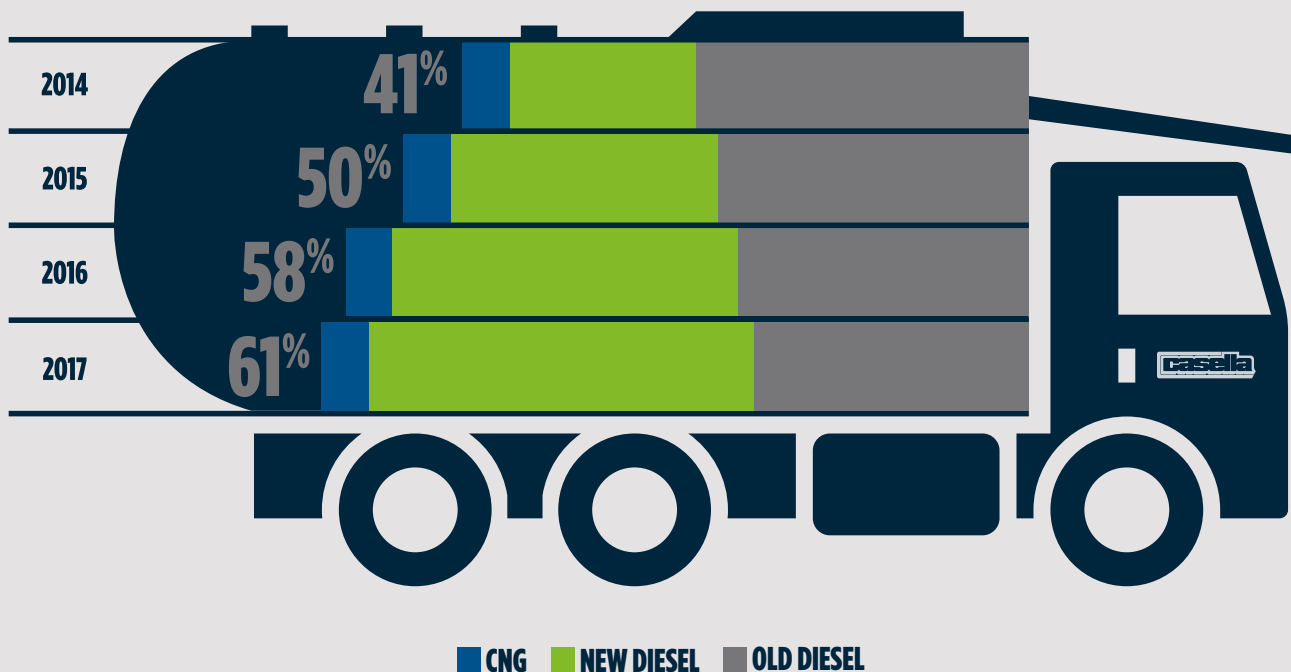
Since 2015, we have been executing a five-year fleet plan to modernize and standardize our fleet to improve our productivity and efficiency.

Each investment in our fleet is an investment in our people, our service, and the environment. By equipping our hard-working drivers and technicians with great equipment, we improve the quality of their day-to-day experience and enable them to better service customers. And because newer vehicle models have better emission controls, these investments benefit air quality too.



Building a Cleaner Fleet

This figure shows the recent evolution of our fleet. Heavy-duty diesel trucks manufactured in 2007 or later meet stringent emission standards for particulate matter and NOx. Vehicles that run on alternative fuels like Compressed Natural Gas (CNG) have emission benefits too. The percentage of these cleaner trucks in our fleet is growing. Today, new diesel and CNG trucks make up more than 60% of the front-line vehicles in our fleet.



Source: Casella front-line vehicle counts by type and model year

GOALS

PUTTING THE
PIECES TOGETHER



OUR GOAL:
Improve the efficiency of our
collection routes.

TRACK PROGRESS BY MONITORING:
Total diesel gallons consumed
and diesel gallons per ton mile.

OUR FOCUS OVER THE NEXT TWO YEARS:
Implement fleet plan, make CNG a stronger
option, and complete route optimization
training for our operations managers.

Alternative Fuels

CNG: Our fleet includes 37 refuse and recycling trucks that run on compressed natural gas (CNG), which has a lower carbon footprint and cleaner emission profile than diesel fuel. Since we bought our first CNG truck in 2010, we have displaced over 2 million gallons of diesel fuel with cleaner burning CNG.

Most of our CNG trucks have 9-liter engines. Their limited power and excessive maintenance costs have prevented wide-scale roll-out. We have begun trialling trucks with 12-liter engines. Preliminary results suggest that they may meet our performance needs and enable us to grow our CNG fleet in the coming years.

Biodiesel: We have also had some success with biodiesel. Our hauling division in Portland, Maine runs on a blend of locally-produced biodiesel. In 2017, the Portland fleet saved over 18,000 gallons of diesel fuel by using biodiesel.

Electric Vehicles: Over the years we have experimented with electric vehicles. Because we operate in rural areas, we need vehicles that can cover long distances between fueling or charging. This has been an important limiting factor for electric vehicles in our fleet, but we believe the technology is improving and we are working with our vendors to conduct additional pilots this year.



Routing Efficiency

The simplest way to save fuel is to drive less. We need to do more work while logging fewer miles. In 2017 and 2018, our route supervisors attended training on efficient routing principles and practices. As part of our broader strategic goal to improve the profitability of our collection operations, each division is focused on improving the efficiency and productivity of their routes.

EPA SmartWay

We are working to better understand the emission impact of our fleet investments and productivity initiatives. To help us do this, we plan to join the EPA SmartWay program in 2019.





ORGANICS

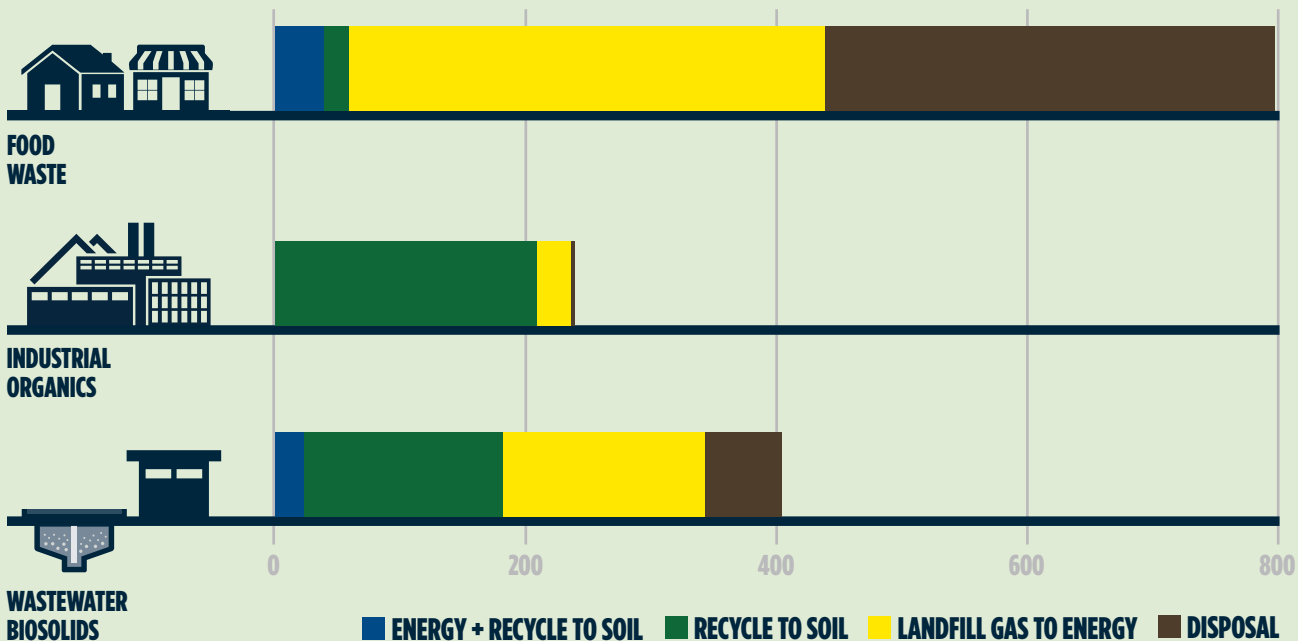
We transform organic waste streams into nutrient rich **earthlife®** soil products, animal feed, and renewable energy. In **2017**, Casella recycled over **400,000** tons of organic materials.

The term *organics* encompasses food waste, yard debris, and soiled paper, as well as wastewater treatment solids, food manufacturing by-products, animal manures, paper mill residues, wood ash, and other mineral residuals. We recycle these materials and recover their value through composting, product blending, anaerobic digestion, alkaline stabilization, and direct to market land application. We also manage organic residuals to disposal facilities when they are not suited for recycling.



The Organics Opportunity at Casella

An important way for society to rebuild our soils, generate renewable energy, and cut our climate impact is to reduce and recycle organic waste and by-products. As a company, we manage 1.4 million tons of organic residuals, including wastewater biosolids, industrial organics, source separated food waste, and the food fraction of municipal solid waste. The graphic below details our management of these materials in 2017. We have defined four categories of management: renewable energy + recycle to soil (anaerobic digestion), recycle to soil (compost and land application), landfill gas to energy (landfills that produce renewable energy), and disposal (incineration and landfills without energy capture).



Data note: 2017 organics managed, by destination. Units = thousands of tons. All figures are actual scaled tonnages into internal and third party facilities, except food waste tons to landfill-gas-to-energy and disposal, which were estimated based on the amount of municipal solid waste (MSW) we delivered to our own and third party facilities.

Food Waste

In 2015, the U.S. government declared a goal to reduce food waste by 50% by the year 2030. The United Nations' Global Sustainable Development Goals include a similar target. Closer to home, each state within our operating footprint is working to reduce food waste through regulatory mandates and/or voluntary initiatives. Interest in food waste diversion is at an all-time high.

Casella has been in the food waste business since 1999, when we began taking source separated food waste to a composter near Burlington, VT. Over the years, our food waste service offering has grown and expanded. In 2017, we captured over 60,000 tons of food waste for beneficial use.

The decision tree graphic to the right shows how we work with our customers to find the right solution or combination of solutions for their food waste.

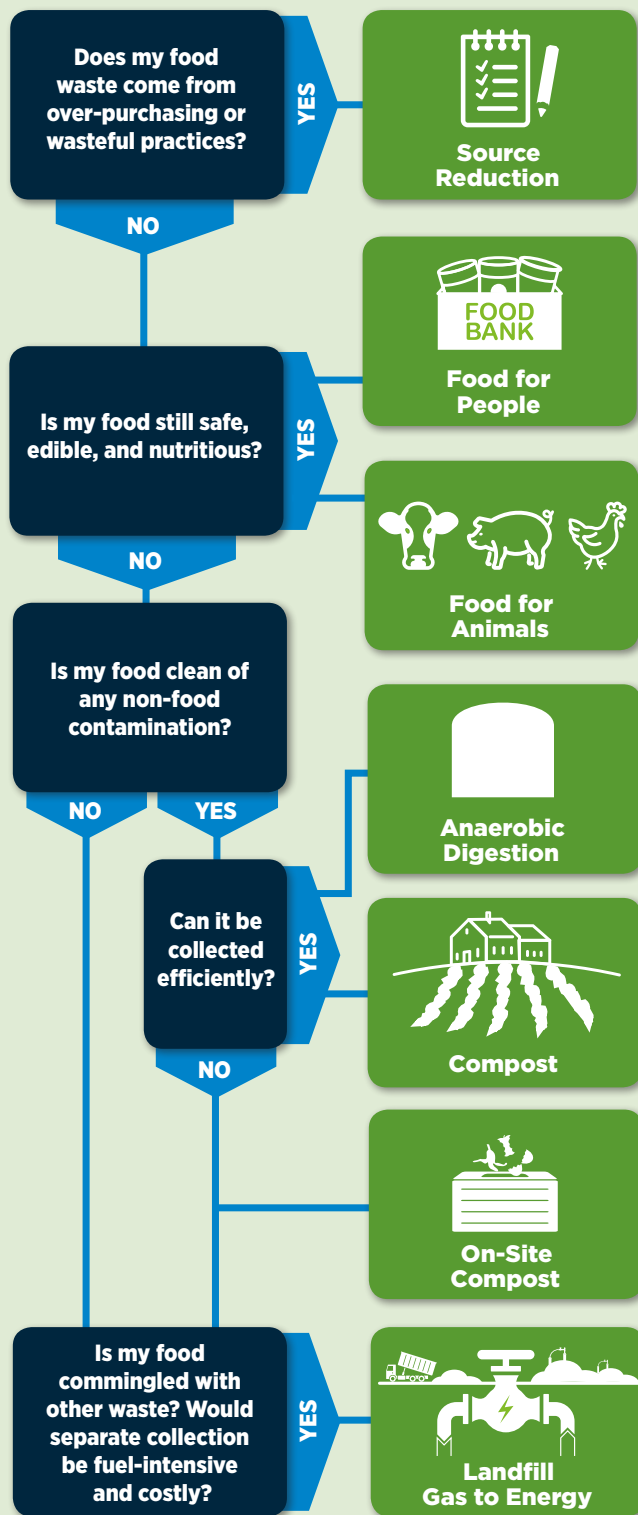
Grind2Energy

In our journey to help our customers put their food waste to a higher and better use, we are always tracking and testing the latest technological innovations. One solution that has proven itself as an exciting and reliable option for our customers is the Grind2Energy system from Emerson InSinkErator. The system equips customers to process their food waste into a pumpable slurry that we deliver to local digesters to produce renewable energy and soil fertilizer products. Our customers find that it meets their needs for cleanliness and usability, and they are proud to share its great sustainability story with their employees and customers.



Navigating Your Food Waste Options

We work with our customers in many ways to put uneaten food to good use. Answer the questions below to understand which combination of solutions is best for your food waste.



Biosolids and Other Organics

Wastewater treatment biosolids remain an essential consideration for any community striving for sustainable organics management. Across the country, communities are rethinking their wastewater treatment plants, seeing them as water resource recovery facilities, capable of transforming wastewater into clean water, soil fertility, and renewable energy.

Throughout the northeast, we assure many organic by-products find a second life. Short paper fiber from paper mills is used to produce animal bedding, wood ash from biomass energy plants helps increase crop yields in agriculture, and seaweed extracts from consumer product manufacturing facilities find their second life as a soil amendment.

Here is how we are advancing the recovery of biosolids and other organics in the northeast:

- **Market Development:** Casella's *earthlife*[®] brand of landscape, horticultural, and agricultural products are designed to improve soil health and productivity. Our innovative animal bedding and manufactured topsoil alternatives help to conserve local resources.
- **Education and Awareness:** Policy-makers in the northeast are very focused on protecting regional water quality by limiting the runoff of soil nutrients into lakes and streams. We co-sponsored a summit for scientists and policy-makers to review the interplay between recycled organics and nutrient management (see sidebar on page 19.)
- **Land Reclamation:** In addition to serving agricultural and horticultural markets, we have been expanding our work in land reclamation using repurposed materials: restoring overworked fields and re-vegetating old gravel pits. This important work helps to re-establish healthy ecosystem functions on degraded land without using virgin materials.
- **Working Upstream:** Effective organics diversion begins long before material is loaded onto trailers. Our team works with customers and prospective customers to evaluate and alter their processes to assure their organic by-products are most suitable for the highest and best use.



GOALS

PUTTING THE
PIECES TOGETHER

ORGANICS



OUR GOAL:
To sustainably grow
our organics business.

TRACK PROGRESS BY MONITORING:
Total tons processed, *earthlife*® tons sold,
and revenue.

OUR FOCUS OVER THE NEXT TWO YEARS:
Grow our food waste services, build new
markets for *earthlife*® products, and advance
nutrient management outreach and education.

Making Animal Bedding in Maine



During the summer of 2016, Casella Organics visited the Verso Paper Mill in Jay, Maine with a proposal to recycle the facility’s short paper fiber (SPF) into a bedding product for dairy cows. Verso embraced the idea, and the two companies collaborated closely to make it happen.

Success took time, but in 2017 the mill adjusted its operations to separate primary and secondary SPF and took a series of steps to meet regulatory quality standards. The extra effort has proven worthwhile.

Today at our Hawk Ridge Compost Facility, we combine and blend Verso’s primary short paper fiber with select types of wood ash to produce a quality bedding called **Fiberbed**®. The product naturally excels at absorbing liquids, and a Fiberbed study at the University of Maine found reduced instances of mastitis-causing bacteria. As an added benefit, when a farm uses a load per week of Fiberbed and spreads the resulting bedded manure on their fields, they receive approximately \$50,000 of lime value.

Through innovation, teamwork, and careful management, we’re now combining two “waste” materials to produce a valuable agricultural product. Last year, 25 dairy farms throughout the region benefited from the new Fiberbed production.

Responsible Nutrient Management

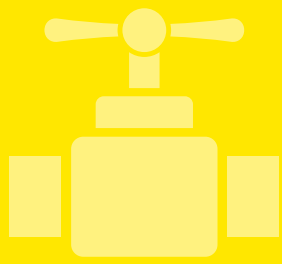


Anyone with a garden knows that plants require soil nutrients – such as phosphorus, nitrogen, potassium, calcium, magnesium, and more – to grow. However, excess nutrients can run off into rivers and lakes and lead to problematic algal blooms, choking weeds, and habitat degradation, which can in turn impair public water supplies, recreational resources, and wildlife biodiversity.

States in the northeast are developing new regulatory programs designed to limit nutrient (phosphorus) runoff from sources such as agricultural lands and suburban runoff. This growing focus on nutrient runoff is one of the most significant emerging factors influencing our ability to beneficially use organic residuals in northeastern watersheds.

Soil products made from organic residuals could play a significant role in helping to reduce phosphorus runoff. This is because the products contain carbon, nitrogen, and micronutrients, which help to enhance soil structure and support plant growth. Unfortunately, because these products do contain phosphorus, overly simplistic nutrient management rules could deter their use.

We believe that recycled organics can and should continue to play a valuable role in building our region’s cropland and landscapes, and in protecting our watersheds. Casella’s Nutrient Management Planners are working with decision-makers to develop and advance best management practices, based in sound soil science, that will allow and encourage the beneficial use of recycled organics.



ENERGY

In **2017**, we and our partners generated over **200,000** Megawatt-hours of renewable electricity. That is enough to power over **27,000** New England homes.

Here are some of the ways we and our partners produce renewable energy:



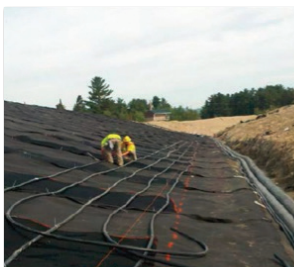
Landfill Gas to Energy

Waste in our landfills gradually decomposes and produces landfill gas, which we can capture and use to power engines. Producing electricity from landfill gas protects the climate twice: it keeps heat-trapping methane out of the atmosphere and it replaces fossil fuel based power generation.



Anaerobic Digestion

Waste can also decompose into methane gas in facilities called anaerobic digesters, often located on dairy farms or at wastewater treatment plants. We deliver food waste to these facilities, which produce electricity and return valuable organic nutrients and carbon to the soil.



Landfill Heat Recovery

Our North Country Landfill uses geothermal loops to recover thermal energy from the landfill to warm their maintenance shop. The innovative project offsets fossil fuel combustion and is thought to be the first of its kind in North America.



Landfill Solar Farm

The open acreage around many of our facilities is well-suited to host solar panels as another source of renewable energy. The 12-acre solar array we host at our landfill in Coventry, VT is an example of this.



CASE STUDY: North Country Landfill SEED Park

Fresh local produce is rare to see during the winter months in northern New Hampshire. But at the North Country Landfill in Bethlehem, NH, spinach, kale, and strawberries can grow in February.

For a few years now, an innovative geothermal heat loop installed in the base of the landfill has been providing warmth to the maintenance shop, saving over 1,000 gallons per year of heating fuel. More recently, the North Country team has added a small on-site greenhouse, which grows fresh produce and serves as a classroom resource for local elementary school students.

The greenhouse is now a stop on the landfill tour, inspiring visitors to stop and think about all forms of waste and the many innovative new ways we could transform waste into resources.

This is only the beginning. The North Country team has its sights set on an even more exciting opportunity. They're working on upgrading the site's landfill gas into renewable natural gas (RNG) suitable for pipeline injection and vehicle fuel. The project is working its way through approvals and is slated to come online in 2019.



GOALS

PUTTING THE
PIECES TOGETHER



OUR GOAL:

To continue to improve our net energy production.

TRACK PROGRESS BY MONITORING:

Total energy consumed, number of energy efficiency projects completed, renewable energy produced.

OUR FOCUS OVER THE NEXT TWO YEARS:

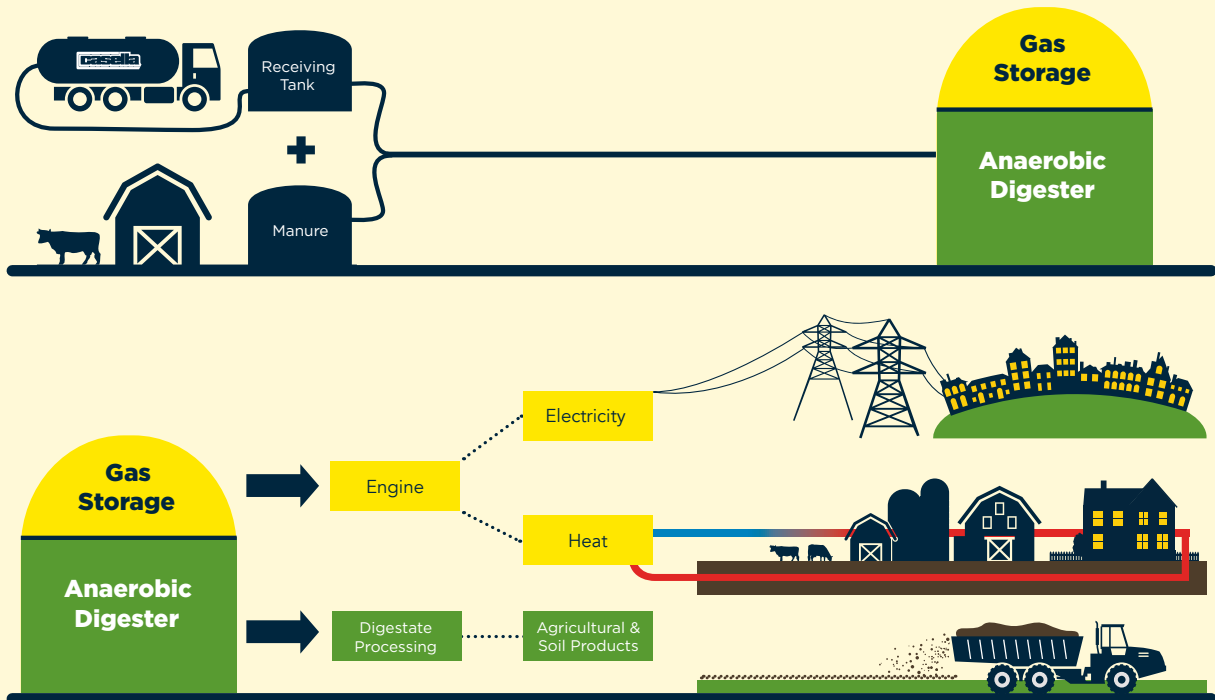
Optimize existing landfill-gas-to-energy and pursue innovative new energy projects.

Since our last report, we have continued to invest in our landfill-gas-to-energy systems by installing over 150 gas collectors and 40 acres of cap across nine locations. Our energy development efforts at the remaining three active target landfills have been delayed by challenges such as a lack of grid capacity and low natural gas and electricity prices.

Energy recovery fits into our broader resource renewal vision. In the coming years, we will continue to advance landfill gas to energy, anaerobic digestion, landfill heat recovery, solar energy, and innovative new forms of energy capture at our facilities.



The Basics of Anaerobic Digestion





LANDFILLS

Every minute, our landfills can capture over **8,000,000** BTUs of gas. Safe, secure, and low carbon disposal facilities are an essential part of our full suite of Resource Solutions.

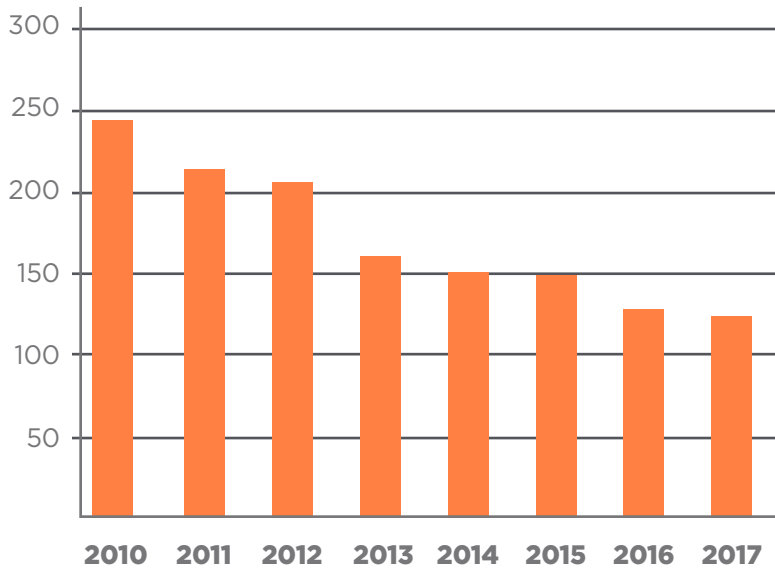
For discarded materials that cannot be renewed, our modern landfill facilities are well-designed, well-run, and well-equipped to provide environmentally safe and secure disposal. Across the northeast, we operate nine municipal solid waste landfills and one construction debris landfill. We design, build, and operate these facilities to minimize the impact of non-recycled solid waste on the environment, both locally and globally.

Landfill Operations and Emission Reductions

Since our last report, we have continued to invest in the environmental protection systems at our landfills. From 2014 to 2017, we added a net increase of 40 acres of landfill liner, 178 new gas collectors (including horizontal lines and vertical wells), and 41 acres of landfill cap. We invest annually in the upkeep of our gas collection systems.

As a result of these investments, we continue to reduce emission rates at our landfills. Between 2010 and 2017, we reduced our greenhouse gas emission rate from 245 down to 131 kilograms per ton disposed. This is a 46% reduction in the rate of emissions from our landfills.

Landfill GHG Emission Rate (kgCO₂e/ton disposed)

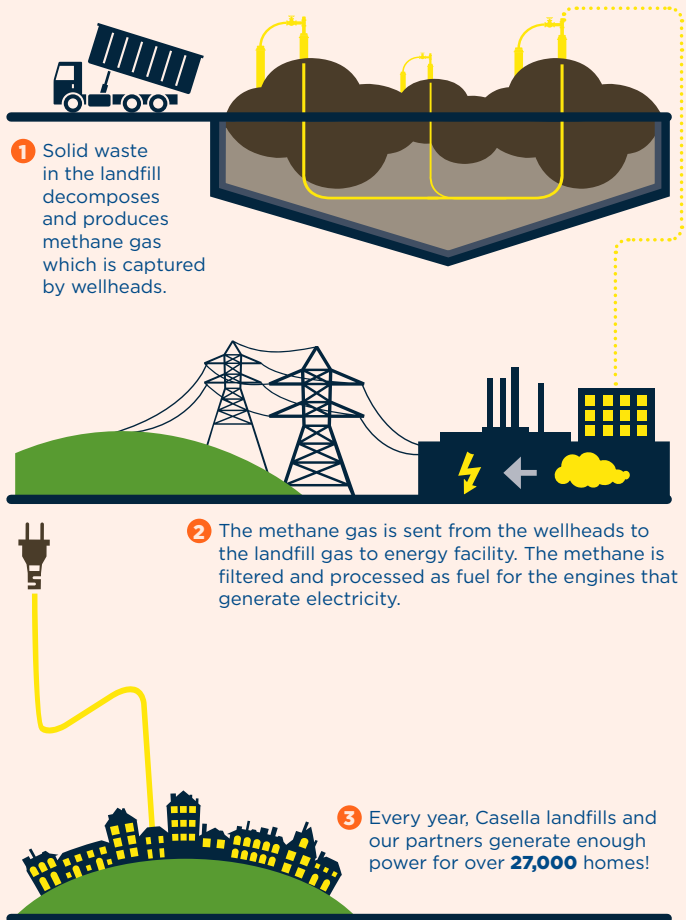


Landfill Gas to Energy

Our landfill gas collection systems are designed to actively extract gas to power landfill gas to energy plants, producing clean electricity and mitigating greenhouse gas emissions.

Within our model, landfill sites become environmental campuses where resources are extracted from all aspects of the waste stream.

Here's a quick look at how landfill gas to energy is produced...



GOALS

PUTTING THE
PIECES TOGETHER



OUR GOAL:
To operate
industry-leading landfills

TRACK PROGRESS BY MONITORING:
GHG emissions per ton and the number of
SEED projects implemented.

OUR FOCUS OVER THE NEXT TWO YEARS:
Low emission landfill standard, community
engagement, and SEED challenge program.

Sustainable Environmental & Economic Development (SEED™)

Our landfills serve as economic engines for the communities that host them, and they are sites of environmental innovation. We call this concept Sustainable Environmental and Economic Development (SEED).

Each year, we contribute to municipal budgets through host community fees and local taxes. In addition, we aspire to develop our landfill sites into a multi-use SEED park, with a mix of recycling and renewable energy infrastructure adapted to each location. These facilities benefit the environment and provide economic value in the form of local jobs and revenue.

Our SEED park vision has been making strides. With our new **SEED Challenge program**, we will be deploying several smaller-scale projects that advance renewable energy, recycling, and community engagement initiatives at our facilities. Examples include a community orchard and outdoor classroom in Coventry, VT and a pollinator education site in Chemung County, NY.



CASE STUDY: Juniper Ridge Landfill Open House

Across the country, most people have no idea where their waste goes. We are working to change that. In West Old Town, Maine, our neighbors flock to their local landfill to attend our annual open house.

The 2018 event attracted over 1,000 visitors, who were treated to a full facility tour, a scale model of the liner system, and the opportunity to ask any questions they may have about the operation. They saw the site's innovative landfill-gas-fueled maple sugar shack and their beautiful pollinator research garden. Visitors also enjoyed lawn games, a bounce house, delicious barbecue, and educational booths.

Our open house events are a fun, family-friendly way for the community to learn what happens to their waste. This awareness helps to build mutual trust, communication, and ongoing thoughtful discussion about the future of solid waste management in our communities.





SOLUTIONS

We help our customers meet their **resource management** goals by providing consulting, sourcing, customer care, reporting, and other customized services.

What does a so-called “waste” company do in a world where its customers want and need to waste less? Casella’s Resource Solutions team exists to answer this question.

Our Resource Solutions team collaborates in the space between our largest, most sophisticated customers and our talented local sales and operating teams. Together, we deliver safe, reliable, and practical solutions that meet today’s needs and yield immediate customer value, while simultaneously designing and delivering tomorrow’s sustainable resource management solutions.

Customer Resource Solutions

Customers in the industrial, institutional, municipal, and retail sectors are the most likely to seek the services of our Resource Solutions team. Here are the types of services we provide in each of these four sectors.



Industrial

Manufacturers have been pursuing waste reduction for decades and are often the farthest along in their journey to reduce and even eliminate waste. They tend to be motivated by process efficiency and cost minimization imperatives, and a need to meet and exceed environmental sustainability targets without distracting from their core business. They have disciplined and well-trained employees and exercise a relatively high degree of control over what enters and exits their plants. Most importantly, the unique waste streams they produce are not suited for traditional blue bin recycling programs, but through professional management, can yield substantial value. See page 27 for an example of how we do this with our innovative ARC™ approach.



Institutional

Colleges, universities, and hospitals have some of the most ambitious aspirations for sustainable resource management, but also face some of the most complex barriers to change. They support diverse services ranging from dining halls to research laboratories and tend to be compartmentalized into relatively isolated departments. Four-year schools, by definition, have annual turnover rates of 25% and require extra training. Much of the material flowing through campus is purchased through a centralized procurement office, but much is also imported by students and visitors. For these reasons and more, successful resource management in these settings requires much more than placing out a bunch of recycling bins.



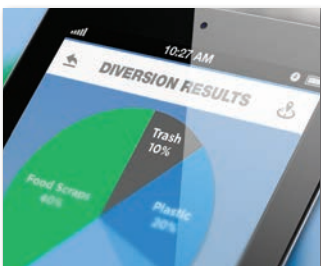
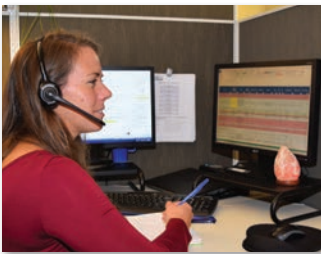
Municipal

Many cities, towns, and villages are working to reduce waste and increase their residents’ recycling. Some have announced quantitative targets. The challenges they face include weak channels of communication with residents, along with turnover and language barriers. Unlike factories, municipalities have essentially no control over the types of materials their residents purchase and discard, so their services must support traditional curbside recycling as well as bulky items, household hazardous waste, yard debris, food waste, and more. Meeting ambitious resource management goals requires overcoming all of these barriers.



Retail

Multi-location groceries, restaurants, and other retailers are uniquely positioned to pursue ambitious waste reduction goals. They can quickly share innovations and best practices from one area to another, and they can leverage friendly competition through benchmarking among locations. Barriers to change can include employee turnover, language differences, and organizational complexity within corporate and franchise hierarchies.



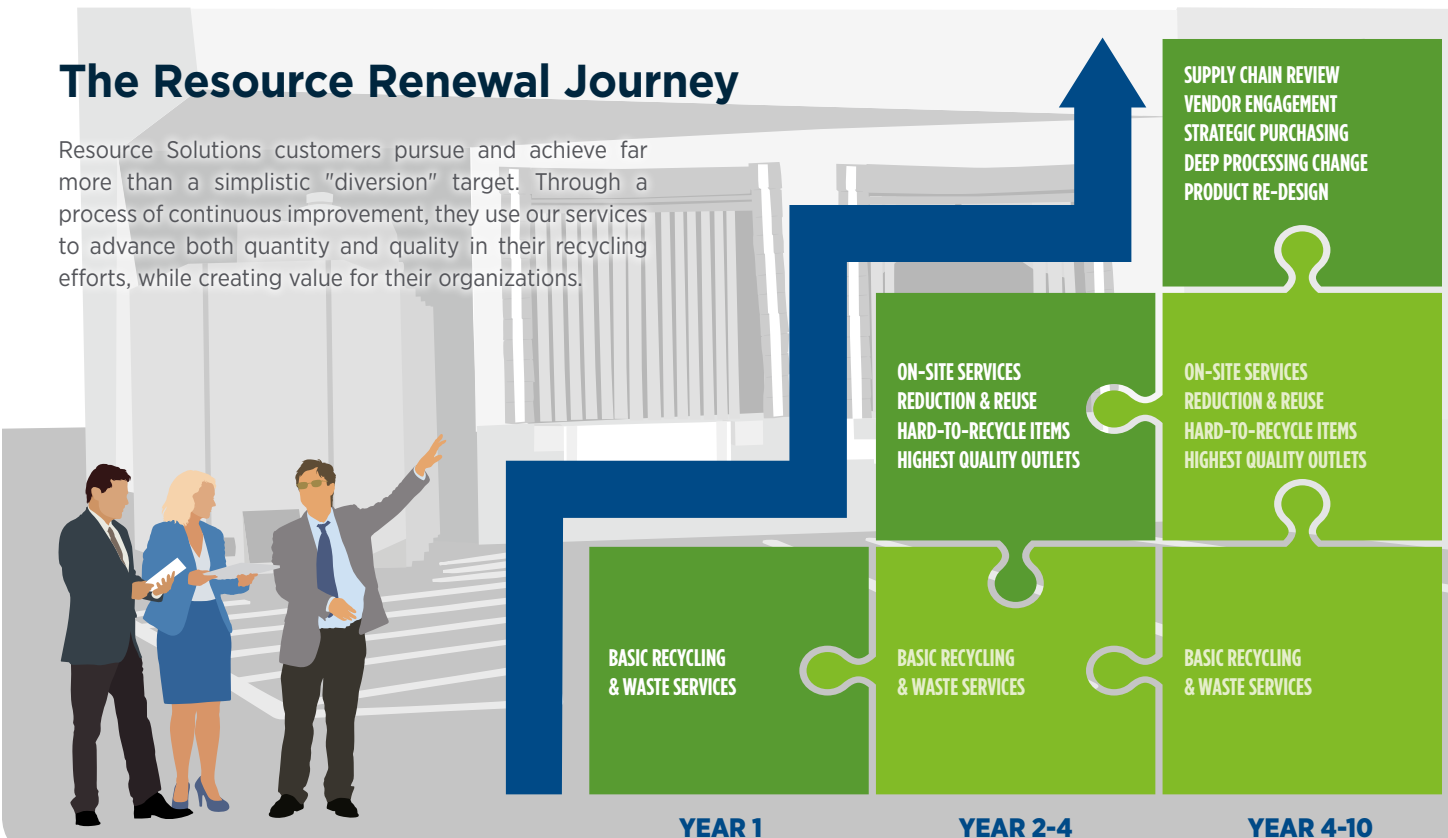
Resource Management Services

Our Resource Solutions team delivers a full menu of specialized resource management services, that are essential to helping customers meet their resource management goals:

- **Sourcing and Logistics:** With a growing network of over 700 qualified vendors, we can collect, transport, process, and recover hundreds of unique commodities and materials.
- **Chain of Custody Services:** To protect our customers’ brands and reputations, we are equipped to track the movement and certify the destruction of non-salable, off-spec, and expired goods.
- **Commodity Management:** With substantial tonnage under management, we have commodity market expertise and unique access to primary mills, secondary processors, and brokers.
- **On-Site and Supply Chain Services:** Effective resource management begins long before material hits the loading dock, so we regularly hire staff to work right inside customer operations to manage materials with a focus on protecting product quality and value.
- **Multi-Site and Large Account Management:** With professional management, coordination, and benchmarking, we help retail chains and institutional campuses achieve ambitious goals.
- **Sustainability Consulting and Continuous Improvement:** We provide consultative and ongoing support to help customers understand their impact, evaluate options, manage change, and achieve their goals.
- **Innovative Technologies and Solutions:** We closely monitor the technological developments in our industry and in related fields. We pilot promising solutions and match them with customers.

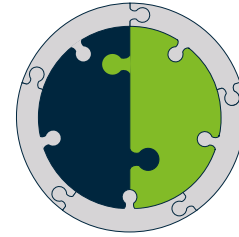
The Resource Renewal Journey

Resource Solutions customers pursue and achieve far more than a simplistic “diversion” target. Through a process of continuous improvement, they use our services to advance both quantity and quality in their recycling efforts, while creating value for their organizations.



Putting the Pieces Together

As described at the beginning of this report, creating a circular economy requires matching innovative Resource Solutions with the smart resource renewal goals of our customers. Here are a couple examples. Visit casella.com/your-business for more case studies.



Case Study: UMass Lowell Tsongas Center - Lowell, MA



GOAL: Reduce waste, educate students, engage community at the UML Tsongas Center Stadium

SOLUTIONS:

- **Stadium Recycling:** The 7,800-seat capacity Tsongas Center hosts dozens of major campus and community events throughout the year. Casella worked with the facility to establish a highly-effective recycling program that captures recycling from these events while simultaneously educating the student body and broader community.
- **Food Waste Recovery:** The Tsongas kitchen serves stadium events and is a major campus catering hub. Casella helped the arena establish a successful tote-based food waste recovery program. Demonstrating its commitment to innovation, beginning in the fall of 2018, UML will become the first college in the northeast to use Grind2Energy technology to divert its food waste to nearby on-farm digesters for renewable energy and fertilizer production.

RESULT: The Tsongas Center now recovers nearly 80 tons of recyclables and food waste from its disposal stream each year, setting a bold example for the surrounding community and other universities.



Case Study: Hamilton and Wenham, MA

GOAL: Maximize recycling and recovery of organic waste

SOLUTIONS:

- Casella provides weekly three-bin service (trash, recycling, and food waste) to the 4,000+ residents of the Towns of Hamilton and Wenham. Food waste is collected in 12-gallon carts and delivered to a local farm composter.
- The Towns arrange for residents to receive finished compost for their gardens.

RESULT: The Towns reduce their disposal costs, achieve recycling rates of around 50%, and demonstrate a viable model for a three-bin municipal waste and recycling program.



Sustainable Enterprise Solutions

In collaboration with our most progressive customers, we are developing and refining the cutting-edge services that will one day become the norm for all customers. In this way, our Resource Solutions team is an essential part of Casella's engine for innovation, development, and growth. To ensure that the company is prepared to deliver the sustainable resource management services that customers increasingly demand, the Solutions team works closely with all Casella operating divisions, helping to advance:

An Integrated Sales Strategy: To deliver a holistic suite of resource management solutions to our customers, we are modernizing our sales approach, providing training pathways, leveraging customer relationship management technology, and building our digital presence.

Sustainability and innovation: With more customers striving to reduce or eliminate waste, new technologies emerge daily. We help our customers and our divisions evaluate these systems to see what works and what doesn't, and we help them innovate new solutions of their own.

A Coordinated Engagement Strategy: Our divisions engage closely with their communities, supporting countless local events and organizations. Through coordination, corporate matching, and more, we are linking local values to corporate resources, and amplifying their impact.

Aggregation & Recovery Collaboratives

On their journey to zero waste, many of our customers have reached a point where the path gets steeper. They are recycling their cardboard, metal, and other “traditional” recyclables. They have programs in place for food waste. The dominant streams in their waste dumpsters are now items like plastic tubing, wooden reels, film plastics, packaged food and beverages, label backing, and more. What fills their dumpsters today is a miscellany of stuff that is unique to their business, with no off-the-shelf recovery solution.

This lack of easy solutions often doesn't reflect a lack of recovery value. In fact, many of these items may be quite valuable when in the right quantities and in the right place. To capture these materials, we have begun developing and deploying **Aggregation & Recovery Collaboratives (ARC™)**, through which local organizations come together to establish practical resource recovery operations tailored to their unique needs.

We established our first ARC in Lebanon, NH, with Hypertherm, a manufacturer of industrial cutting systems. The operation, detailed in the side bar to the right, has helped to increase that company's recycling rate from 43% to over 97%, while also serving others throughout the region.

Benefits

ARCs enable innovative recovery solutions through risk- and reward-sharing, aggregation and densification technologies, and efficient access to reuse and recycling markets. The model can be replicated in any geography, and tailored to handle any combination of materials, allowing for the recovery of numerous items that were previously considered “unrecoverable.” Although these items are often lightweight, they have high embedded energy, carbon, and other resource value, and are highly worthwhile to recover.

Business Model

ARCs have an innovative, yet flexible, business model built around aligned incentives, modular equipment, and revenue transparency. The scope extends from point-of-generation through to commodity marketing. The specifics of property ownership, revenue sharing, and contractual relationships are established on a case-by-case basis. The approach resists “technology for the sake of technology” and focuses instead on practical problem-solving and a “get the job done” attitude.

Innovative Partnerships

Establishing a successful ARC requires very close collaboration and a pioneering spirit among the partnering stakeholders. Casella brings expertise in logistics, handling, processing equipment, and commodity markets. Generator partners bring a commitment to waste reduction, volumes of recyclable items, and in some cases, tangible assets such as equipment, vehicles, or warehouse space. Most importantly, all partners contribute a willingness to work together to create enduring solutions to serve their unique local materials recovery needs.

The Lebanon ARC



Location: Lebanon, NH

Square footage: 5,000

Equipment: Balers, scales, and a plastics grinder

Staff: Two full-time Casella employees

Materials Handled: >50 tons per month of loose, baled, super-sacked or ground film plastics, rigid plastics, plastic tubing and hosing, plastic and wooden reels, label backing, cardboard, metal, and other unique hard-to-recycle items

Customers/Industries served: Hypertherm, plastic molders, food manufacturers, healthcare, printing, and other regional businesses

Business model: 90-day baseline and program initiation, access to warehouse space, royalty payments, and aligned partnership milestones and goals.

“We are partners with Casella because they understand the multi-layered approach we have for resource management and reducing our waste.”

– Jenny Levy,
VP, People, Community & Environment
Hypertherm

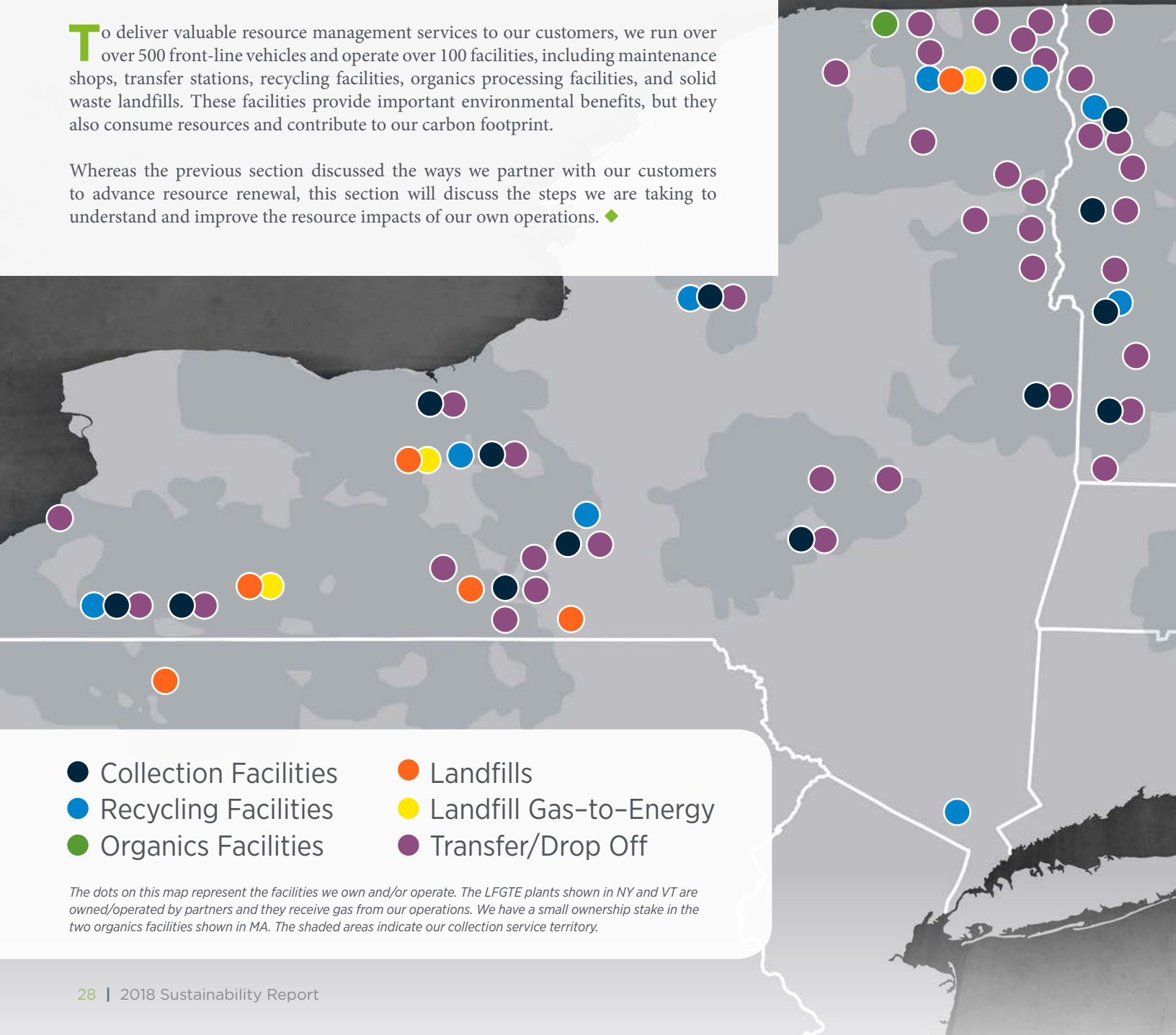
SECTION 2

OUR OPERATIONS

SUSTAINABILITY IN OUR FLEET AND FACILITIES

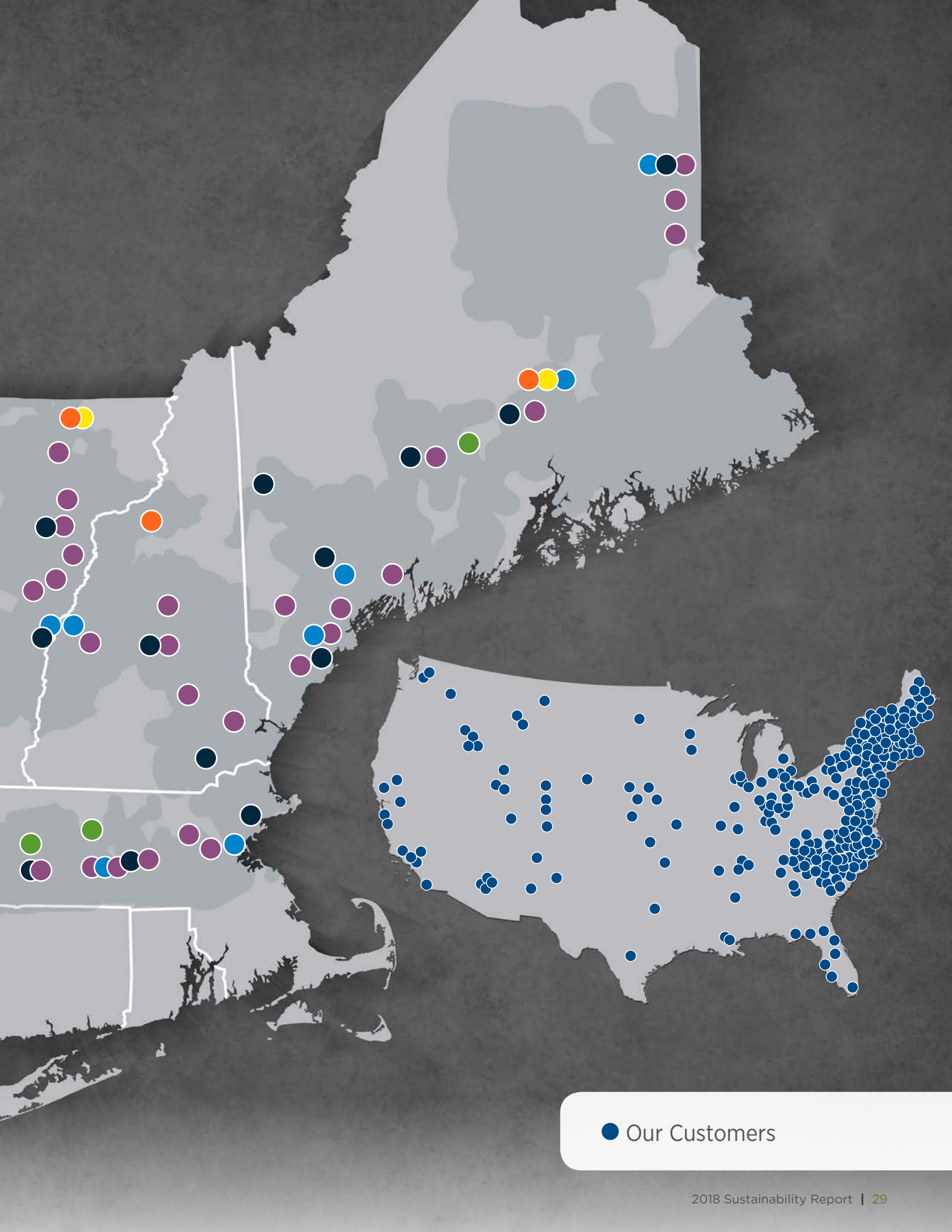
To deliver valuable resource management services to our customers, we run over 500 front-line vehicles and operate over 100 facilities, including maintenance shops, transfer stations, recycling facilities, organics processing facilities, and solid waste landfills. These facilities provide important environmental benefits, but they also consume resources and contribute to our carbon footprint.

Whereas the previous section discussed the ways we partner with our customers to advance resource renewal, this section will discuss the steps we are taking to understand and improve the resource impacts of our own operations. ♦



- Collection Facilities
- Recycling Facilities
- Organics Facilities
- Landfills
- Landfill Gas-to-Energy
- Transfer/Drop Off

The dots on this map represent the facilities we own and/or operate. The LFGTE plants shown in NY and VT are owned/operated by partners and they receive gas from our operations. We have a small ownership stake in the two organics facilities shown in MA. The shaded areas indicate our collection service territory.



● Our Customers

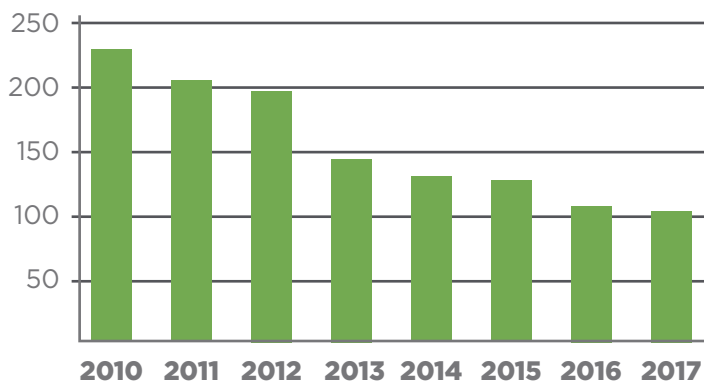
CARBON FOOTPRINT

WE HAVE BEEN FOCUSED ON MEASURING AND MANAGING OUR COMPANY-WIDE CARBON FOOTPRINT SINCE 2005. SINCE THEN, WE HAVE CUT OUR CARBON FOOTPRINT IN HALF. IN RECENT YEARS, DESPITE CONTINUED GROWTH OF OUR BUSINESS, OUR EMISSIONS HAVE REMAINED FLAT.

On a per ton basis, our emission rate has declined every year since 2010. In 2017, our greenhouse gas emission rate was 116 kilograms of carbon dioxide equivalents per ton of waste and recyclables received. This is a 20% reduction since our last report, which means we have achieved our goal of continuous improvement.

We attribute our success to our investment in landfill capping and landfill gas collection infrastructure, as well as select fuel and energy efficiency projects. Still, we see opportunities to improve in the areas of landfill gas recovery, fleet fuel efficiency, and facility energy efficiency, as detailed below.

Reduced GHG Per Ton (kgCO₂e/ton)



Emissions by Source (metric tons CO₂e)

2005 Landfill Emissions



2017 Landfill Emissions
519,807



2005 Fleet Emissions



2017 Fleet Emissions
67,253



2005 Facility Emissions



2017 Facility Emissions
10,371



Source: Casella greenhouse gas inventory, scope 1 and 2 emissions



Landfills Gas Recovery

Since 2005, our focus on landfill gas collection has prevented millions of metric tons of greenhouse gas emissions. Much of this gas was diverted to landfill gas to energy facilities to produce renewable electricity, thus yielding a second greenhouse gas benefit.

Still, landfill gas continues to account for 87% of our overall carbon footprint. We believe that we can further enhance the gas capture performance at our landfills. We will do so with a renewed focus on well-tuning and continued strategic investments in landfill gas infrastructure.



Fleet Fuel Efficiency and Alternative Fuels

Our fleet is the second largest contributor to our overall carbon footprint, accounting for 11% of our total emissions. Other emissions from our fleet, as with any heavy-duty vehicles, include particulate matter and NO_x, which impact local air quality.

As discussed earlier in this report, we are improving the emissions performance of our vehicles through our 5-year fleet plan, which is systematically increasing the number and percentage of new (model year 2007 or later) vehicles within our fleet. Because these newer vehicles have better emission controls, our fleet is getting cleaner with each passing year.

We will achieve further improvements through a continued focus on integrating alternative fuel vehicles into our fleet, provided that they must meet our standards for reliability and performance. We will also continue to pursue routing efficiency opportunities to reduce our fuel consumption while improving our productivity.



Facility Energy Efficiency

Energy consumption at our operating facilities and offices account for only 2% of our overall carbon footprint. And interestingly, we generate substantially more electricity than we consume, as shown in the graphic here. Still, we are committed to energy efficiency improvements because most measures also yield safer and more productive work environments for our employees.

Across the company we have completed dozens of lighting retrofits, often tapping into state and utility company incentives to achieve prompt payback. We have also adopted significant efficiency measures in our home office, as detailed in the case study below. We have learned a lot from the projects completed so far, and in the coming months and years we will apply this knowledge to additional energy efficiency initiatives.

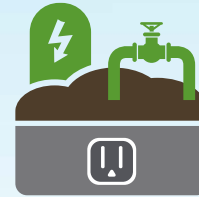


25,762
MWh Consumed



2017
Energy Consumption
for Casella Facilities

83,346
MWh Produced



2017
Energy Production
from Casella Power Plants



CASE STUDY: Energy Retrofits at our Home Office



Our home office in Rutland, VT was originally built as a truck maintenance shop. Today it is a major administrative hub and hosts our corporate server room. To rein in our rising energy bills, we have launched three efficiency programs:

- **Efficient Heating and Cooling:** To keep our servers at optimal temperatures, we are constantly removing heat from our server room. Rather than letting that heat go to waste, we now capture it and use it to heat our offices. By installing water-sourced row coolers in our server room, installing and optimizing heat pumps, upgrading our inefficient cooling tower, and re-piping our boiler, we're keeping our offices comfortable while reducing our use of propane and electricity.
- **Energy Management System (EMS):** Our new EMS gives us unprecedented visibility and control over our lighting, heating, and cooling. This enables us to make ongoing adjustments to optimize both employee comfort and energy efficiency.
- **LED Smart Lighting Upgrades:** Our home office (along with our neighboring recycling facility and administrative buildings) underwent lighting upgrades which have yielded significant efficiencies. By installing efficient LED smart lights, we cut our overall wattage, optimized lighting levels, and enabled sensors and dimmers that automatically adjust the lights when no one is around, or when ambient lighting changes.



We expect these improvements to help cut our electricity, propane, and water consumption. As we close in on the one-year mark of having completed the retrofits, we will soon be able to calculate and report the precise savings and benefits. We thank Efficiency Vermont for their support.



Water Impacts

We are fortunate to operate in the northeastern U.S., which is home to countless beautiful streams, rivers, lakes, and long stretches of coastline. These water resources support our communities with drinking water, wildlife habitat, recreation, tourism, and more. Here are some of the ways we work to manage our impact on water resources:

- **Fleet:** Heavy-duty trucks and equipment rely on liquids like fuel, lubricants, and coolant to operate. To protect our local water resources, we need to properly manage the storage and distribution of these liquids, prevent spills, and respond rapidly when spills do happen. Each of our maintenance shops has best management practices and infrastructure for properly handling liquids, and relevant employees are trained in spill prevention and response. Our equipment preventive maintenance programs help to minimize the potential for spills by identifying and correcting worn or damaged components on a proactive basis. When accidents do happen, our staff are trained to respond quickly to contain, clean up, and report the spill. In 2017, we had 93 reportable spills, including 25 that occurred at our facilities, and 68 that occurred off-site. Each spill was properly reported, contained and remediated, and documented with appropriate corrective actions. The majority of the reportable spills consisted of small hydraulic fluid or lubricant releases contained to the immediate spill area, and no spills to surface water or wetlands occurred.
- **Stormwater management:** Stormwater is the rain and snowmelt that flows over the surface of the land. To protect local water resources around our facilities, we need to ensure that this water doesn't pick up and carry contaminants or

excess sediments off-site. We deploy best management practices to keep runoff clean and prevent erosion. To track performance, we regularly monitor and sample our outfalls and report the results to regulators as required by our stormwater permits.

- **Leachate management:** Each of our active MSW landfills is equipped with a highly-engineered double composite liner system designed to contain and collect the liquid – called leachate – that percolates through the waste. These liner systems contain both primary and secondary monitoring systems, so we can be sure they're working properly. In 2017, we collected over 100 million gallons of landfill leachate and delivered it to permitted wastewater facilities for treatment. To protect the quality of our leachate, we have special waste approval processes and waste screening practices to ensure that our facilities accept only the waste materials they were engineered to manage.
- **Litter control:** Litter on the land can have the potential to be transported by wind or stormwater to water bodies, so we see litter control as a form of water protection. At each of our facilities, collecting windblown litter is a part of daily operations. Our landfills use redundant litter control systems including portable litter fences, permanent perimeter net systems, and manual collection efforts to control wind-blown debris. Our collection drivers do their best to minimize windblown litter as they collect waste and recyclables. One program that has had litter prevention benefits is the transition from open recycling bins to wheeled recycling carts with lids.



Contaminants of Emerging Concern:

One of the biggest environmental questions facing our industry (and many other industries) is the issue of “contaminants of emerging concern.” This phrase refers to chemicals that are being identified based on newer research and analytical techniques, or that are now better understood from a risk management or environmental exposure standpoint. These contaminants are often measured in the environment at extremely low concentrations.

Emerging contaminants can be found in common household and commercial products such as detergents, fragrances, medications, disinfectants, stain repellants, water-proof coatings, and more. Given their prevalence in so many consumer products, these constituents also appear in our waste streams.

The most recent emerging contaminant with relevance to disposal streams is a group of man-made chemicals called Per- and Polyfluoroalkyl Substances (PFAS), which have been manufactured and used around the world since the 1940s. They can be found in food and food packaging, commercial household products such as stain and water-repellent fabrics, nonstick products, polishes, paints, cleaning products, and fire-fighting foams.

As scientists learn to detect these low-concentration chemicals, we must all rely on public health researchers and policy-makers to keep pace and provide steady and prudent guidance on how society should adapt and respond to this new information.



Local Air & Odor Impacts

As an operator of solid waste management facilities, one of our top priorities is to effectively manage local air and odor impacts. Odor management is a complex science that draws on the fields of meteorology, physics, biology, chemistry, and more. At our landfills, we identify two broad classes of odors: those related to arriving waste and those related to waste-in-place that is breaking down. To control the latter form of odors, we rely on the same landfill gas collection systems that we use to cut our carbon footprint and produce renewable energy (as discussed in the preceding pages). To manage odors from incoming waste, we deploy daily cover systems and misting technologies that capture and contain odiferous compounds. Where possible, we also work with customers to pre-treat their waste in ways that mitigate odors at the source, so they are stable upon arrival at our facilities.

Environmental Compliance & Responsiveness

Solid waste facilities operating in the northeastern U.S. are subject to a strict regime of environmental regulations designed to ensure protection of human health and the environment. To operate our facilities, we maintain hundreds of permits and certifications, and are held accountable for thousands of permit conditions and requirements encompassing everything from major environmental protections to relatively minor labeling and administrative reporting requirements. To ensure ongoing compliance, our facility managers and operators receive support from our safety, environmental compliance, and engineering specialists. These specialists conduct internal audits and permit reviews, maintain databases of permit conditions and deadlines, develop training programs, and communicate with external regulators to keep abreast of evolving rules and requirements. The team also works to ensure rapid corrective response in the event that incidents do occur. Each year, we evaluate the environmental compliance incidents that occurred during the previous twelve months and implement corrective actions to prevent reoccurrence. Our corrective actions can include the construction or installation of new engineering controls, retraining of company staff, the assignment of additional internal or external technical resources, or improvements to our reporting and information-sharing practices. Still, we strive for continuous improvement and our goal each day, month, and year is to achieve a perfect record of zero environmental compliance incidents.

SECTION 3

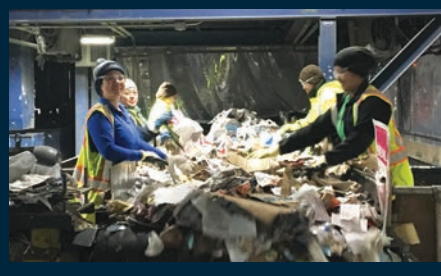
OUR PEOPLE

RENEWING OUR MOST VALUED RESOURCE

For over forty years, we have prioritized the growth and development of our people. Our approach is grounded in the bedrock of our core values and our safety culture. On this foundation, we are actively working to deepen our focus on talent renewal, which seeks to source, engage, develop, and advance our strong and thriving team.

In this section, we explain our talent renewal philosophy. We then explain and celebrate the diverse and inspiring ways that our teams engage with their local communities through giving, volunteering, education, and good old fashioned fun. ♦





RESOURCE RENEWAL AND OUR PEOPLE

Our Commitment: We strive to cultivate a culture of lifelong learning and growth, in which all Casella employees can access career development pathways to develop their technical and leadership skills and advance their careers within the company.

Throughout this report we have described our commitment to resource renewal, focusing on the physical materials we manage. However, we firmly believe that our most important resource is our people, and our ethic of resource renewal informs the way we treat them.

Our approach to renewing and sustaining our people is depicted in the figure here. Everything at Casella revolves around our core values and our safety culture. Through a series of programs focused on sourcing, engagement, development, and opportunity, we continuously invest in the renewal of our people. When we do this well, we create a virtuous cycle of employee retention, enhanced productivity, and improved customer satisfaction. This in turn gives us increased capacity to invest further in our people, and the beneficial cycle continues.

Our Culture

Our culture is at the center of our approach to talent renewal. It flows from our Core Values and our unwavering dedication to safety and wellness.

Casella's Core Values

Casella employees make decisions and solve customer problems every day. We make good decisions for our business, customers, and communities when we adhere to our core values, which provide a shared framework within which to apply our individual skills and strengths to solve problems. Our Casella Core Values are as follows:

SERVICE

We win when we help others.

We are willing servants. We are sensitive to needs and are eager to be a resource to everyone around us, being generous with our time, talent and energy.

TRUST

We excel when we assume the best in each other.

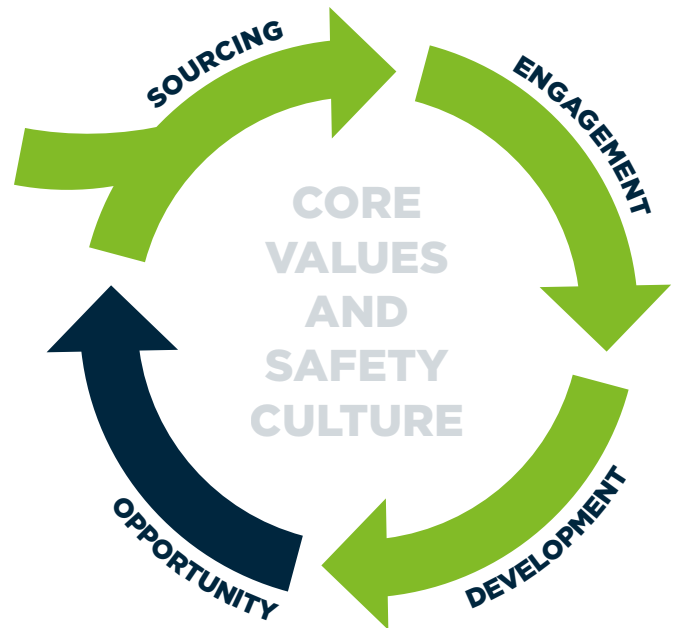
Mutual respect and an open, honest environment mark our interactions with others. We acknowledge each other's contributions, we practice active listening, and we deliver on our promises.

RESPONSIBILITY

We succeed when we balance our freedom to act with a sense of accountability.

We invest deeply in creativity, autonomy and the willingness to take risks. We recognize these investments bear the greatest fruit when exercised within a framework of disciplined boundaries.

Casella's Approach to Talent Renewal



INTEGRITY

We thrive when we do the right thing.

We believe there are enduring principles for everything we do and we strive, in our words and deeds, to meet or exceed those standards.

CONTINUOUS IMPROVEMENT

We prosper when we learn, understand, and improve.

We create opportunities for human talent to thrive. We share what we've learned. We apply the lessons we learn every day to the goal of getting better and better at everything we do.

TEAMWORK

We're more effective when we work together.

Our impact is consistently stronger when we respect, support and view each other as partners.



Talent Renewal

People thrive and grow when they can clearly envision their successful future. We build each role within Casella around a defined set of core competencies: the aspirational skills and capabilities necessary for success. This set of **competencies** becomes the north star of each individual's growth and development path within the company. With a clear understanding of these requisite competencies, Casella employees are empowered to pursue targeted training and coaching to succeed today and advance to their aspired future role tomorrow.

Sourcing

Our success begins with attracting and hiring the best people to run our business and serve our customers. We source exceptional talent through select programs such as military organizations and vocational schools. We are building on that success with our military apprenticeship programs.

Once we've attracted a talented pool of applicants, our *Selecting the One* approach to interviewing and hiring focuses on finding people whose abilities and experience, temperament, and character are well matched to our company culture.

Engagement

On day one with Casella, newly hired employees begin a detailed on-boarding experience focused on achieving full engagement around our supportive culture, strong relationships, and core values. We recognize that this intensive process goes beyond what most organizations offer, but we see it as an essential investment because we know that *our engaged employees are the heart and soul of Casella*.

Engaged employees are proud stewards of our organization. They bring their best self to work every day. They go above and beyond for their customers. Their enthusiastic energy naturally spreads to their friends and family, future employees, members of the community, and beyond.

The simple truth is that the work we do is important and meaningful. We serve our customers and communities by conserving and sustaining the world's limited resources. We are stewards of our region's stunningly beautiful natural environment.



Safety and Wellness

The men and women who work in the solid waste industry operate heavy-duty vehicles, work on busy streets, and navigate difficult terrain in every type of weather. They run and repair equipment specifically designed to convey, compact, perforate, grind, pulp, and shred. This type of work can be dangerous and unforgiving of even the smallest mistakes.

Protection of employee health and safety is the top priority in all of our operations. At the heart of our safety program is our dedicated safety department, working hand-in-hand with our operating teams to get every employee home to his or her family at the end of each day.

Our safety success begins with hiring; a commitment to the safety of yourself and your team is a prerequisite for employment with Casella. It continues with new hire training, ongoing training, and thousands of daily decisions and actions that add up to a safe day.

One of the largest safety risk factors in our business is beyond our direct control. Our drivers share the roads with members of the general public who are increasingly hurried, stressed, and distracted. To remind everyone to take caution near solid waste vehicles and their operators, we support *Slow Down to Get Around* legislation in all states where we operate. So far, the legislation has passed in 18 states, including New York and Vermont. We are lobbying for other northeastern states to pass these measures.

“Safety and health in our business must be a part of every operation. Without question it is every employee’s responsibility at all levels.”

– John W. Casella, 2015



We are thoughtful leaders in our local communities. Each employee contributes tangibly to this important work, and our approach to engagement is helping them see that beginning on day one.

Development

We believe that every Casella employee should have a clear and compelling pathway for learning, development, and growth.

Great Drivers & Great Technicians:

Our company's success flows from the enduring commitment of our drivers and mechanics, and their daily dedication to service and safety. In today's economy, commercial drivers and fleet technicians are in high demand, and we need to attract and retain the best of the best: the talented men and women who will deliver the highest standards of safety, service, and leadership every day. With our innovative new approach to talent management, we provide our drivers and mechanics with continuing opportunities to learn and grow, and a compensation program that increases along with their contributions and capabilities.

Customer Care:

Our customer care representatives participate in a comprehensive training program focused on customer service excellence and continuous improvement. Our structured career path helps us to attract and retain the best people. Every employee starts out as a CCR (customer care representative) and works their way through CCR1 and CCR2 as they fine-tune their skills, gain experience, and build confidence. Top performers can aspire to become a Senior Care representative, and eventually a trainer or a Team Manager. Representatives also learn and are incentivized to sell our services. All promotions stem from performance and character, as opposed to tenure.

Sales:

As new technologies emerge, infrastructure shifts, and goals advance, our customers need more from us than ever before. To meet these new expectations, our specialized operating divisions must collaborate seamlessly, and our customer account representatives need to become fluent in a growing list of services and solutions. Our inter-regional sales round tables and workshops provide growth opportunities for our sales teams to learn new skills and collaborate with their peers to offer an integrated suite of exciting and effective resource solutions for their customers.

Impact Leadership:

The development of our people is one of our most important strategic initiatives. Leadership at Casella is not limited by title or role. It is a daily practice and expectation of every Casella employee. We all lead through the power of example and our ability to solve problems. We regularly invite our employees to build their leadership skills through retreats and round tables. With a nuanced and holistic understanding of leadership, regular reflection, and a commitment to personal growth, we work together to become better leaders for our company, our customers, our families, and our communities.

Other Development Programs:

Other growth and development programs available to Casella employees are our tuition reimbursement program, support in applying for industry scholarships, our emerging leaders executive training program, our operations manager training program, and more.

Opportunity

When we apply a resource renewal mindset to the way we manage our people, the final step in closing the loop is to provide opportunities for advancement and promotions within the company. We currently fill approximately 50% of our non-entry level positions with internal candidates. We strive to increase that number to 80%. At this targeted rate of retention, our people will have ample opportunity to grow and advance within the organization, and we will also continue to import a healthy amount of new perspective and diversity of thought through outside hires. Achieving this 80% goal will require a consistent and disciplined approach to our sourcing, engagement, and development strategies. It will require a company-wide commitment to the belief that talented people are a limited and valuable resource, worthy of our investment, and that when we renew and sustain our people, our people will renew and sustain our business.

Community Engagement

Our Commitment: *We engage with and invest in our local communities so that customers are proud to hire us, employees are proud to work for us, and communities are proud to host us.*

As a locally-focused company, we are proud of all the great things we can do to support and engage with our communities. Our local teams sponsor events, donate services, and volunteer their time and talents. In so many ways, we are woven into the civic fabric of our communities.

We also work to provide our communities with valuable educational resources – including facility tours, classroom talks, community mailers, and more – to help our neighbors learn how and why to recycle, where their waste goes, and much more.

In 2017, we made charitable contributions totaling \$70,384, donated thousands of hours of service, and hosted hundreds of community events and tours. In addition to reflecting our core values, we see these activities as a smart business investment, helping us to cultivate customers who are proud to hire us, employees who are proud to work for us, and communities who are proud to host us.

Local Giving & Volunteering - #CasellaCares



Our White River Junction, VT location employees participating in the annual CHaD HERO competitive run to support the Children's Hospital at Dartmouth-Hitchcock.



Annually, we participate in the Cradles to Crayons Backpack-a-Thon event in Boston, MA where volunteers fill over 40,000 backpacks with supplies for children in need before the school year begins.



Throughout our footprint, we participate in touch-a-truck events that provide an opportunity for children to learn more about our fleet as well as engage with our awesome drivers!



We participate in many community events that support cancer research, like the annual Making Strides for Breast Cancer Walk/Run as well as events that support the Special Olympics, like the annual Penquin Plunge.

Recycling Education - #RecycleBetter



One of the biggest ways that we engage with our customers is through recycling education. When everybody knows how to recycle better, we make sure that recycling remains environmentally and economically sustainable. We currently offer a variety of educational resources to our customers, including an annual mailer for households, customized signage for businesses, train-the-trainer services, and recycling facility tours. Still, we have lots of ideas to enhance our recycling education programs, and we'll be rolling those out over the coming months.

Facility Tours - #ThisIsAway



Have you ever wondered where your waste and recyclables go after you throw them "away?" To answer this question, we host facility tours and open houses. We are proud of our operations and eager to show them off. Over the years, some of our annual events have evolved from simple tours into full-fledged community get-togethers drawing as many as a thousand people. At the end of our tours, our visitors understand exactly where "away" is. As we noted in our page 23 case study, we hope this awareness will help to inform ongoing thoughtful discussions about the future of solid waste management in all of our communities.

SCORECARD

RESOURCE RENEWAL

Tons Recycled and Disposed

Detailed Description

Material Recycled	Recycling tons received, processed, and brokered; consisting of ONP, OCC, ferrous & non-ferrous metals, PET, HDPE, LDPE
Organic Material Recycled	Organic recycling tons processed or directly land applied for beneficial use of nutrient and carbon value

TOTAL TONS RECYCLED

Municipal Solid Waste Disposal	Includes waste from residential, commercial, or institutional generators. Institutions include schools and hospitals
Industrial & Construction Waste Disposal	Includes materials such as ash, sludge, construction & demolition debris, contaminated soils, and industrial wastes
Material Disposed in Landfill with LFGTE	Solid waste tons disposed of in Casella landfills with energy recovery (Landfill Gas to Energy)
Material Disposed in Landfill without LFGTE	Solid waste tons disposed of in Casella landfills without energy recovery
Material Combusted in Waste to Energy	Solid waste tons disposed of in the Casella WTE facility, after processing

TOTAL TONS DISPOSED

Disposal in Facilities with Energy Recovery	Tons disposed of in landfills with energy recovery, as a % of all tons disposed
MSW Recycling/Diversion Rate	Material recycled, divided by the sum of material recycled and MSW disposed

OVERALL RECYCLING/DIVERSION RATE

Total tons recycled (material recycled plus organic material recycled), divided by the sum of all tons recycled and disposed

Energy Produced and Sold

Detailed Description

Energy Produced from Waste Combustion	Megawatt hours produced and sold at Maine Energy
Energy Produced from Landfill Gas and Biogas	Megawatt hours produced and sold at Casella owned/operated LFGTE and AD facilities

TOTAL ENERGY PRODUCED BY CASELLA (MWH)

Total Energy Produced by Casella + Partners (MWH)	Megawatt hours produced and sold at Casella owned/operated facilities and partner LFGTE plants (Ontario & Coventry)
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Continued on next page...

2005 Baseline	2010	2015	2016	2017	TARGET
468,423	580,655	739,081	769,626	776,972	
215,679	310,934	477,611	419,458	430,186	
684,102	891,589	1,216,692	1,189,084	1,207,158	✓ 1 Million tons/year recycled
1,633,161	1,776,096	2,113,825	2,079,214	2,061,069	
1,271,429	1,464,007	1,683,894	1,811,314	1,898,471	
930,516	1,701,517	2,197,825	2,147,208	2,256,208	
1,750,237	1,546,222	1,599,894	1,743,320	1,703,332	
209,156	200,778	-	-	-	
2,889,909	3,448,517	3,797,719	3,890,528	3,959,540	
39%	60%	58%	55%	57%	100% to LFGTE Landfills
22%	25%	26%	27%	27%	
19%	21%	24%	23%	23%	
159,913	121,591	-	-	-	
-	98,651	85,512	90,393	83,346	
159,913	220,242	85,512	90,393	83,346	
		202,555	202,209	203,847	

ENERGY & ENVIRONMENT

Greenhouse Gas Emissions

Detailed Description

Landfill GHG Emissions (metric tons CO₂e)

Total landfill GHG emissions calculated using EPA Part 98 methods (note: prior reports used EPA Climate Leaders Protocol)

Facility and Fleet GHG Emissions (mtCO₂e)

Total GHG emissions calculated using EPA Climate Leaders Protocol; includes direct emissions from on-site and fleet fuel combustion and indirect emissions from electricity purchases

TOTAL SCOPE 1 & 2 GHG EMISSIONS

TOTAL SCOPE 1 & 2 GHG EMISSIONS PER TON (KG/T)

Total GHG emissions divided by total tons recycled & disposed

Greenhouse Gas Benefits

Detailed Description

Estimated GHG Benefit of recycling (metric tons CO₂e)

Together with our customers, we recycle hundreds of thousands of tons per year. This recycling has a GHG benefit, which we've estimated here using the EPA WARM model. We do not take credit for these benefits in our own corporate carbon footprint.

Estimated GHG Benefit of electricity production (metric tons CO₂e)

The electricity produced in our power plants creates a GHG benefit, which we've estimated here using the New England eGRID 2010 emission factors. We do not take credit for these benefits in our own corporate carbon footprint.

Energy Consumption

Detailed Description

Electrical Energy Consumption (MWh)

Megawatt hours consumed in buildings and facilities

Natural Gas Consumption (stationary, therms)

Therms of natural gas consumed in buildings and facilities

Fleet Diesel Consumption (gallons)

Gallons of diesel consumed by vehicle fleet

Other Environmental Indicators

Detailed Description

Environmental Compliance Enforcement Actions

Number of environmental compliance enforcement actions per facility (e.g., 5 enforcement actions div by 100 facilities = 0.05)

Petroleum Releases

Petroleum spills that meet the criteria of being state or federal reportable

OUR PEOPLE

Employee Engagement

Detailed Description

Employee Retention Rate

Percent of all full-time employees who remain with our company annually

401(k) Participation Rate

Percent of all eligible employees participating in the company's 401(k) plan

Stock Purchase Plan Participation

Percent of all eligible employees participating in the company's stock purchase plan

Health & Safety

Detailed Description

Total Automotive Accidents

Total number of fleet claims determined to be preventable

Total Employee Injuries

Total number of workers compensation claims determined to be preventable

DART Rate

Days away from work, restricted activity, or transferred to another job due to an on-the-job injury; this number represents the # of occurrences per 200,000 hours worked

Worker's Compensation MOD Rate

Our Workers Compensation MOD Rate adjusts the cost of our insurance based on our number of OSHA recordable events relative to others in our industry. At a MOD rate of 1.0, a company pays industry average insurance costs because they perform at industry average, as set by the National Council on Compensation Insurance (NCCI). Rates below 1.0 indicate that the company's performance is better than average, justifying lower than average insurance costs.

OUR CUSTOMERS & COMMUNITIES

Community Engagements

Detailed Description

Charitable Contributions

Charitable cash donations (this figure does not include in-kind services)

Note that historical GHG emissions have been recalculated and restated to reflect updated Global Warming Potential guidance from EPA and the IPCC 5th Assessment Report.

2005 Baseline	2010	2015	2016	2017	TARGET
	743,676	567,669	517,691	519,807	
	198,705	78,309	77,611	77,625	
	942,380	645,978	595,302	597,431	
	217	129	117	116	Continuous improvement
	1,640,000	2,090,000	2,180,000	2,200,000	
	73,000	28,000	30,000	28,000	
42,955	17,842	21,651	21,972	25,762	Reduce energy intensity
141,305	580,072	104,689	96,844	86,167	
5,760,043	5,701,828	6,201,912	6,150,623	6,087,662	Reduce fuel intensity
0.05	0.09	0.24	0.14	0.03	Continuous improvement
n/a	81	108	n/a	70	Continuous improvement

2005 Baseline	2010	2015	2016	2017	TARGET
70%	85%	72%	75%	75%	Continuous improvement
n/a	43%	69%	70%	71%	Continuous improvement
n/a	5%	6%	9%	8%	Continuous improvement
258	266	396	323	357	Continuous improvement
321	173	189	176	206	Continuous improvement
1.67	1.76	1.46	4.6	4.8	Continuous improvement
	0.97	0.74	0.75	0.73	Continuous improvement

2005 Baseline	2010	2015	2016	2017	TARGET
\$450,924	\$303,267	\$79,701	\$104,553	\$70,384	

GRI G4 CONTENT INDEX

This report is prepared in accordance with the GRI Standards: Core option.

GRI 102: GENERAL DISCLOSURES, 2016

102-1 Name of the Organization. p. 3

102-2 Activities, Brands, Products, Services. pp. 8-27

Primary brands = Zero-Sort® Recycling, Casella Organics™, and earthlife®

102-3 Location of Headquarters. p. 3

102-4 Location of Operations. p. 3

102-5 Ownership and Legal Form.

Corporation.

102-6 Markets Served. pp. 28-29, p. 24

Sectors served include residential, commercial, industrial, institutional, retail, municipal, and agricultural. Our customers include those who generate waste and those who purchase our products.

102-7 Scale of Organization. p. 3.

of employees: 1,925 (as of 12/31/2017)

Net sales: Revenue: \$599.4 million (2017)

Market Cap: \$987.7 million

Quantity of products or services provided: 5.2 million tons managed (2017)

102-8 Information on Employees & other workers.

Total employees: 1,925 (as of 12/31/2017)

By employment contract: 78% hourly, 22% salary

By gender: 19% female

By age group: 16% under 30, 34% over 50

By race: 3% non-white

102-9 Supply Chain.

Casella's primary areas of purchasing include heavy-duty collection vehicles, recycling equipment, and landfill construction materials. The company's environmental impact derives primarily from the types and quantities of residuals we receive from our customers, and the degree to which those materials are properly sorted and characterized.

102-10 Significant Changes to the Organization and its Supply Chain.

No significant changes to the organization's size, structure, ownership, or supply chain during the reporting period.

102-12 External Initiatives.

External economic, environmental, or social charters, principles, or other initiatives to which we subscribe or which we endorse: Vermont Product Stewardship Council.

102-13 Membership of associations. Appendix E

102-14 Statement of Senior Decision Maker. p. 4

CEO Letter.

102-16 Values, standards, principles, norms. pp. 36-39, Appendix

Core values, Our people, Environmental policy.

102-18 Governance structure. Appendix D

102-40 List of stakeholder groups. p. 2

102-41 Collective bargaining agreements.

6% as of 12/31/2017.

102-42 Identifying and selecting stakeholders. Appendix B

102-43 Approach to stakeholder engagement. Appendix B

102-44 Key topics and concerns raised. p. 2

102-45 Entities included in consolidated financial statements.

As of December 31, 2017, we owned 5.6% of the outstanding common stock of Recycle Rewards, Inc. ("Recycle Rewards"), a company that markets an incentive based recycling service. We owned 5.2% of the outstanding equity value of GreenerU, Inc. ("GreenerU"), a services company focused on providing energy efficiency, sustainability and renewable energy solutions to colleges and universities. We owned 17.0% and 16.2% of the outstanding common stock of AGreen Energy LLC ("AGreen") and BGreen Energy LLC ("BGreen"), respectively. In fiscal year 2015, AGreen and BGreen, both of which we account for as cost method investments, entered into agreements that resulted in the contribution and sale of certain assets and liabilities of AGreen and BGreen to a limited liability company in exchange for partial ownership interests in a parent of that limited liability company.

102-46 Defining report content and topic boundaries. p. 2, Appendix A

102-47 **List of material topics.** p. 2

102-48 Restatements of information.

GHG Emissions for 2010 and 2015 have been recalculated and restated using the revised Global Warming Potential of 28 for methane, in accordance with EPA guidelines and the IPCC 5th Assessment Report issued in 2014.

102-49 Changes in reporting.

Added discussions of water impacts and local air impacts.

102-49 Changes in reporting.

Added discussions of water impacts and local air impacts.

102-50 Reporting period.

Calendar Year 2017.

102-51 Date of most recent report.

2014.

102-52 Reporting cycle.

Biennial.

102-53 Contact point for questions regarding the report. p. 3

102-54 Claims of reporting in accordance with the GRI standards.

This report has been prepared in accordance with the GRI Standards: core option.

102-55 GRI content index. p. 44-45

GRI 201: GENERAL DISCLOSURES, 2016

201-1 Direct economic value generated and distributed.

Full data not currently available. This is a metric we will work toward disclosing in a future report.

GRI 301: GENERAL DISCLOSURES, 2016

305-1 Direct (Scope 1) GHG emissions. p. 30, Scorecard

Scope 1 GHG Emissions: 590,220 metric tons of CO2 equivalents

305-2 Energy Indirect (Scope 2) GHG emissions. p. 30, Scorecard

Scope 2 GHG Emissions: 7,211 metric tons of CO2 equivalents

305-4 GHG Emission intensity. p. 30, Scorecard

GRI 306: GENERAL DISCLOSURES, 2016

306-1 Water discharge by quality and destination.

107.8 million gallons landfill leachate directed to wastewater treatment plants in 2017.

306-2 Waste by type and disposal method. Scorecard

The company's primary business is the collection, processing, and disposal of non-hazardous waste generated by customers. These quantities are summarized in our Scorecard.

306-3 Significant spills. p. 32, Scorecard

We keep record of spills that meet or exceed state-level reporting thresholds. The counts referenced in this report include all reportable releases.

GRI 307: GENERAL DISCLOSURES, 2016

307-1 Noncompliance with environmental laws or regulations.

p. 33, Scorecard

Monetary fines in 2017: \$5,500. Total non-compliance incidents in 2017: 4.

GRI 403: GENERAL DISCLOSURES, 2016

403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities. Scorecard

Our safety performance and metrics are discussed on page 37 and in our scorecard. The full granular data specified in 403-2 are not currently available for disclosure.

GRI 413: GENERAL DISCLOSURES, 2016

413-1 Operations with local community engagement, impact assessments, and development programs. pp. 38-39, Scorecard

100% of our operations have implemented some level of community engagement activity. We will be working to formalize and elevate these activities around targeted operations in the coming years.

APPENDICES

Appendix A: Report Development

We prepared this report over the course of 2018, drawing on input from our cross-functional Sustainability Leadership Team as well as other department heads. Our Sustainability Leadership Team convenes quarterly and includes representatives from Resource Solutions, Government Affairs, Human Resources, Sustainability, Communications, and Marketing. Our Sustainability Subcommittees include Recycling, Fleet, Organics, Energy, Landfill, Resource Solutions, and People.

In this, our fourth full Sustainability Report, we have elected to remain focused on the same key stakeholders (Employees, Customers, Communities, Government, Shareholders, and Vendors), within the same scope and boundaries (Organizational Control), and focusing on the material topics identified in our materiality discussions. Performance indicator data were compiled and provided by the Sustainability Team members. Casella's Director of Sustainability leads our quarterly sustainability meetings and the biennial report development process.

We value the input we receive from our key internal stakeholders during the reporting process, and we are actively working on expanding our reach to solicit input from a broader range of stakeholders in our report development process. Our plan for implementing a more robust and comprehensive stakeholder engagement process is explained further in Appendix B.

We issue our reports biennially. In off years, we release a performance indicator scorecard and issue a brief interim update. This process is implemented by our Sustainability Team.

Appendix B: Stakeholder Engagement

Over the next two years, we plan to implement additional outreach and engagement activities with our key stakeholder groups. We look forward to sharing our sustainability journey with these stakeholders, and continuously improving our performance with their valued insight and feedback.

Appendix C: Environmental Policy

Casella Environmental Policy

We are deeply committed to protecting and improving the environment for our people and the communities we serve. We conduct our business and operate our facilities with consideration for their environmental impact. Our responsibility for the environment spans from the construction, maintenance, and operation of our facilities to the maintenance and operations of our vehicles and the conservation of resources. As a leader in the field of resource renewal we continually evaluate new technology and seek opportunities to improve environmental performance. All of our employees are responsible for protecting and improving the environment, from attaining a basic level of regulatory compliance to identifying opportunities for continued improvement and environmental excellence. Adhering to this environmental policy simultaneously benefits the environment and our business. Our environmental focus ensures we maintain compliance with applicable laws and regulations. Viewing our business through an environmental lens helps us identify new opportunities for growth. It helps us manage risk. Pursuing our environmental policy allows us to create competitive advantage and succeed as a company. To assist in the management of our environmental responsibilities we have developed six key Environmental Leadership Statements that serve as overarching guidelines from which we establish actionable performance goals.

Environmental Compliance

We conduct our environmental compliance program in accordance with Casella's Code of Business Conduct and Ethics to ensure compliance with applicable laws, regulations, and company requirements. Our managers conduct regular facility inspections and correct identified deficiencies promptly.

Air & Climate Protection

We protect our air resources and the global climate by measuring and reducing our air emissions. We measure, calculate, and report the emissions from all of our operations, facilities, vehicles, and equipment. Implementing our low emission landfill standards and operational techniques helps us minimize landfill gas emissions using newly emerging and cost-effective technologies. Energy efficiency measures allow us to reduce combustion emissions from our fleet and facilities, as does the use of alternative fuels in our vehicles when possible.

Water Protection

We protect water resources through the responsible handling of petroleum products and the minimization of leachate generation. Landfill operating procedures and onsite treatment programs at some of our locations allow us to minimize leachate generation at the source. We avoid petroleum releases through rigorous programs of inspections and preventive maintenance for our fleet vehicles, operating equipment, and storage tanks. Extensive training and best management practices ensure we are prepared to promptly respond to any release, assess the environmental impact, and take appropriate corrective action.

Land Protection

We broadly define our land resources as encompassing the habitat and ecosystems impacted by our operations. We minimize our impact on the land through the intelligent application of landfill liner systems, leachate and gas collection infrastructure, and emission control and treatment systems. We minimize our consumption of resources through the beneficial use of materials such as tire chips, glass cullet, and contaminated soils—rather than virgin mineral materials—in constructing and operating our landfills. Where possible, we work to improve the land through habitat restoration and waste relocation projects.

Community Engagement

Our business provides a necessary and valuable service: managing society's discards in a safe and environmentally responsible manner. We raise awareness about the importance of recycling and resource renewal by supporting outreach and education efforts in the communities we serve. We regularly give presentations to school and community groups, offer educational tours of our facilities, and fund community scholarship programs. We make these investments because we are committed to developing strong trusting relationships and building an enduring ethic of environmental stewardship within our communities.

Resource Conservation and Renewal

We are committed to the principles of “reduce, reuse, and recycle” at each of our locations. All Casella locations offer recycling options for cardboard, paper, plastic, and metals. In purchasing, we observe a preference for recycled and recyclable products. We responsibly dispose of all remaining waste from our business and operations.

Appendix D: Corporate Governance

The day-to-day business at Casella is carried out by our employees under the direction and leadership of our Chairman and Chief Executive Officer John W. Casella. Led by Lead Director James O'Connor and the Casella Board of Directors:

- Reviews the company's performance, strategies, and major decisions
- Provides oversight of the company's compliance with legal and regulatory requirements, enterprise risk management, and the integrity of our financial statements
- Provides management oversight including review of the Chief Executive Officer's performance and succession planning for key management roles
- Provides oversight relating to compensation for the Chief Executive Officer, key executives, and the Board, as well as oversight of compensation policies and programs for all employees

Board Committees

Our Board has three standing committees—audit, compensation, and nominations & governance— each of which operates under a Board-approved charter. The compensation committee has a stock plan subcommittee. Our Board has determined that all of the committee and subcommittee members are independent as defined under the rules of the NASDAQ stock market. Our corporate governance guidelines, committee charters, code of ethical business conduct, and other governance materials are available on the investor relations page of the Casella corporate website.

Board Leadership Structure

The Chairman of the Board of Directors, John W. Casella, is also Chief Executive Officer. We believe that our Chief Executive Officer is best situated to serve as Chairman of our Board because he is the director most familiar with our business and industry and is therefore best positioned, collectively with the Lead Director, to establish the Board's agenda and fulfill the other responsibilities of the Chairman of the Board. As our Chief Executive Officer since 1993, Mr. John Casella has been an integral part of the leadership of our Board and his strategic vision has helped to guide our growth and performance. Our Board believes that its leadership structure is appropriate because it strikes an effective balance between strategy development and independent leadership and management oversight in the Board process.

Communicating with the Independent Directors

Our Board gives appropriate attention to written communications submitted by stockholders. Our Lead Outside Director, with the assistance of our general counsel, is primarily responsible for monitoring communications from stockholders and for providing copies or summaries to the other directors as he considers appropriate. Communications are forwarded to all directors if they relate to important substantive matters and include suggestions or comments that the Lead Outside Director considers to be important for the directors to know. In general, communications relating to corporate governance and long-term corporate strategy are more likely to be forwarded. Stockholders who wish to send communications to our Board may address such communications to:

**Board of Directors,
c/o Corporate Secretary,
Casella Waste Systems, Inc.,
25 Greens Hill Lane, Rutland, VT 05701**

Casella maintains a MySafeWorkPlace incident reporting phone line staffed by an independent third party. Individuals can make anonymous reports to MySafeWorkPlace through a toll-free number or via the Casella corporate website to report accounting discrepancies, ethics violations, fraud, theft, harassment, and workplace and fleet safety concerns. We encourage good faith reporting of all concerns and prohibit the retaliation for submission of an incident report. MySafeWorkPlace contact information is included in our employee manual, on the company's intranet, and on posters displayed at our facilities.

Appendix E: Memberships & Organizations

Casella is a member of or collaborates with the following organizations.

National

National Recycling Coalition
National Waste & Recycling Association
Nwra Future Industry Leaders Alliance
Nwra Women's Council
Association of Post-Consumer Plastic Recyclers
Institute of Scrap Recycling Industries (ISRI)
Water Environment Federation
Solid Waste Association of North America (SWANA)
US Composting Council
American Biogas Council
Biomass Power Association
United Way

Regional

Northeast Recycling Coalition
Northeast Resource Recovery Association
New England Biosolids and Residuals Association
New England Water Environment Association
New England Nursery Association, Inc.
New England Water Environment Association, Inc.
Northeast Biosolids and Residuals Association
Eastern Paper Mill Suppliers Association
Mid-Atlantic Biosolids Association
SWANA Northern New England Chapter

Massachusetts

MassRecycle
Greater Boston Chamber of Commerce
Worcester Regional Chamber of Commerce
Associated Builders and Contractors, Massachusetts Chapter
Massachusetts Nursery and Landscape Association

Vermont

Vermont Council on Rural Development
Vermont Chamber of Commerce
Vermont Truck and Bus Association
Vermont Businesses for Social Responsibility
Association of Builders and Contracts VT

Maine

Maine Chamber of Commerce
Maine Water Environment Association
Maine Rural Water Association
Maine Farm Bureau
Maine Landscape and Nursery Association
Maine Renewable Energy Association
Maine Pulp and Paper Association
Maine Organic Farmers' Association
Maine Business for Social Responsibility
Maine Municipal Association
Maine Resource Recovery Association

New Hampshire

New Hampshire Timberland Owners Association
New Hampshire Businesses for Social Responsibility
Association of Builders and Contractors NH
New Hampshire Home Builders Association

New York

New York State Association for Solid Waste Management
New York State Solid Waste Federation
New York State Association for Reduction, Reuse, and Recycling
New York Water Environment Association
Mid-Atlantic Biosolids Association
New York Farm Bureau
New York Corn and Soybean Growers Association
Rail Operators of New York Association



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