BOEING

GLOBAL ENVIRONMENT REPORT 2020

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Photo above: **Boeing delivered 4.5 million units of personal protective equipment (PPE) and produced more than 40,000 face shields as part of the company's ongoing COVID-19 airlift efforts via Dreamlifters, the cargo carrier from the 787 family. Since the first 787 entered service in 2011, the 787 family has saved more than 48 billion pounds (22 million metric tons) of fuel, greatly reducing CO_2 emissions.**

Cover photo: **The 777X is the most efficient twin-aisle jet ever developed, featuring a 72-meter wing span that gives it enormous lift capability while minimizing drag thanks to its composite wing technology. The innovative wing tip folds to accommodate any airport gate that today's 777 serves.**

MESSAGE FROM OUR PRESIDENT AND CEO

At Boeing, we're committed to environmental leadership — an important pillar of our broader sustainability strategy to help make the world a better place for future generations.

Throughout the company, our people are making ambitious strides to protect air, land, water and human health in partnership with our stakeholders and in line with our customers' needs. You can see examples of our progress across our innovative products and the conscientious ways we build and service them. We're also identifying opportunities to continuously improve, including adopting more transparency and data in our technical reporting and achieving our ambitious environmental targets.

You can learn more about our global environmental efforts and our team members' passion for them in the pages of this report.

We have a responsibility to lead in this area, and you have my commitment that we will keep improving for our teams, for our customers and our communities.

David Calhoun,
President and
Chief Executive Officer

LEADERSHIP MESSAGE

We are committed to environmental excellence and transparency for all of our stakeholders, including employees, customers, investors, and communities around the world.

We know our continued commitment to environmental sustainability — whether we're efficiently managing resources or cutting the carbon footprint of our products — is a key element to the company's overall strategy. Innovation is part of Boeing's DNA, and you will see how we apply that to the environment in this report. We are designing and building our products while being mindful of emissions and conserving precious resources, including energy and water, while significantly reducing waste.

We do this because it's the right thing to do and because it will sustain our business and our communities in the years to come. Perhaps most importantly, environmental sustainability is critical to future generations — both to enable us to attract top talent and because we need to leave the Earth in a good place for those who will follow us.

We are committed to continuing on this trajectory, even as the world grapples with the coronavirus pandemic and social justice. In fact, there are many valuable lessons to apply from our current situation, namely that responsible actions benefit everyone on the planet.

Bryan Scott,
Vice President,
Environment, Health & Safety

REPORT SUMMARY— BOEING'S APPROACH TO ENVIRONMENTAL SUSTAINABILITY

Boeing recognizes climate change is a fundamental global challenge, and as we enable people to move freely across the planet we recognize the need to reduce the impact of flying. The fuel efficiency of flying continues to improve, and we are reducing carbon emissions from our business operations, using resources efficiently through innovative solutions across our product life cycle.

This report provides a summary of the actions we achieved in 2019 toward our environmental aspirations. The following pages highlight stories of good stewardship of what all our stakeholders deserve: clean air, water and land.

Our 2019 environmental sustainability achievements are based on commitments to the following:

Products	Operations	Collaboration	Governance
Providing innovative products and services to improve environmental performance.	Sustainable operations to improve the environmental performance of our factories, work sites and supply chain.	Collaborating with partners globally to advance innovative environmental solutions.	Comprehensive review and assessment of the most significant environmental challenges and risks.

REPORT SUMMARY— BOEING'S APPROACH TO ENVIRONMENTAL SUSTAINABILITY

Products

The cover story of the new 777X demonstrates that Boeing's environmental performance is closely linked to innovation and technology (*See page 6*). Each newly developed Boeing product is typically 15% to 25% more efficient than the airplanes they replace. Read more about Boeing's industry-leading fuel efficient product offerings, enabling the industry to achieve a global approach to carbon-neutral growth starting in 2020 and a 50% reduction by 2050 (*See pages 37–40 to learn more about Boeing's collaborative efforts to reduce carbon emissions*). Our new airplanes exceed those industry standards. Our commitment to environmental sustainability doesn't stop there. In fact, Boeing's product designs enable disassembly of parts and materials recovery resulting in airplanes that are nearly 90% recyclable by weight for parts reuse and scrap. Read about how Boeing works directly with airline customers to ensure airplanes are operated as efficiently as possible through Boeing Global Services (*see page 26*).

Operations

Boeing has bold goals to reduce companywide greenhouse gas emissions by 2025. Read about our 2019 progress on page 41. In 2019, Boeing made strides in securing more renewable energy to power its operations, building on our strong track record. Two Boeing factories are powered by 100% renewable energy, and about half of Boeing's total electricity consumption comes from carbon-free hydroelectric and other renewable energy sources. Since 2007, Boeing has reduced its emissions by 29% (*See analysis on page 40*). Read about how additive manufacturing, also known as 3D printing, is changing the way we design and build products with fewer raw materials, creating less waste and improving fuel efficiency in our products (*See story on page 30*).

Collaboration

Boeing's environmental principles are applied to the product lifecycle value chain, working with partners, suppliers and industry collaborators. Throughout the pages of this report, you will see examples of Boeing's support of environmental sustainability through STEM, community involvement in green infrastructure, land conservation, habitat restoration and resiliency. The stories in this report align to Global Reporting Initiative categories.

Governance

Boeing's governance includes reviewing and assessing significant environmental challenges and risks to the company and industry, such as climate and policy change. The company's environmental strategy and policies are guided by the Environment, Health and Safety (EHS) Policy Council, composed of Boeing's Executive Council and led by the president and chief executive officer. The EHS Policy Council ensures that strategy and performance targets are set and monitored. The Board of Directors reviews top-level, strategic operational and compliance risks, which includes environment-related risks. Our governance, strategy, risk management, metrics and targets are summarized in this report and align to the Task Force on Climate-related Financial Disclosures (TCFD) core elements. GHG emissions data is summarized in the notes section and our CDP report (*see page 44*).

air

Boeing airplanes bring the world closer together. We're taking critical steps to design and build products with air quality in mind by reducing emissions, decreasing fuel use, promoting sustainable aviation fuel, and increasing the use of renewable electricity in our manufacturing facilities.

777X ADVANCED TECHNOLOGIES DRIVE EFFICIENCY AND ENVIRONMENTAL PERFORMANCE

The 777X is Boeing's newest family of twin-aisle airplanes, the largest and most fuel efficient jet of its kind. With an optimized wingspan of more than 72 meters — longer than today's 777 — and a simple folding wingtip, the 777X delivers greater efficiency, significant fuel savings and complete airport compatibility.

Smart design and innovative new technologies on the 777X, including its fourth-generation carbon-fiber composite wing, all-new engines and natural laminar flow nacelles, together will help the airplane to achieve 10% lower fuel use and emissions and 10% lower operating costs to comparable aircraft in the market.

Boeing has partnered with GE, which has developed the most advanced, fuel-efficient commercial engine ever, the GE9X. The GE9X engine will be more than 5% more efficient than anything in its class.

Boeing began the flight testing phase of its rigorous test program in January 2020.

AIRLINES FLY NEW BOEING JETS HOME ON BIOFUEL

Boeing began offering airline customers the option to fly their new airplanes home on sustainable fuel in March 2019. Alaska Airlines joined Boeing to launch the program with EPIC Aviation and World Energy. The program is part of wide-ranging efforts by Boeing and the industry to reduce CO_2 emissions from flying and helps signal demand for sustainable fuel to suppliers. Boeing has partnered with airlines on sustainable aviation fuel delivery flights since 2012 when Etihad Airways took delivery of a 777-300ER. This new program builds on sustainable fuel logistics developed for the ecoDemonstrator Program and makes sustainable fuel available to more airline customers.

EYGYPTAIR, Etihad Airways and SAUDIA have used sustainable fuel on delivery flights under this new program. Several other airlines have also expressed interest.

The program is available at all three of Boeing's delivery centers in Washington and South Carolina.

Scientific studies have found that sustainable fuel reduces CO_2 emissions by up to 80% over the fuel's life cycle, depending on the source used to make it.

REMOVING PAINT AT THE SPEED OF (LASER) LIGHT

Removing paint from an aircraft usually involves a lot of hard work with a sander or chemical process, neither of which are easy on the people doing the work—nor the environment.

Boeing is developing innovative ways to remove paint from airplanes that use lasers to improve the quality and speed of the work while also reducing waste and the ergonomic risk to employees.

With laser ablation, the paint absorbs laser light, which excites the molecules into the plasma state and vaporizes the material. Laser de-painting reduces more than 90% of hazardous waste generated by other paint removal methods.

REDUCING FUEL USE AND EMISSIONS WITH A COOL TECHNOLOGY

Boeing's ecoDemonstrator Program takes promising technologies out of the lab and tests them in the air to accelerate innovation.

A technology tested in 2019 makes parts change shape or move based on the temperature. The project involved vortex generators — small fins on airplane wings that improve airflow during takeoff and landing.

But the fins aren't required during cruise and therefore create drag. Shape memory alloy raises the fins near the ground and retracts them at higher altitudes where the air is colder.

An airline flying 100 jets equipped with these fins could save up to 3 million gallons of fuel a year — the equivalent of taking about 3,800 cars off the road.

SECOND NATURE: MATERIALS AND PROCESS ENGINEERS DESIGN WITH ENVIRONMENT IN MIND

Most passengers who board a plane wouldn't notice, but Boeing's materials and process engineers are keenly aware that their innovation in finding the most environmentally progressive matter and methods to build airplanes is making air travel cleaner than ever. Here are some highlights:

- Lasers are beginning to replace sanders and chemicals in Boeing factories to remove paint from aircraft, clean tools, and prepare surfaces for painting, improving quality and accuracy while reducing hazardous waste by 90%.
- Boeing is also studying experimental concepts that pull carbon dioxide out of the atmosphere and use it to produce high value chemicals and materials.
- Working with suppliers and the FAA, Boeing is working to find safe and reliable replacements for Halon fire suppressants, because of damage the compound can cause to the ozone layer. Boeing has completed critical fire tests for a new cargo suppression agent and continues to evaluate its performance on the ecoDemonstrator in-flight laboratory.

CO 2050

Boeing is working toward achieving CORSIA's industry commitment to reduce carbon emissions by 50% by 2050.

BOEING AND ELG CREATE CARBON-FIBER RECYCLING MODEL

A year after launching a partnership with UK-based ELG Carbon Fibre to recycle excess aerospace-grade carbon fiber composite materials, Boeing was recognized by the National Association of Manufacturers for sustainability leadership, establishing a model for other manufacturers.

Boeing will implement carbon-fiber recycling at 11 sites across the globe, with most excess fiber coming from Australia, Puget Sound region in the state of Washington and Salt Lake City manufacturing sites. The program will divert more than 1 million pounds (453,000 kilograms) of solid waste to landfill each year and generate revenue by selling the excess, which is transformed into laptop cases, car parts and railcar undercarriages.

ELG's proprietary process shreds these excess materials and takes them through a modified pyrolysis process that vaporizes the resin holding the carbon fiber layers together. This leaves behind clean discontinuous carbon fiber material to be used for new products.

This partnership will help Boeing reduce solid waste sent to landfills 20% by 2025.

Boeing's carbon fiber recycling program is a model of creating environmental sustainability that is commercially viable.

HERE COMES THE SUN… AND WIND

The sun, wind and water are increasingly displacing fossil fuels as the sources of energy powering Boeing operations. In early 2020, Boeing joined the Renewable Energy Buyers Alliance, a community of large energy buyers accelerating a zero-carbon energy future.

By working closely with energy producers and suppliers, the alliance helps large energy consumers such as Boeing find a viable pathway to procuring more clean energy.

Boeing buys renewables to power its factories in Renton, Wash. and Charleston, S.C., and a large data center in Arizona, with clean 100% renewable electricity.

Boeing is also buying renewable energy credits for Portland and six other sites in Puget Sound for a total reduction of 136,000 metric tons of greenhouse gas across the enterprise.

Boeing is committed to reducing greenhouse gas emissions in its operations by 25% by 2025.

ENERGY EFFICIENCY DRIVES COMPETITIVENESS AND ENVIRONMENTAL PROTECTION

Boeing earned the ENERGY STAR Partner of the Year Award for Sustained Excellence for the 10th consecutive year from the U.S. Environmental Protection Agency in recognition of the company's sustained leadership in energy management.

The 2020 award is based on conservation efforts by Boeing employees. Boeing's annual employee competition to reduce waste, called Battle of the Buildings (*see full story on page 25*), exemplifies these efforts. Boeing went further and created a toolkit for solid waste reduction — 52 Boeing sites competed in six countries, diverting 175 tons from landfills (or waste to energy), within a month.

At the end of 2019, Boeing launched a renewable energy procurement strategy that was noted as among the most robust of all ENERGY STAR industrial partners. Boeing's 2020 strategic actions will be operational in 2021 or 2022, to reduce the company's direct greenhouse gas emissions.

TAKING THE HEAT AND PUTTING IT TO GOOD USE

Spectrolab, a Boeing subsidiary based in Sylmar, Calif., which produces space-based solar panels, is thinking creatively by reusing waste from solar cell manufacturing heat, in its factory. This innovation allows them to turn off their boilers in the summer and run them much lower in the winter by recycling waste heat from their process into the boiler-heating loop. By reusing waste heat, Spectrolab is able to reduce the use of natural gas, reducing cost and related carbon emissions.

Specifically, Spectrolab captures waste heat from an emissions-control unit — a regenerative thermal oxidizer — to heat parts of its facility. By using modern controls, an innovative heat exchanger design and good old-fashioned plumbing, waste exhaust heat is used to heat the plant hot water loop system.

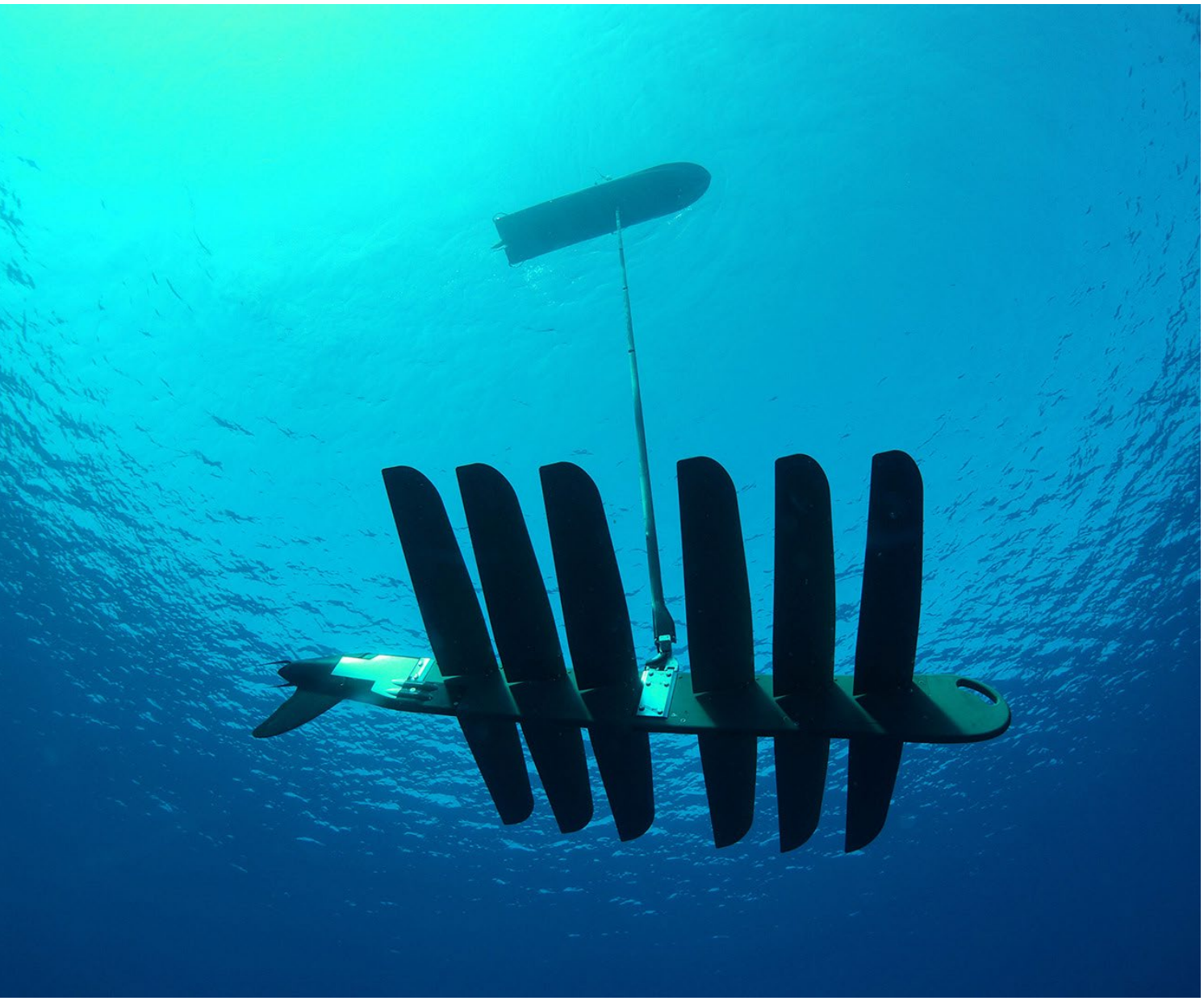
Spectrolab started doing the math and worked on the engineering. The team found a safe and relatively inexpensive solution. They came up with the design criteria, fabricated it and installed it on their own.

BOEING EMPLOYEES GET A CHARGE OUT OF THIS NEW PROGRAM

Many Boeing employees now have a place at work to charge their electric vehicles due to Boeing's relationship with Chargepoint, the largest electric vehicle charging network in North America. Employees in nine states, Washington, Oregon, California, Arizona, Missouri, Illinois, Florida, Texas and Pennsylvania, benefit from the Chargepoint network. All 50 states have access to EV charging stations. This program has the potential to avoid greenhouse gas production from stations at Boeing sites by more than 315,000 kg, which is the equivalent of the benefits of planting and growing more than 8,000 trees for 10 years.

water

Clean water is essential to life, and a precious natural resource. That's why Boeing is committed to lowering water consumption at our manufacturing sites. We're also a strong community partner in protecting rivers, lakes and oceans, through innovative green infrastructure programs.



LIQUID ROBOTICS SHORES UP VITAL DATA ON OCEAN HEALTH FOR ENVIRONMENTAL RESEARCHERS

Boeing, through Liquid Robotics, continues to find ways for long-duration ocean robots to help scientists gain new insights about the environment. Wave Gliders, which operate at the surface, are autonomous vehicles that provide an essential link between sea, air and space.

Researchers from Monterey Bay Aquarium Research Institute in California have been using Wave Gliders to study the levels of carbon dioxide in the atmosphere and ocean to determine the impact of the rising levels in Monterey Bay. When unusually high concentrations of carbon dioxide were detected, they tracked down the sources using measurements from the Wave Glider.

MBARI researchers hope this unexpected discovery acts as a wake-up call and leads to more detailed coastal measurements around the world to confirm the environmental impact on the ocean.

ONE PERSON'S TRASH IS A MARINE RESEARCHER'S TREASURE

Boeing donated 71 sonobuoys to the National Oceanic and Atmospheric Administration (NOAA) to record the underwater sounds of the endangered eastern North Pacific right whale in the Bering Sea in Alaska, diverting 2,000 pounds (900 kg) of hazardous waste, which would have been disposed of if not donated.

Since 2008, NOAA has been recording the underwater "songs" and sounds of this species using sonobuoys in the Bering Sea. In recent years, with the warming of the Bering Sea, these whales seem to be shifting into the northern Bering Sea, outside their normal range. This donation helps biodiversity research for this whale population that has dropped to 30, and helps Boeing reduce hazardous waste by 5% by 2025.

PROTECTING ECOSYSTEMS: BOEING SUPPORTS SALMON, ORCAS IN PUGET SOUND

In the Pacific Northwest, Boeing is reinforced by two powerful forces: natural beauty and an innovative spirit. By facilitating a way to combine these merits, Boeing is helping to reduce pollution flowing into Puget Sound.

The Aurora Bridge (officially the George Washington Memorial Bridge) in Seattle is the source of some of the region's dirtiest water, endangering salmon—critical to the region's ecosystems.

Boeing is working with nonprofit Salmon Safe to design a bioswale, which is green infrastructure that removes pollution out of surface runoff water to improve salmon habitat. The green infrastructure installed will capture 400,000 gallons (1.5 million liters) of stormwater runoff when the project is complete.

The next step in the project includes Boeing supporting The Nature Conservancy and Salmon Safe to develop a third green infrastructure site, capturing an additional 1.2 million gallons (4.5 million liters) of stormwater runoff.

PAVING THE WAY TO CLEANER WATER

With the help of enthusiastic high school students, Boeing is testing a new type of porous paving material that can filter pollutants out of stormwater and help protect streams, rivers and the wildlife that depends on clean water.

One section of a parking lot at the School of Industrial Design Engineering and Art (iDEA) in Tacoma, Wash. is covered with a form of permeable pavement strengthened with excess carbon fiber from Boeing.

The test will evaluate permeable pavement's effectiveness in filtering stormwater that otherwise would runoff and pollute natural water supplies.

The pavement project helps iDEA students learn from a real-world science experiment and aligns with Boeing's goal to inspire the next generation of scientists and engineers.

iDEA School students, interested in a career in environmental science, show off a rain garden they designed and built with the support of Boeing. (*Pictured left to right, Kedrick Bennett, Clara Czuleger, Samuel Cutter and Stephanos Mavrommatis*)

STUDENTS GET EARLY LESSONS IN CLIMATE CHANGE

In March, students traded their books in favor of scientific research equipment, as they voyaged to the frigid lake at FortWhyte Alive to study the effects of climate change. Boeing Canada teamed up with FortWhyte Alive and the University of Manitoba Centre for Earth Observation Sciences as part of Arctic Science Day to help students conduct their own research alongside climate scientists in topics ranging from ice and snow studies to artic archaeology, marine mammal biology and contaminants research.

The event coincides with Boeing's ongoing commitment to investing in Science, Technology, Engineering and Math education as part of developing the global workforce for the next century.

BUILDING WITH THE ENVIRONMENT IN MIND

The Boeing India Engineering and Technology Center is designing with conservation and environment in mind.

The new campus in Bengaluru plans to achieve a LEED gold certification with conservation features that include irrigating the landscaping with treated waste water from the on-site sewage treatment when the campus is complete in 2021, which is required by government. Treated waste water will also be used to flush toilets.

Rain water will be collected and stored for use in dry weather. Organic waste generated on site, such as food and landscaping materials, will be recycled and converted into fertilizer and mulch, and used for the landscaping and gardening or donated to local charities.

Jogging trails and adaptive landscape areas will create a healthy work environment for the site's projected growth to 3,500 employees.

Boeing Australia reduced water use by 34% by reconfiguring cooling towers and harvesting rainwater for on-site reuse. Globally, Boeing is working to reduce its water consumption footprint.

land

Building the future of aerospace is grounded here on Earth. Boeing is making strides to protect the land where we live and work by reducing waste to landfills at worksites and in supply chain processes. We protect clean soil and create healthy biodiversity for wildlife and human health around the globe.

BOEING VOLUNTEERS BUILD SUSTAINABLE MOUNTAIN TRAILS

On National Trails Day, the first Saturday in June, Boeing employees built sustainable hiking trails, partnering with nonprofit Mountains to Sound Greenway in the Cascade Range, near Seattle. Boeing volunteers flattened trails, removed vegetation, repositioned rocks, and hoisted 16-foot beams up the mountain to construct new trails. Boeing has been one of the few businesses to support this campaign — contributing $500,000 — to restore the Middle Fork trail. The trail became a National Heritage site this year after a 20-year effort to reclaim it for public recreation.

The work Boeing volunteers contributed will help protect wetlands and wildlife habitat as more people visit the area. Volunteering is part of the DNA of Boeing employees.

BOEING DONATES AU $1 MILLION TO ASSIST WITH BUSHFIRE RECOVERY

Following the devastation of the 2019–2020 bushfires in Australia, Boeing donated AU $1 million dollars from the Boeing Charitable Trust to aid recovery and relief efforts, which were directed through the Australian Red Cross.

The wildfires ravaged Australia, home to nearly 4,000 Boeing employees, killing at least 33 people and displacing thousands, while burning millions of acres and devastating the country's ecosystem, biodiversity and wildlife.

Disaster relief efforts in the region align with Boeing's ongoing commitment to the communities where the company has a presence.

BOEING MANUFACTURING EARNS RECOGNITION IN OPERATIONAL EXCELLENCE LEADERSHIP

The Manufacturing Leadership Council, part of the National Association of Manufacturing, is an organization that aims to shape the future of manufacturing, recognized Boeing as a 2019 world-class manufacturing company for excellence in using digital technology to improve operations.

Boeing has strived to create a digital network that connects suppliers directly with engineering and factory operations. Creating that digital network has resulted in improved inventory tracking, delivery and control, real-time data analysis and accelerated decision-making.

This innovation reduced waste from rework and mismatch issues. It's also improving Boeing's environmental footprint and performance through digitally connecting its supplier network and workforce — gaining efficiencies from manufacturing facilities through the global supply chain.

GRASSLANDS AND HABITAT TRANSFORM A FORMER LANDFILL

Visitors to the former Emery Landfill in Wichita, Kan. say the 80 acres today look more like a park — native grasses and a variety of plants that attract pollinators like bees, birds and butterflies have transformed the site.

Boeing worked with community partners to restore the former landfill to a more natural environment and healthy wildlife habitat.

The Wildlife Habitat Council in 2019 recognized the restoration project and Boeing for its conservation leadership.

BOEING BATTLES WASTE AT WORKSITES

Each year, Boeing asks employees to improve their conservation behaviors through a friendly competition called Battle of the Buildings. In 2019, the enterprise-wide competition focused on reducing waste sent to the landfill or for energy recovery. The competition kicked off on Earth Day, April 22 and ran through the end of May.

Fifty-two sites across the enterprise participated, 20 of which reduced waste to landfill or waste to energy by double digits. The overall enterprise outcome was a reduction of 10%. That's 175 tons of trash — enough to fill a Boeing 747 or 12 dump trucks — diverted from landfills and energy recovery facilities, saving the company $34,000 in one month. Boeing is well on its way of reaching its 2025 target to reduce solid waste to landfill by 20%.

BOEING GLOBAL SERVICES CONTRIBUTES TO AIRPLANE RECYLING

Boeing is contributing to reducing waste by reusing and recertifying airplane parts. Retired airplanes can provide recycled parts for in-service aircraft, helping customers reduce the cost of repairs while offering cost-efficient quality solutions. BGS provides access to this inventory, called the Used Serviceable Material (USM) capability.

Boeing entered the USM business to support the increasing demand for parts at reduced prices, enable quick inventory access, and provide more life-cycle value to customers.

Boeing recertifies parts ensuring quality. Parts are acquired through the dismantling or “teardown” of out-of-service planes. Boeing has harvested materials from retired 777, 767 and 737 airplanes, as well as non-Boeing manufactured aircraft. Boeing is a founding member of the Aircraft Fleet Recycling Association, the leading global organization for developing and promoting the safe and sustainable management of circularity of components and aircraft in the aviation sector.

One airplane dismantling can provide up to 6,000 parts.

Boeing Global Services found a way to recycle and recertify 6,000 parts from each retired airplane.

2019 ENVIRONMENT CHAMPION PROMOTES CONSERVATION AT LARGE SITE

Only a true environment champion is capable of managing zero-growth in reaching utility targets — including conserving energy — in one of the largest buildings on the planet, Boeing's assembly facility in Everett, Wash.

Vince Villa, a Facilities and Asset Management manager, was named Boeing's 2019 Environment Champion as part of the annual Environmental Leadership Awards. He exemplifies sustainability in how he manages people and Boeing's environment targets. Villa led the energy management and utilities portfolios for the Everett site for many years, and now manages the team with that responsibility.

Villa's management of energy projects including central plant systems, lighting, and new construction have saved more than 32 million kWh since 2012 and his leadership in the rollout of Enhanced Recycling across the Everett site made a lasting impact at Boeing.

Vince Villa

RECYCLING SHIPPING CONTAINERS REDUCES WASTE AND COST

In 2019, Boeing's Transportation, Warehousing & Logistics team implemented several projects that diverted more than 900 tons of solid waste from landfills, recycled more than 400 tons of corrugated boxes, and saved the company approximately $400,000 annually.

The team:

- Worked with the Southern California Logistics Network and Washington Boeing Licensed Transportation Network to consolidate and schedule freight, as well as replace corrugated boxes, by using reusable and stackable packaging;
- Ensured returnable packaging supported supplier and manufacturing rates on the 737 program; and
- Created 777X and 787 Dreamliner custom designs to protect specific parts while allowing ease of handling and transporting them safely.

These sustainable packaging projects ultimately helped build a better planet — and in turn, a better Boeing.

BOEING HELPS SUPPLIERS MEET ENVIRONMENTAL EXPECTATIONS, UNDERSTAND BENEFITS

More than 12,000 suppliers, ranging from small- to large-size companies, work every day to help Boeing account for 3 million-plus parts on an airplane. Today, Boeing is more focused than ever on not only increasing collaboration and engagement with its suppliers, but also promoting robust environmental practices.

The International Aerospace Environmental Group (IAEG), of which Boeing was a founding member, provides guidance for suppliers to put an environmental management system (EMS) in place. This is part of IAEG's Work Group 7 Maturity Model to enhance its environmental performance. Boeing has supplier contractual requirements to ensure an EMS is in place.

With such a broad and diverse global supply chain, Boeing is guiding its suppliers to understand the advantages of implementing an EMS suitable to a company's business scope – one that protects the environment and reduces a Boeing product's environmental footprint over its life cycle.

Boeing's lifecycle view seeks to improve all stages of a product's life, beginning with its suppliers, through in-service use, to end-of-service recycling or recovery.

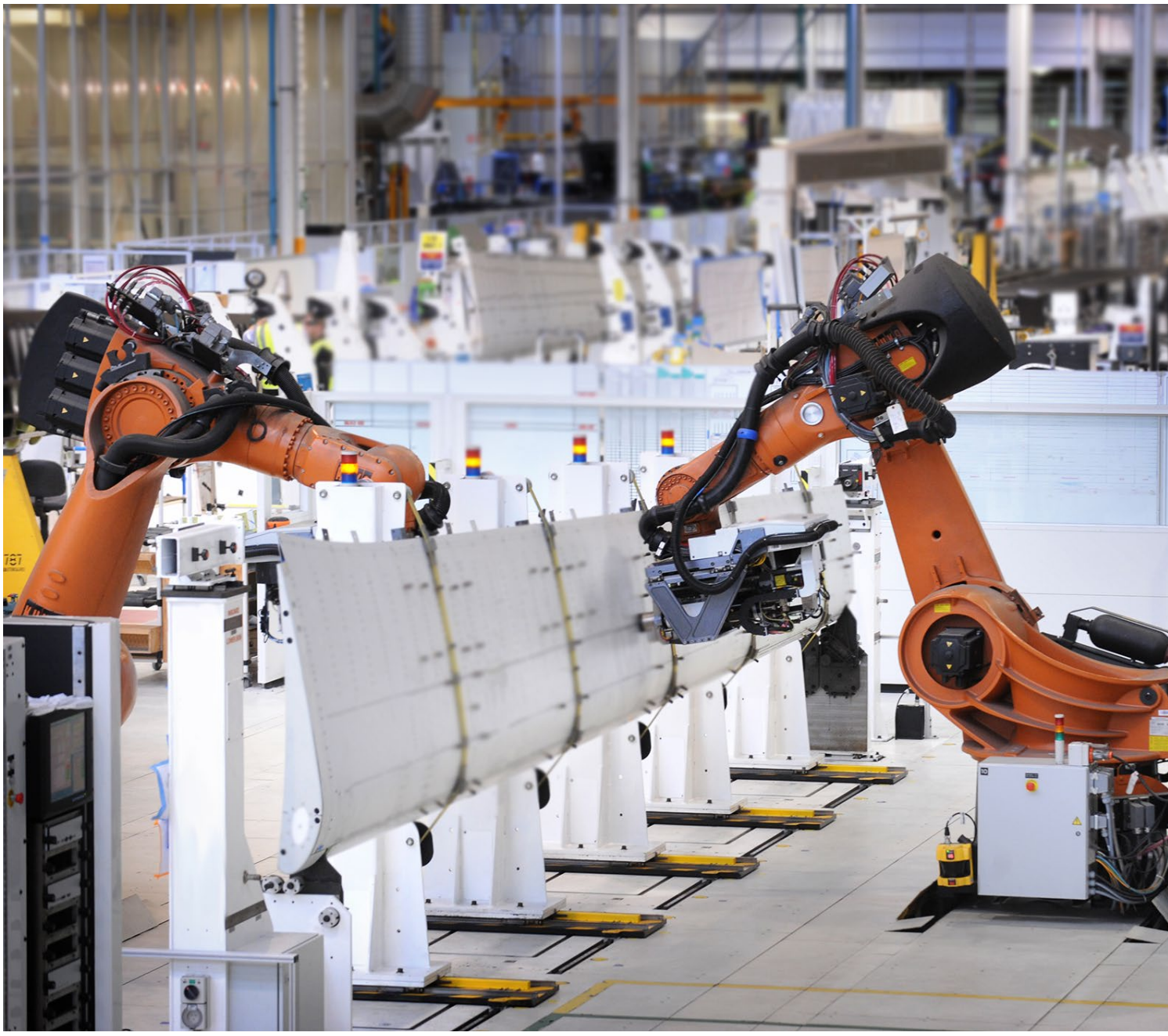
ENVIRONMENTAL INITIATIVES LEAD TO DRAMATIC RESULTS AT BOEING AUSTRALIA SITE

A series of small, incremental environment-related changes at Boeing Aerostructures Australia are proving to go the distance in contributing to Boeing's goals to reduce greenhouse gas emissions and waste across the enterprise.

Over the past five years, the Boeing Fabrication site in Fishermans Bend, Australia, has taken steps to reduce its usage year-on-year in the areas of energy, water, and hazardous and landfill waste.

Go deeper by the numbers:

- 65% reduction in hazardous waste by working with a local waste to energy recovery company
- ~1.3 million kilowatt-hours saved by switching to LED lighting and shutting down power at the end of the day
- 34% reduced water use from reconfigured cooling towers and harvested rainwater for on-site reuse



Boeing experts in Renton, Wash. put their skills to work by 3D printing face shield frames that were shipped to Boeing St. Louis for assembly and donation to FEMA, for hospital workers fighting COVID-19. Boeing has delivered 40,000 3D-printed face shields.

ADDITIVE MANUFACTURING SUBTRACTS WASTE

Additive manufacturing, also known as 3D printing, is changing the way Boeing designs and builds aerospace products — allowing the company to use less raw materials, create less waste and improve fuel efficiency in its products.

Additive manufacturing is the process of building structural components micro-layer by micro-layer from 3D model data, as opposed to subtractive manufacturing which removes material to create parts. It enables highly innovative designs that add functionality, reduce weight, consolidate many parts into one, and create parts that are too complex for traditional manufacturing.

Metal additive manufactured parts are now standard on many of Boeing satellites. For example, the engine mount component was first introduced in September 2018. The component produced by additive manufacturing weighs 28 pounds less than the traditionally manufactured counterpart, using less of the Earth's resources and producing less scrap in the fabrication process.

STUDENTS IN 90 COUNTRIES MARK 50TH EARTH DAY VIA BOEING VIRTUAL FIELD TRIP

Boeing partnered with Discovery Education to celebrate the 50th Earth Day, April 22, by creating a virtual field trip at BoeingFUTUREU.com. The online content was helpful to homeschooling parents seeking lessons during the pandemic, including students in more than 90 countries. Those students got an inside look at Boeing's innovative efforts to improve its environmental footprint, including ecoDemonstrator 777 in-flight test lab; sustainable aviation fuel development; STEM stormwater education; recycling excess carbon fiber to reduce waste. Remediation Manager Katie Moxley (*pictured below*), talked about natural habitat restoration along the Duwamish River at the Plant 2 facility in Seattle.

BOEING ITALY PROMOTES ENVIRONMENT IN PRIMARY SCHOOLS

School Cleaning Day is an environmental education program that works to inspire all Italian primary school students, aged from 7 to 11, to adopt ecological behaviors and to increase their awareness of environment sustainability. The project focuses on volunteer activities and active citizenship, in partnership with Boeing employee outreach in schools and the wider community. In 2019, the program reached five key cities: Rome, Pratica di Mare, Grottaglie, Foggia and Pomigliano d'Arco, engaging a total of 100 schools and more than 400 classes.
In particular, during one of the biggest events held in Grottaglie in May 2019, approximately 100 people participated, including students with their families, teachers and Boeing employees, where 10kg (22 lbs) of plastic and 72kg (158 lbs) of garbage were collected.

AWARDS

Environmental enthusiasts recognize Boeing's leadership with significant national awards and honors.

Boeing is the 2019 recipient of the National Manufacturing Association Sustainability Leadership Award for finding an innovative way to recycle a million pounds (453,000 kilograms) of carbon fiber per year, working in partnership with UK-based ELG. Not only is Boeing implementing this recycling program at 11 sites, it is also teaching other manufacturing leaders around the globe how to recycle in a way that is commercially viable, which makes it truly sustainable.

For the 10th consecutive year, the U.S. Environmental Protection Agency honored Boeing's achievement in conserving energy with the 2019 ENERGY STAR Partner of the Year – Sustained Excellence Award.

The Wildlife Habitat Council recognized Boeing's efforts to restore and preserve wildlife habitat at company sites across the United States, including Emery Landfill in Wichita, Kan. The 80 restored acres today look more like a park — native grasses and a variety of plants that attract pollinators.

In 2019, Washington Green Schools awarded Boeing its Green Medalist Award for the company's commitment to helping students and school communities become leaders for the environment.

Environment nonprofit organization TreePeople recognized Boeing as a Harvest Moon Honoree with the Evergreen Award for their partnership legacy investment in Forest Aid, TreePeople's ambitious campaign to heal our fire-ravaged forests.

THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

The United Nations Sustainable Development Goals (SDGs) provide the world with a pathway to achieve a more equitable and safe world by 2030.

Just as Boeing invests in the future of its business, the company is committed to enhancing its support of the UN SDGs.

As part of Boeing's longstanding environmental policy, Boeing commits to:

- Conduct operations in compliance with applicable environmental laws, regulations, and Boeing policies and procedures.
- Prevent pollution by conserving energy and resources, recycling, reducing waste, and pursuing other source reduction strategies.
- Continually improve the environmental management system.
- Work together with stakeholders on activities that promote environmental protection and stewardship.

While this commitment precedes the adoption of the SDGs in 2015, the company's environmental policy and our values of safety, quality, and integrity align with the global goals.

The activities, initiatives, and outcomes described in this report reflect Boeing's values and demonstrate some of the ways the company connects to the SDGs. Boeing has set bold targets for the environment and continues to make significant investments in research, operations, and products that improve not only the company's environmental performance, but that of the aviation industry overall. As Boeing evaluates its future goals, it will consider the SDGs and how our actions affect achieving them.

Boeing's environmental strategy is guided by a comprehensive review and assessment of the most significant environmental challenges and risks facing the company.

The analysis includes direct input and perspectives on industry best practices and community requirements from diverse stakeholders, such as customers, environment-focused non-governmental organizations (NGO) and the company's global leadership.

The information helps Boeing identify and update our understanding of current and emerging sustainability issues that are critical to the company and our stakeholders. It also informs our next-generation environmental strategy and targets.

Most Significant Environmental Risks and Opportunities

The assessment analyzed and prioritized diverse viewpoints and environmental risks as identified by Boeing and its external stakeholders. The risks relate to products, operations and a variety of other issues. Boeing and the stakeholders named the following risks and opportunities as our highest priorities:

- Products greenhouse gas (GHG) emissions; fuel efficiency; operational efficiency; sustainable aviation fuel.
- Operations GHG emissions; energy conservation; water management; solid waste management/waste to landfill.

Boeing included additional high-priority risks and opportunities, such as managing hazardous materials over the product life cycle in our operations, managing chemicals in aircraft production, pursuing innovations in alternative materials and designing environmentally progressive buildings.

External stakeholders added supply chain practices, such as reporting and mitigating product noise, as high environmental priorities.

The relative ranking of environmental risks helps shape priorities of all identified issues in our global environmental strategy.

Global Environmental Trends

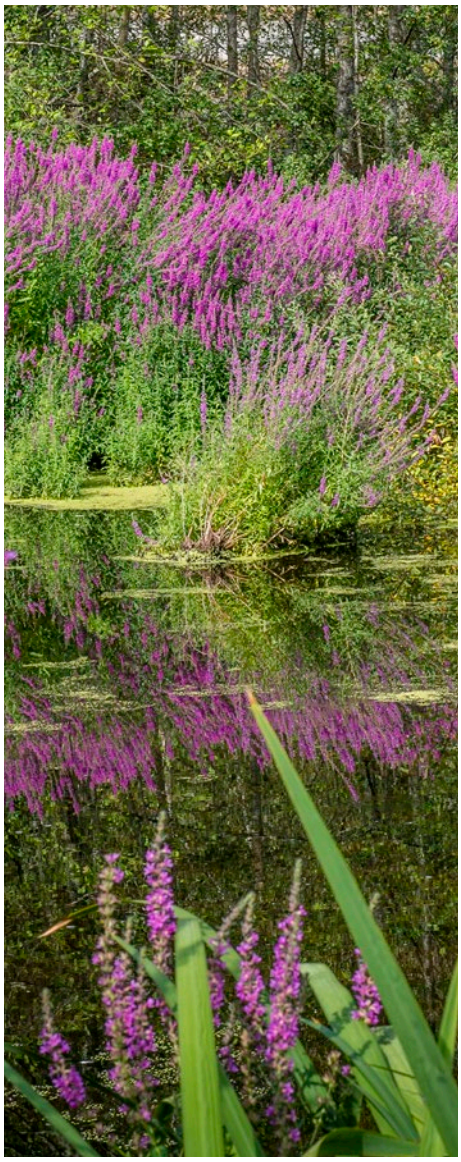
The assessment reports current and emerging global trends that may affect Boeing's business, including climate change, resource scarcity, rapid urbanization, regional collaboration on environmental regulations and rapid innovation in new technology.

Environmental Leadership

Boeing's Enterprise Risk Management process reviews other potential climate related risks, including (but not limited to) changes in reputation, changing consumer behavior, business continuity and uncertainty.

PRIORITIES

Internal and external stakeholders help shape Boeing's most significant environmental priorities. The results are shown below, in order of importance and influence on business strategy.



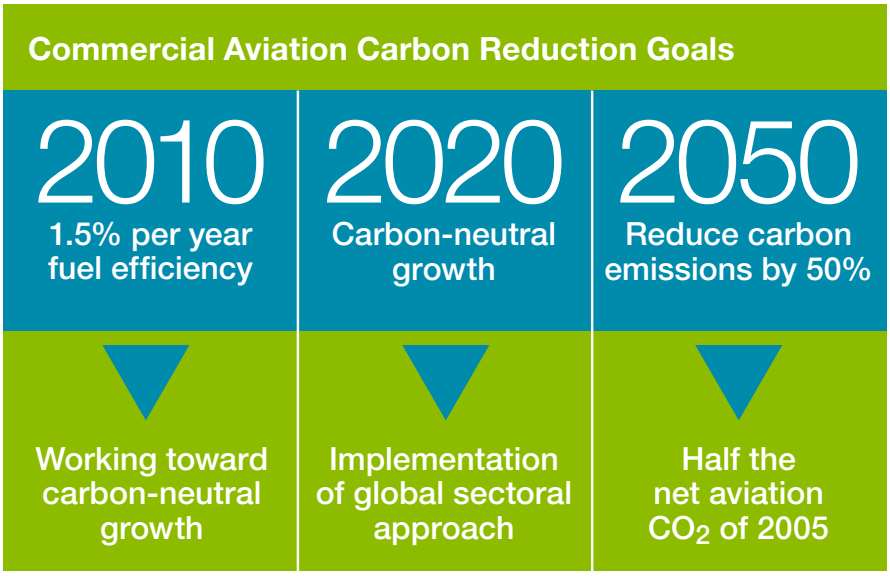
Stakeholder Environmental Priorities

- CO_2 emissions in products
  - Fuel efficiency
  - Operational efficiency
  - Sustainable aviation fuel
- Operations greenhouse gas emissions
  - Energy conservation
- Climate adaptation
- Operations water management
- Operations solid waste management and landfill
- Chemicals and hazardous material management
- Materials innovation and sustainable building
- Supply chain environmental standards, practices and reporting
- Airplane community noise
- Remediation and restoration
- Transparency in reporting
- Product end-of-service disassembly and disposal
- Non-greenhouse gas emissions
- Biodiversity
- Impact of transportation infrastructure

Progress continues on implementing aviation's strategy to address environmental sustainability.

In 2019, all airlines worldwide flying international routes began formal monitoring and reporting of their emissions as part of the historic Carbon Offset and Reduction Scheme for International Aviation (CORSIA), adopted by the United Nations' International Civil Aviation Organization (ICAO) in 2016.

CORSIA will help aviation meet its commitment for carbon neutral growth from 2020.



Commercial Aviation and Climate Change

Aviation accounts for approximately 2% of global CO_2 emissions, according to the U.N.'s Intergovernmental Panel on Climate Change. Global agreements reached in 2016 support achieving the industry-established goals and a global sectoral approach to controlling emissions:

- A fuel-efficiency performance commitment for aircraft
- A global market-based measure system, CORSIA

Implementation of these agreements into regulatory frameworks around the world is underway.

Customer Requirements

The aviation industry's business goal of providing safe, cost-efficient travel and environmental goal of reducing CO_2 emissions are both achieved by constantly improving airplane fuel efficiency. Reducing emissions is aligned to our customers' strategic desire to decrease fuel use.

OPERATING ENVIRONMENT

Aviation links people from many communities and countries around the world.

Aviation also affects the planet and our shared global environment.

The air transport industry today supports an estimated 62.7 million jobs and $2.7 trillion in global gross domestic product (GDP), according to the Air Transport Action Group.

Boeing recognizes that pollution, natural resource scarcity and climate change are serious issues that require credible actions and global solutions.

The United Nations estimates that the world's population hit 7.6 billion in mid-2017 and adds another 83 million people every year. By 2030, the population will reach 8.6 billion and increase to nearly 10 billion people by 2050.

A growing population and urbanization will further boost global demand for transportation, with the industry being challenged to meet the demand without a corresponding growth of emissions, community noise or other potentially harmful environmental effects.

ENVIRONMENT STRATEGY

Boeing launched its Global 2025 Strategy for Environmental Leadership in 2018. In 2019, we made progress by advancing several environmental initiatives. The strategy has three overarching pillars that guide product innovation, sustainable operations and global collaboration.

Global 2025 Strategy for Environmental Leadership – 2019

Strategy Pillar	Progress Details
Innovate for Performance 	Innovation is crucial throughout Boeing, from design and manufacturing to operations and services. Addressing our environmental footprint from the beginning to the end of service is important for environmentally responsible manufacturing solutions, including energy efficiencies, while also working toward eliminating hazardous chemicals in production. In January 2020, Boeing began test flights of the 777X, the most fuel efficient twin-engine jet in the world. (*See page 3 for full story.*)
Excellence in Sustainability 	Boeing made progress in 2019 by reducing solid waste by 15% and water use by 7% from the 2017 levels. Boeing is leading with recycling and procuring renewable energy programs. The CDP (formerly called the Carbon Disclosure Project), the industry standard for environmental reporting, recognized Boeing with a B rating for our CO_2 emissions reduction and transparent reporting.
Inspire Global Collaboration 	The National Association of Manufacturing awarded Boeing with its environmental sustainability leadership award in 2019 for its leading work in developing a process to recycle excess carbon fiber, a commercially viable endeavor. Boeing is a leader in sharing this thought leadership with other major manufacturers. (*See page 8 for full story.*)

ENVIRONMENT STRATEGY

Responsible aviation contributes to a more sustainable planet by generating economic growth, providing jobs and improving living standards for people around the world.

An economic growth engine like this requires responsibility — one that Boeing and the aviation industry have proactively taken on by setting and implementing ambitious goals to sustainably grow the industry. From the beginning, Boeing has supported three goals established through the Air Transport Action Group. Boeing's market-leading, fuel-efficient airplanes and other efforts continue to help the industry stay on track.

Commercial Aviation Carbon Reduction Goals

Goal	Progress Details
2010 **1.5% per year fuel efficiency** Working toward carbon-neutral growth	Working toward carbon-neutral growth, commercial aviation exceeded this goal, with an average 2.1% improvement per year. Boeing's highly efficient airplanes, including the 787 Dreamliner family that reduces fuel use by 20% to 25% compared to the models it replaces, helped enable this success. Airline operational efficiency also contributed significantly through greater seating utilization, fuel conservation programs and other efforts.
2020 **Carbon-neutral growth** Implementation of global sectoral approach	Since January 2019, all airlines flying international routes began formal monitoring and reporting of their emissions as part of the historic Carbon Offsetting and Reduction Scheme for International Aviation. The United Nations' International Civil Aviation Organization adopted CORSIA in 2016. With the program in place, the industry expects to offset 76% of the growth in global aviation CO_2 emissions from 2020 onward, based on pre-COVID-19 flying trends. Boeing supports the program, including tools and services from Boeing Global Services to help our customers with their CORSIA reporting needs.
2050 **Reduce carbon emissions by 50%** Half the net aviation CO_2 of 2005	Achieving this long-term goal requires continued research and development in all areas of an airplane and its operation: from innovative new airframes, engines and materials technology for airplanes of the future — including hybrid and electric-powered airplanes — to researching new pathways and scaling up sustainable aviation fuel production. Boeing continues making technology and innovation investments and collaborating across the globe in all of these areas to reduce lifecycle emissions from the global fleet and achieve the goal.

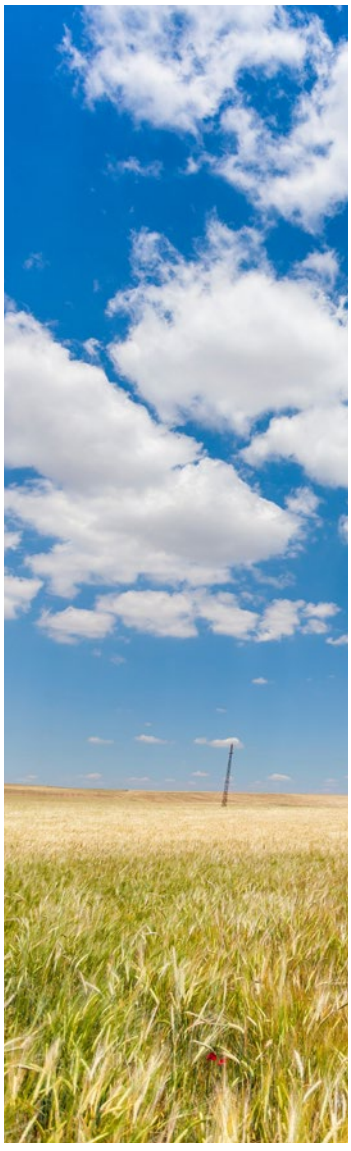
ENVIRONMENT STRATEGY

Boeing is making progress on the road to environmental targets in its operations.

The bright spots include reducing solid waste by 15% in 2019, and water use by nearly 7% from the 2017 baseline. The 2025 target is reducing both by 20% over the baseline year of 2017

Greenhouse gas emissions were down 2.8% last year, with a slight increase, 0.3%, in overall energy use. The 2025 targets are a 25% and 10% reduction, respectively. Hazardous waste reduction remains a significant challenge, with a 2.7% increase in 2019 over the 2017 baseline. The target is a 5% reduction over the baseline year of 2017.

Innovative recycling, such as turning excess composite material into consumer products, is expected to help further reduce solid waste in coming years. Renewable resources are increasingly displacing fossil fuels as the source of energy powering Boeing operations.



Progress Toward 2025 Goals in 2019 (from 2017)

2025 Reduction Goals	Progress Details
Reduce greenhouse gas emissions by 25%	Reduced 2.8%
Reduce water consumption by 20%	Reduced 7%
Reduce solid waste to landfill by 20%	Reduced by 15%
Reduce energy consumption by 10%	Increased 0.3%
Reduce hazardous waste by 5%	Increased 2.7%

GOVERNANCE

Boeing's environmental strategy and policies are guided by the Environment, Health & Safety (EHS) Policy Council, composed of Boeing's Executive Council and led by the president and chief executive officer. Environmental matters are part of the value proposition of our airplanes.

The Policy Council ensures that strategy and performance targets are set and monitored. A team of 20 executives across our businesses and product lines meets twice a month to advance our strategy and plan.

Reviews by the EHS Policy Council and a functional review with the president and chief executive officer are conducted twice a year. Progress and status are reported through each of these venues in addition to other internal executive reviews across the company.

One Policy Council meeting each year is focused on setting targets that are aligned with corporate long-range business planning; another annual meeting focuses on detailed planning and reviewing the company's environmental and safety performance.

Environmental initiatives are embedded into every organization and function within Boeing. The EHS organization comprises functions focused on workplace safety and health, environmental performance and regulatory compliance. The EHS team also works with our business unit and operational leaders to drive an integrated, enterprisewide strategy that addresses our products, services, processes, operations, contractors and employees.

This highly integrated and coordinated approach drives continuous improvement in the environmental performance of our products and operations around the world.

FORWARD-LOOKING STATEMENTS

This report contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "may," "should," "expects," "intends," "projects," "plans," "believes," "estimates," "targets," "anticipates" and similar expressions are used to identify these forward-looking statements.

Examples of forward-looking statements include those relating to our future financial condition and operating results, as well as any other statement that does not directly relate to any historical or current fact. Forward-looking statements are based on our current expectations and assumptions, which may not prove to be accurate.

These statements are not guarantees and are subject to risks, uncertainties and changes in circumstances that are difficult to predict. Many factors could cause actual results to differ materially and adversely from these forward-looking statements.

Additional information concerning these and other factors can be found in our filings with the Securities and Exchange Commission, including our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

Any forward-looking statement speaks only as of the date on which it is made, and we assume no obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise, except as required by law.

ENDNOTES

These notes provide details on Scope 1, 2, and 3 emissions; greenhouse gas inventory, including various sites; and ISO 14001, the international standard that specifies requirement for an effective environmental management system (EMS); among environmental metrics.

Endnotes for Performance Summary Chart

- Data reported in this chart for the greenhouse gas emissions, hazardous waste, water intake and solid waste to landfill reflect environmental performance at the following sites from a baseline set on 2017 values. These sites (known as Core Metric Sites) represent the vast majority of Boeing's operations and are identified by the city in which the Boeing operation resides. For each metric, additional facilities and office buildings also have been included where information is available.
  - Alabama: Huntsville
  - Arizona: Mesa
  - California: El Segundo, Huntington Beach, Long Beach, Seal Beach, Palmdale
  - Illinois: Chicago
  - Indiana: Gary
  - Missouri: St. Charles, St. Louis
  - Ohio: Heath
  - Oregon: Gresham
  - Pennsylvania: Ridley Park
  - South Carolina: Charleston, Ladson
  - Texas: Houston, San Antonio
  - Utah: Salt Lake City, West Jordan
  - Washington: Auburn, Bellevue, Tukwila (Developmental Center), Everett, Frederickson, Kent (Space Center), Seattle (North Boeing Field, Plant 2, Thompson, South Park), Renton (737 Assembly, Longacres), SeaTac (Spares Distribution Center)
  - Canada: Winnipeg
  - Australia: Fishermans Bend

Endnotes for Greenhouse Gas Emissions

- In addition to data from Boeing's Core Metric Sites, data from Portland, Ore. (PDX Paint Hangar), Oklahoma City, Okla., Moses Lake, Wash., Arizona Data Center and Washington Data Center are also included.
- Carbon dioxide equivalent, or CO_2-e, means the number of metric tons of CO_2 emissions with the same global warming potential as one metric ton of another greenhouse gas (in accordance with EPA 40CFR98 Mandatory Greenhouse Gas Reporting).
- GHG emissions are calculated based on consumption of electricity, natural gas and fuel oil. (Our facility in Philadelphia is the only major U.S. site that uses No. 6 and other fuel oils for heating and curtailment backup.) Consumption of other fuels is not represented.
- For U.S. sites, Scope 1 emissions from natural gas, fuel oil and on-site generated electricity are calculated using the emission factors provided in U.S. EPA GHG Mandatory Reporting Rule. Scope 2 emissions from purchased electricity are calculated using the market-based method and eGRID sub-region factors, since residual mix is not available in the U.S. For the Canada site, Scope 1 emissions are calculated using the emission factors provided in U.S. EPA GHG Mandatory Reporting Rule; Scope 2 emissions are calculated using the market-based method and the supplier-specific emission factor. For the Australia sites, Scope 1 emissions are calculated using the emission factors provided in the National Greenhouse and Energy Reporting (NGER) Scheme, and Scope 2 emissions are calculated using market-based method and the emission factors provided in the National Greenhouse and Energy Reporting (NGER) Scheme, since residual mix is not available in Australia. Emissions calculated with location-based method are: 1,208,000 tons (1,105,000 metric tons) CO_2e (2019). Emissions calculated with Market-based method are: 1,075,000 tons (976,000 metric tons) CO_2e (2019).
- RECs were applied to the GHG calculation for the following locations: North Charleston, S.C., Portland, Ore., Phoenix, Ariz. and 6 Puget Sound locations in Wash. In 2019, these Boeing locations made arrangements to purchase RECs to offset around 148,000 tons (134,000 metric tons) of GHG emissions.

Endnotes for Water Intake

- In addition to data from Boeing's Core Metric Sites, data from Oklahoma City, Okla. and Portland, Ore. (PDX Paint Hangar), also included.

Endnotes for Energy Use

- In addition to data from Boeing's Core Metric Sites, it also includes data from Portland, Ore. (PDX Paint Hangar), Oklahoma City, Okla., Moses Lake, Wash., Arizona Data Center and Washington Data Center.
- Energy use is calculated from consumption of electricity, natural gas and fuel oil. (Our facility in Philadelphia is the only major U.S. site that uses fuel oil for heating.) Consumption of other fuels is not represented.

Endnotes for Solid Waste to Landfill

- Includes data from Boeing's Core Metric Sites.
- Solid waste numbers represent values determined from scale-weighed containers as well as calculated weights.

Endnotes for Hazardous Waste Generation

- Hazardous Waste are determined from U.S. EPA hazardous manifest or equivalent government shipping documents
- In addition to data from Boeing's Core Metric Sites, data from Portland, Ore. (PDX Paint Hangar); Jacksonville, Fla. (Cecil Field); Titusville, Fla.; Oklahoma City, Okla.; El Paso, Texas; Wichita, Kan.; and Sylmar, Calif., are included.

Endnotes for Global Reporting

Australia National Greenhouse and Energy Reporting endnote: This comprehensive report must be completed by registered corporations that meet specified energy use and greenhouse gas emission thresholds. For the 2018–2019 reporting period, the Australian government's Clean Energy Regulator released data for companies emitting approximately 48,500 tons (about 44,000 metric tons) of equivalent carbon dioxide (CO_2e).

Endnotes for Greenhouse Gas Corporate Inventory

- The greenhouse gas (GHG) emissions reported represent 1,827 buildings in 44 countries where Boeing has operational control. Refer to the Site Listing Endnotes for the Corporate GHG Inventory Chart for cities included.
- Scope 3 emissions only includes emissions from business travel.
- Scope 1 "Other gas types" include CH_4, N_2O,NF_3 and PFCs emissions
- Scope 1 "Other fossil fuels" include No. 6 fuel oil, gasoline, aviation gasoline, propane and LPG.
- 1 metric ton = 2,204.62 pounds.
- Carbon dioxide equivalent, or CO_2e, means the number of metric tons of CO_2 emissions with the same global warming potential as one metric ton of another greenhouse gas. (In accordance with EPA 40CFR98 Mandatory Greenhouse Gas Reporting.)
- Accounting protocol: This GHG inventory is prepared using the following protocols:
  - The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition);
  - The Scope 2 Guidance;
  - GHG Reporting Guidance for the Aerospace Industry;
  - The Australia National Greenhouse and Energy Reporting Act; and
  - The United Kingdom's CRC Energy Efficiency Scheme.

ENDNOTES

- Scope 2 emissions are calculated using the market-based method. Location-based method calculated emissions are 960,000 tons (871,000 metric tons) CO_2e. Residual mix is only available in EU countries; therefore, other grid average emissions factors are used in all other countries. In the market-based methodology, RECs were applied to the GHG calculation for the following locations: North Charleston, South Carolina, 6 Puget Sound locations in Washington, Portland, Oregon and Phoenix, Arizona. In 2019, these Boeing locations made arrangements to purchase RECs to offset around 148,000 tons (134,000 metric tons) of GHG emissions.
- Other calculation factors: Data source of global warming potentials (GWP) is U.S. 40 CFR 98 subpart A, table A-1. For GHG inventory in North America, emission factors for combustion sources come from U.S. 40CFR 98, subpart C, table C-1For GHG inventory in Australia, emission factors from the National Greenhouse and Energy Reporting Act are used. For GHG inventory in locations where energy data are not accessible, 2012 CBECS factors are used to estimate the energy consumption and emission factors from the International Energy Agency's "CO2 Emissions from Fuel Combustion Highlights 2013" and "2006 IPCC Guidelines for National Greenhouse Gas Inventories" are used to calculate the emissions.

Site Listing Endnotes for Corporate GHG Inventory Chart

Country	Location
Australia	**Australian Capital Territory** Canberra **New South Wales** Bankstown Sydney Williamtown **Queensland** Alderley Archerfield Banyo Brisbane Cairns Coominya St. Lucia **South Australia** Adelaide Edinburgh **Victoria** Melbourne Port Melbourne Tullamarine **Western Australia** Jandakot
Bahrain	Manama
Belgium	Brussels
Brazil	**São Paulo** São José dos Campos São Paulo
Canada	**Alberta** Calgary **British Columbia** Delta Richmond Vancouver **Manitoba** Winnipeg **Ontario** Mississauga Ottawa **Quebec** Blainville Mirabel Montreal Pointe-Claire
China	Beijing Hong Kong Putuo District Shanghai Tiajin
Czech Republic	Prague
Denmark	Copenhagen Odense
Egypt	Cairo
Ethiopia	Addis Ababa
France	Blagnac Paris Senlis Cedex Toulouse
Germany	**Berlin** **Bavaria** Kirchheim Munich **Hesse** Neu-Isenberg **North Rhine-Westphalia** Cologne **Schleswig-Holstein** Kaltenkirchen Norderstedt
Greece	Athens
Hungary	Papa
India	**Andhra Pradesh** Hyderabad **Karnataka** Bangalore **National Capital** New Delhi **Tamil Nadu** Chennai
Ireland	Belfast Cork Shannon **Leinster** Dublin
Israel	Tel Aviv
Italy	Lonate Pozzolo Rome
Japan	**Chubu** Nagoya Tokoname **Kanto** Yokohama **Tokyo** Tokyo
Kazakhstan	Almaty
Kenya	Nairobi
Kuwait	Kuwait City
Luxemburg	Luxemburg
Malaysia	Kuala Lumpur
Mexico	Chihuahua Mexico City Tijuana
Netherlands	**Amsterdam** Nieuw Vennep
New Zealand	Auckland
Oman	Muscat
Poland	Gdańsk Rzeszow Swidnik Warsaw
Qatar	Doha
Russia	Moscow Skolkovo
Saudi Arabia	Riyadh
Singapore	Singapore
South Africa	Johannesburg
South Korea	Seoul Yeongcheon-si
Spain	Madrid Vitoria
Sweden	Göteborg
Switzerland	Lucerne
Taiwan	Taipei
Turkey	Ankara Istanbul
Ukraine	Kiev
United Arab Emirates	Abu Dhabi Duba
United Kingdom	**England** Bristol Burgess Hill Camberley Corsham Crawley

ENDNOTES

Site Listing Endnotes for Corporate GHG Inventory Chart

Country	Location
United Kingdom	**England**
	Enderby
	Farnborough
	Feltham
	Fleet
	Gatwick
	Gosport
	Ipswich
	Knaresborough
	London
	Middle Wallop
	Milton Keynes
	Oxford
	Sheffield
	Sherbourne
	Welwyn Garden City
	Yeovil
	Scotland
	Perth
	Wales
	Cardiff
United States	**Alabama**
	Daleville
	Foley
	Huntsville
	Madison
	Alaska
	Anchorage
	Arizona
	Chandler
	Mesa
	Phoenix
	California
	Carson
	Costa Mesa
	El Segundo
	Huntington Beach
	Long Beach
	Menlo Park
	Mountain View
	Palmdale
	Pleasanton
	Rancho Cucamonga
	Sacramento
	San Diego
	San Jose
	San Luis Obispo
	Santa Susana
	Seal Beach
	Sunnyvale
	Sylmar
	Taft
	Torrance
	Van Nuys
	Ventura
	Victorville
	Colorado
	Aurora
	Centennial
	Colorado Springs
	Englewood
United States	**Connecticut**
	East Windsor
	Enfield
	North Haven
	Florida
	Cape Canaveral
	Davie
	Doral
	Fort Walton Beach
	Hialeah
	Jacksonville
	Kennedy Space Ctr
	Miami
	Orlando
	Tampa
	Titusville
	Wellington
	Georgia
	Atlanta
	College Park
	Peachtree
	Warner Robins
	Hawaii
	Honolulu
	Kamuela Waimea
	Kihei
	Illinois
	Chicago
	Fairview Heights
	Mascoutah
	Rolling Meadows
	St. Charles
	Schaumburg
	Swansea
	Indiana
	Crown Point
	Gary
	Kansas
	Kansas City
	Wichita
	Louisiana
	Bossier City
	Lafayette
	Main
	Bangor
	Lewiston
	Portland
	South Portland
	Maryland
	Aberdeen Proving Ground
	Annapolis Junction
	California
	Germantown
	Patuxent River
	Massachusetts
	Cambridge
	Fitchburg
	Lexington
	Northborough
	Weymouth
	Woburn
	Minnesota
	Eagan
United States	**Mississippi**
	Columbus AFB
	Missouri
	Berkeley
	Earth City
	Florissant
	Fort Leonard Wood
	Hazelwood
	Maryland Heights
	O'Fallon
	Portage Des Sioux
	St Charles
	St. Louis
	Montana
	Glasgow
	Helena
	Nevada
	Las Vegas
	New Hampshire
	Manchester
	New Jersey
	Berkeley Heights
	Paramus
	Parsippany
	New Mexico
	Albuquerque
	Las Cruces
	New York
	Cornwall
	North Carolina
	Fayetteville
	Greensboro
	Havelock
	Kings Mountain
	Ohio
	Brookpark
	Cincinnati
	Dayton
	Fairborn
	Heath
	Oklahoma
	Oklahoma City
	Stillwater
	Tulsa
	Oregon
	Arlington
	Boardman
	Gresham
	Hood River
	Portland
	The Dalles
	Wilsonville
	Pennsylvania
	Boothwyn
	Chambersburg
	Eddystone
	Lemont Furnace
	Pittsburgh
	Ridley Park
	Smithfield
	Throop Borough
	South Carolina
	Ladson
	North Charleston

ENDNOTES

Site Listing Endnotes for Corporate GHG Inventory Chart

Country	Location
United States	**Tennessee**
	Cordova
	Memphis
	Oak Ridge
	Texas
	Austin
	Beeville
	Dallas
	Dyess AFB
	El Paso
	Grand Prairie
	Houston
	Irving
	Plano
	Richardson
	San Antonio
	Universal City
	Utah
	Hill AFB
	Layton
	Salt Lake City
	West Jordan
	Virginia
	Arlington
	Chantilly
	Fairfax
	Herndon
	Leesburg
	Manassas
	Newport News
	Virginia Beach
	Washington
	Auburn
	Bellevue
	Bingen
	Enumclaw
	Washington
	Everett
	Issaquah
	Kent
	Moses Lake
	Mukilteo
	Olympia
	Puyallup
	Quincy
	Renton
	SeaTac
	Seattle
	Tukwila
	Vancouver
	White Salmon
	West Virginia
	Bridgeport

THE BOEING FAMILY OF REPORTS

Visit **boeing.com/investors** to view our Annual Report and to find additional information about our financial performance and Boeing business practices.

Visit **boeing.com/community** to view our community investment information and other information about how Boeing is working to improve communities worldwide.

Visit **boeing.com/environment** to view our current Environment Report and information on how the people of Boeing are developing ways to promote a more sustainable future.

Visit **boeing.com/ethics-and-compliance.page** to view our Ethical Business Conduct Guidelines, a resource to help managers and employees discuss and practice ethical decision-making skills.

Boeing is committed to delivering positive Environmental, Social and Governance (ESG) impacts. To learn more about Boeing's commitments in each area, visit **boeing.com/principles/esg**.

BOEING

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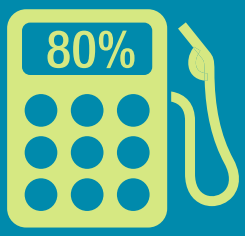
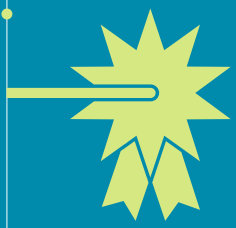


Boeing offers airline customers new airplanes with sustainable fuel, **an option that reduces CO_2 emissions by up to 80%**.

Boeing donated 71 sonobuoys to the NOAA to study endangered whales in the Bering Sea, **diverting 2,000 pounds (900Kg) of hazardous waste**.

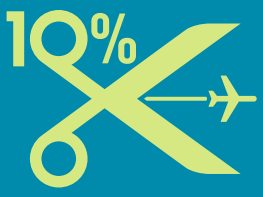
Students from around the globe celebrated the 50th Earth Day with a virtual STEM field trip on the Duwamish River cleanup, the ecoDemonstrator and carbon-fiber recycling — Boeing efforts to protect air, land and water, and reduce waste.

ecoDemonstrator program-tested vortex generator could save an airline, flying 100 jets, up to 3 million gallons of fuel a year — **enough to take about 3,800 cars off the road during that time.**



Lasers, replacing paint sanders and chemicals in Boeing factories, are improving quality and accuracy while **reducing hazardous waste by 90%.**

Carbon-fiber recycling at 11 Boeing work sites will **reduce more than 1 million pounds of solid waste to landfill**.



777X will achieve **10% lower fuel use and emissions and 10% lower operating costs** than the competition.

100% renewable energy — solar, wind or hydropower — runs Boeing's factories in Renton, Wash. and Charleston, S.C., and a large data center in Arizona.

Our 787 Dreamliners **saved 48 billion pounds of fuel** so far, compared to the airplanes they replaced — vastly reducing the amount of carbon our products emit.

Boeing's reuse of shipping containers diverted **900 tons of solid waste from landfills** and recycled over **400 tons of corrugated boxes**.