Planet Aware
2017 Corporate Responsibility Report
Planet Aware

“Because our most precious gift is our planet, there’s nothing more important to do than to protect it for us and the coming generations. Protecting means a daily engagement for everyone everywhere. If we do individually, we will be stronger and a more positive protector for our planet. Do it for all life! Protecting Earth is protecting life and everyone’s concern.”

—Nicolas Bardonnet, General Manager, Promega France

Promega has a longstanding commitment to sustainability and continues to use it as a measure to evaluate operations globally. We are conscious that our decisions today will influence the future of our business, our communities, and our natural environment. Our long-term focus has resulted in investment in an infrastructure that will enable sustainable growth for many years to come. Environmental sustainability remains a core value for how Promega designs and builds facilities, as evidenced by energy benchmarking completed last year. Data from the Lawrence Berkley National Laboratory has shown that our facilities are in line with the best-in-class laboratories on energy efficiency. This can be attributed to investments in facility operations, with the addition of several specialists trained in energy efficiency. Our Global Facilities Planning Team places an emphasis on designing and building highly efficient facilities that are durable, flexible and timeless that will serve for many decades.

In 2016, our global distribution hub, the Kepler Center, saw its first full year in operation. Our building footprint has increased by 84% since 2008 with over 90% of this growth in high energy intensive laboratory, manufacturing and logistics spaces. Even with this increase, we have been able to hold our carbon emissions constant relative to our building footprint.

We continue to work toward our environmental reduction goals in the areas of greenhouse gas emissions, electricity, natural gas, water, outgoing product distribution emissions, and waste. While our recent increase in building footprint has challenged this goal, it also has enabled the incorporation of cutting edge approaches to resource conservation across new and existing facilities. Our targets represent key sources of our environmental impacts, but our efforts are not limited to those areas. We recognize that there are opportunities in all aspects of our business, and we repeatedly evaluate how to reduce our affect on the environment at all operations globally.
90% increase in energy intensive facilities

6% decrease in our carbon footprint as indexed to building footprint using sustainable design practices & state-of-the-art technologies
Responding to Climate Change

Promega supports the move to limit anthropogenic greenhouse gas emissions and actively tracks contributions to climate change from all operations globally. We take into account direct emissions from fuel combustion (scope 1), emissions from purchased electricity (scope 2), and indirect emissions from business travel, outgoing distribution, water usage and paper usage (scope 3). Due to newly added facilities, meeting our 2020 carbon footprint target will be a challenge, yet Promega remains committed to reaching the goal.

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Minimizing Electricity Usage and Emissions

Emissions from energy account for over 70% of our gross carbon footprint. Efforts to offset impacts of electricity usage include investing in energy efficiency, generating electricity from rooftop solar panels and purchasing electricity from renewable sources. Additionally, we make a concerted effort to encourage every employee to minimize energy consumption on a daily basis. The additional energy usage by the Kepler Center in 2016 caused consumption to increase by 2% as indexed to revenue in 2016. Notable efforts to conserve energy in the last year included:

- Participation in the Wisconsin Focus on Energy’s “On Demand Saving Pilot Program” allowed our facilities team to monitor energy usage in real-time. This information led to optimization of control setting and other changes that reduced usage of air handling units on the Promega Madison campus.
- High energy efficient ultra-low temperature freezers for the global logistics headquarters, the Kepler Center, in Madison, WI, use up to 45% less energy than previous freezers.
- Installation of a more efficient process chiller in 2016 at the Rosalind Franklin Center in Madison, WI, enables more efficient cooling.

High efficiency ultra-low temperature freezers at Kepler Center in Madison, WI, help minimize energy usage.
Our use of renewable energy has increased by more than 18-fold since 2008. Promega facilities that use 100% renewable energy sources include:

- Promega Brazil in Sao Paulo
- Promega Italia in Milan
- Promega Biotech Ibérica in Alcobendas, Spain
- Promega Biotech AB in Stockholm, Sweden
- Promega GmbH and Promega Euro Hub in Mannheim, Germany
- The Aviation Operations building in Madison, WI, is our largest renewable energy producer with over 250 solar panels and geothermal wells for heating and cooling

Also, The da Vinci facility in Madison, WI, although it does not use 100% renewable energy sources, has 48 solar panels and extensive sky lighting.

Conserving Natural Gas

Natural gas is our largest source of direct air emissions and third in overall emissions for Promega. Natural gas is used primarily at manufacturing sites for heating and production-related processes. In the last year, our natural gas usage decreased by 2% as indexed to revenue as a result of investments to enhance the efficiency of existing facilities. Geothermal wells, solar water heaters, and heat capture technology in many facilities minimize heating requirements and related emissions. Recent initiatives to conserve natural gas usage include:

- Use of heat recovery systems on ultra-low temperature freezers to supplement heating for the Kepler Center. These systems also eliminate the cooling demand of the facility and conserve electricity.
- Completion of an environmental audit at Promega France has encouraged our team to evaluate options for more efficient heating and better insulation. Updates to this facility are in the planning phase and should be completed in 2017.

Direct air emissions are monitored from combustion of fuel purchased for heating and emergency generators in North America. Promega emissions fall below the threshold levels set by local and federal organizations, and we continue to explore further enhancements.

Use of photovoltaic panels at Promega contributes to minimizing environmental impacts from energy usage.

Natural Gas

Figure 4. Natural gas usage as indexed to revenue.
Tracking and Reducing Impacts from Product Distribution

Promega invests significant effort to ensure that our products get to customers quickly and safely. We are focused on reducing air emissions from outgoing distribution by decreasing the size and weight of packaging materials and using efficient modes of transportation. As a result of this ongoing focus, we have seen emissions per revenue consistently decrease and are now down 25% compared to 2008. To understand the indirect emissions from outgoing shipments, data were collected from Promega-owned global distribution hubs on weight, distance, and mode of transportation.

The Promega Euro Hub, our distribution center in Mannheim, Germany, is continually focused on optimizing packaging materials to minimize environmental impacts. In 2016, Euro Hub successfully used 20% less dry ice per shipment which resulted in less weight and carbon emissions. Several projects in North America and Europe resulted in the use of smaller shipping boxes and packaging improvements that have reduced weight and the amount of dry ice used.

The 2016 Global Logistics Summit in Mannheim, Germany at our European logistics headquarters.

Figure 5. Global distribution emissions as indexed to revenue.

smaller shipping boxes
&
optimized packaging materials

less dry ice

25% reduction in distribution emissions/revenue

since 2008
Efficient Product Delivery with Our Helix On-Site Stocking System  Our state-of-the-art, on-site inventory management system, Helix®, further reduces emissions through precise consolidated restocking shipments. The Helix® program uses RFID technology that tracks product use in real time, and results in more efficient shipping practices. This automated inventory management system ensures that customers have uninterrupted access to supplies while reducing the impact on our planet.

In addition, Promega purchases carbon credits to offset the greenhouse gas emissions from energy use of the Helix® System from shipment to distribution to stocking. In 2016, Helix® offset 775 tons of emissions worldwide by supporting the following projects:

- Reforestation projects in Texas and Arkansas, USA
- Sichuan Household Biodigester Project in China

Since 2010, the Helix has offset over 4,500 tons of carbon dioxide. To see more information and learn how to participate, please visit www.promega.com/helix
Minimizing Impacts from Business Travel

Travel is essential for supporting our customers and working with collaborators. We are committed to minimizing impacts from travel by using fuel-efficient vehicles and environmentally sensitive modes of transportation. Business travel via air, automobile, and rail comprise approximately 10% of our current carbon footprint. In the last year we saw a 9% reduction in emission per revenue from business travel.

Efficient Travel For several years Promega has actively sought out fuel-efficient vehicles for our usage. Promega Benelux, Promega UK, Promega Italia, Promega AG in Switzerland and Promega KK in Japan have moved to a more efficient and ecologically sound fleet, leading to improved fuel efficiency of vehicles globally. In the United States, we have continued participation in the Emkay GoGreen fleet program which has enabled us to increase usage of high-efficiency vehicles. In addition, this program plants trees to compensate for unavoidable greenhouse gas emissions. Since our enrollment in 2009, we have offset 2,850 tons of CO₂ exclusively through this effort. Our newest branch, Promega Biotech India, uses Metro Rail as the primary source of transportation to eliminate fuel usage and air emissions.

We also encourage the use of electric vehicles by employees to minimize greenhouse gas emission from transportation. We have installed electric vehicle charging stations across our Promega Madison campus, Promega Benelux, Promega BioSystems and Promega Biosciences in California. This covers two-thirds of our employees globally and we are looking to expand this at other locations.

Figure 6. Emissions from business travel take into account air, automobile, and rail travel at all global locations.
Alternative Transportation  Alternate transportation programs have been implemented in a number of locations worldwide to reduce environmental impacts. Employees are encouraged to use public transportation, ridesharing or biking-to-work. All buildings at Promega Madison and Promega Biosciences in California offer bicycles for employees to use, as well as resources to support cyclists, including access to pumps and bike repair kits. Many locations worldwide have similar programs in place.

Preserving Natural Capital

Minimizing Waste

To reduce waste generation, Promega locations globally focus on improving recycling programs and increasing employee awareness of waste minimization practices. In the past this has included piloting composting programs, identifying specific materials to be segregated for recycling and encouraging reuse by providing permanent ware in cafeterias and kitchenettes. Employees embrace the mantra “Reduce, Reuse, Recycle” and have championed this effort. In 2016, we saw waste increase by 12% as indexed to revenue due to our newest facility, the Kepler Center. Recent efforts to reduce waste include:

- In 2016, we began recycling nitrile gloves and protective garments through the RIGHTCYCLE program in select Madison facilities. This diverted nearly 2,000 pounds of waste from landfills. Because of its success, this program is now being rolled out across all Promega Madison buildings and is being considered at other global facilities.

“Environmental problems are a growing concern, so cars that reduce CO2 emission are more likely to impress people than a showy sports car. We live in Tokyo, without a car, and that is probably our most important contribution to saving the environment.”

—Masahiro Ueda, General Manager, Promega KK
• An annual electronics recycling drive at our Promega Madison Earth Day celebration collected over 9,500 pounds of materials from employees.

• Promega has recycled more than 150,000 pipette tip boxes through a recycling program that diverts more than 5,000 pounds from landfills each year.

• A composting program piloted by Promega BioSystems in their Sunnyvale, California community, in addition to expanded recycling, resulted in an 80% reduction in waste going to the landfill.

• In Europe, we arrange for recycling of all instrumentation and electronics at the end of life in compliance with the Waste Electrical and Electronic Equipment (WEEE) directive and are looking to provide a similar program for instrument recycling in North America.

Managing Hazardous and Infectious Wastes In the biotech industry, manufacturing processes can require work with potentially hazardous substances. We understand the responsibility that comes with the use of these materials, as well as the obligation to reduce waste and ensure proper disposal. To further reduce emissions associated with hazardous waste, we have partnered with specialized handlers where over 90% of waste is treated for reuse as fuel or recycled to minimize environmental impacts.

Figure 7. Non-hazardous waste as indexed to revenue.

Figure 8. Hazardous wastes as indexed to revenue.
Conserving Water

Promega continually evaluates initiatives to conserve water in manufacturing, landscaping, and daily office tasks. In the last year, water usage decreased by 2% as indexed to revenue. Notable reductions were seen at Shanghai Promega and Promega France.

Many global locations incorporate design features to conserve and ensure proper disposal of water. Offices in Sydney, Australia, collect rain water for cleaning, toilets, and irrigation of plants. Similarly, the Madison-based global headquarters uses rainwater collection and rain gardens for natural filtration. Promega Biosciences in San Luis Obispo, California, has a long history of water conservation projects, from automatic and low flow faucets, to a custom water recirculating system for distilled water. Since 2009, gross water usage has decreased by over 50% at this facility despite a significant increase in headcount and manufacturing levels.

![Rain gardens in the Prairie Swale at Promega Corporation in Madison, WI.](image)

**Water Usage**

![Figure 9. Water usage as indexed to revenue.](chart)
Connecting with Customers without Paper

In 2008, Promega made significant efforts to transition away from printed catalogs, instruction manuals, print marketing, and a majority of other printed corporate communications. The adoption of electronic communications allowed total paper usage to be reduced by 80%.

Expanded use of modern technologies and emerging media channels in recent years has enhanced communication with customers and has further reduced the need for printed materials. Since 2012, we have seen paper usage reduce by an additional 50% as indexed to revenue. When paper is needed we use recycled paper and duplex printing to minimize paper consumption. Our commitment to reduce paper and its impact include:

- Integrating the use of iPads and other tablets to better serve customers while eliminating the use of printed resources. Field Application Specialists in North America, along with branches in Europe and Pacific Asia now regularly use tablets to avoid printing.
- Sending electronic copies of various documents to customers who do not want a printed copy, which has resulted in a savings of over 5,000 pieces of paper a month.
- Offering electronic invoices in our European branches to customers as a way to reduce unnecessary printing and paper usage. Promega Benelux has illustrated great success of this initiative with over 75% of customers using e-invoicing in 2016.

"One of the true tests of leadership is the ability to recognize and deal with a problem before it becomes an emergency. Poor leadership deals with the emergency without recognizing the problem."

— Han Willems, General Manager, Promega Benelux
Reducing Packaging

Many Promega products are temperature sensitive, creating unique requirements in packaging that involve use of dry ice, gel ice, and foam coolers. We continually consider the impact of packaging on the environment, and search for innovative ways to reduce packaging, use environmentally friendly materials, and design for recycling or reuse. Environmental sustainability, product protection and quality are all key priorities.

To reduce environmental impacts of packaging, Promega has:

• Switched to smaller shipping boxes to use less packaging material.
• Incorporated new materials that provide better insulation and reduce dry ice needed.
• Implemented packaging designs that minimize air space that also reduce dry ice and weight of shipments.
• Changed to unbleached shipping boxes that contain sustainably harvested materials.
• Used biodegradable and recyclable air pouches that protect our products with fewer environmental impacts.

The overall material usage of product packaging has not been quantified, and we are looking at ways to capture this. We regularly evaluate procedures and investigate potential improvements to reduce environmental impacts of packaging and product handling.

New Promega shipping boxes promote local recycling to reduce environmental impacts.