



2016 Sustainability Supplement

CONTENTS

LETTERS FROM OUR LEADERSHIP 3

| | |
|----------------------------|---|
| <i>Letter From Our CEO</i> | 3 |
| <i>Letter From Our CTO</i> | 6 |

OUR COMPANY 9

| | |
|---|----|
| <i>Ingersoll Rand</i> | 9 |
| <i>Our Employees</i> | 9 |
| <i>Governance, Ethics and Risk Management</i> | 10 |
| <i>Customer Satisfaction</i> | 10 |
| <i>Regulations and Policy</i> | 10 |
| <i>2016 Awards and Rankings</i> | 13 |
| <i>Memberships and Partnerships</i> | 15 |
| <i>Charters</i> | 16 |

SUSTAINABILITY AT INGERSOLL RAND 17

| | |
|--|----|
| <i>Sustainability Governance Structure</i> | 17 |
| <i>About Our Reporting</i> | 17 |

OUR DATA 18

| | |
|---------------------------------------|----|
| <i>2016 Sustainability Highlights</i> | 18 |
| <i>Progress Toward 2020 Targets</i> | 19 |
| <i>Sustainable Development Goals</i> | 21 |

ENVIRONMENTAL SUSTAINABILITY: OUR PLANET 24

| | |
|--|----|
| <i>Climate Change</i> | 24 |
| <i>Greenhouse Gas Emissions and Refrigerants</i> | 25 |
| <i>Energy</i> | 28 |
| <i>Materials</i> | 30 |
| <i>Energy Efficiency of Our Products</i> | 33 |
| <i>Product Life Cycle Approach (LCA) and End-of-Use Considerations</i> | 35 |
| <i>Water</i> | 36 |
| <i>Waste</i> | 37 |

SOCIAL SUSTAINABILITY: OUR PEOPLE 38

| | |
|--|----|
| <i>Occupational Health and Safety</i> | 38 |
| <i>Supplier Diversity</i> | 39 |
| <i>Employee and Community Engagement</i> | 40 |

BUSINESS SUSTAINABILITY: OUR PRODUCTS 42

| | |
|--|----|
| <i>Supply Chain Transparency and Performance</i> | 42 |
| <i>Technology and Innovation</i> | 44 |
| <i>Product Reliability</i> | 46 |
| <i>Social Impact of Our Products</i> | 47 |

GRI CONTEXT INDEX 48

Letter From Our CEO



“Our legacy extends beyond just the next few years – as we lead long-term value creation and positive societal impact within our industries, we build a legacy for the next century and beyond.”

**MICHAEL W. LAMACH,
CHAIRMAN AND CEO**

Dear Shareholder,

Ingersoll Rand links business opportunities to important global trends to create long-term value for our people, our customers and the world. Whether the challenge is climate change, urbanization or natural resource constraints, our expertise enables us to reduce energy demand and improve efficiency in buildings, industrial processes and transportation.

Sustainability in all its forms — business, social and environmental — is central to our strategy. Just as we have for the past 146 years, we continue to build a more sustainable and thriving enterprise. We’re leading the way to long-term value creation and positive societal impact within our industries, and building a legacy for the next century and beyond.

Our strategic focus on business sustainability served us well in 2016. As you can see in the charts below, net revenue, adjusted operating margins and adjusted earnings per share (EPS) were up from the prior year. These results follow a multi-year pattern of consistently strong operating and financial performance driven by our strategic framework of sustained growth, operational excellence, favorable cash flow conversion and a commitment to our winning culture.

We launched more than 80 new products and services in 2016, with introductions in nearly every business and region, while continuing to reduce costs and improve productivity. On a reported basis, this progress translated into 60 basis points of operating margin expansion and strong cash flow in a low-growth environment. Our cash flow success story was one of the most noteworthy, as our free cash flow* increased 37% from 2015 to \$1.3 billion — 121% of adjusted net earnings*.

We also retained a strong balance sheet while returning significant cash to shareholders in 2016. Ingersoll Rand paid approximately \$350 million in dividends during the year, and executed \$250 million in share buybacks. We continued our long history of corporate dividend increases, raising our quarterly dividend by approximately 40% through two increases from \$0.29 per share to \$0.40 per share, concluding the year at \$1.60 annualized per share.

As anticipated, connected buildings, industrial facilities, homes and vehicles are providing our customers with more information, accessibility and productivity, and we realized increased growth in 2016 stemming from smart, wireless and digitally connected solutions. Each of our businesses is executing a digital strategy that extends our core

expertise in the design and manufacturing of complex equipment, ensuring equipment is serviced and optimized to provide critical, real-time analytics for our customers.

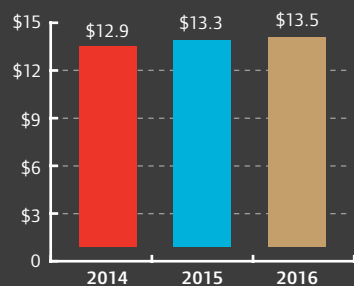
Sustainability in all its forms – business, social and environmental – is central to our strategy.

Our Energy Services and Controls business uses a growing set of digital platforms in actively servicing 6,500 connected buildings worldwide, positioning Ingersoll Rand as one of the top providers in the space. The QX series from our Power Tools business, for example, features wireless communications between the tool and the assembly line. The result is a plant-wide network with managed data, process control and the ability to adjust tool configurations to give operators total control of the line.

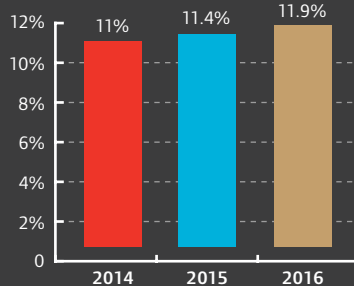
Our success in the marketplace reflects deliberate choices, driven by data and analytics, that our businesses have made in selecting future growth programs as priorities for investments. Our strategy of developing these programs through product growth teams continues to deliver breakout results. The average growth rate for our model product growth teams was more than twice our overall company average growth rate in 2016.

Product growth teams are just one example of the power of the winning culture we continue to build at Ingersoll Rand. As measured by the ingenuity of our engineering and technology centers, the commitment of our Green Teams, operational excellence improvements or the many thousands of hours volunteered in our communities, our people clearly believe in the company’s mission and are demonstrating exceptional teamwork and skills to achieve outstanding contributions.

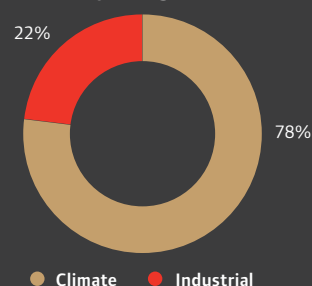
Total Net Revenue (Billions)



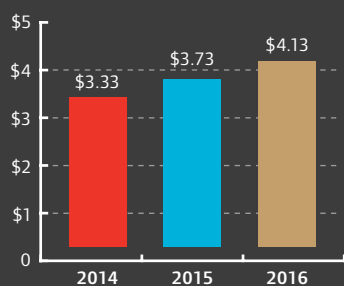
Adjusted Operating Margins*



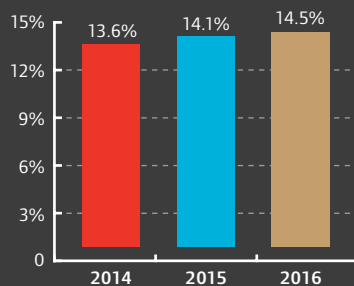
Total Net Revenue by Segment



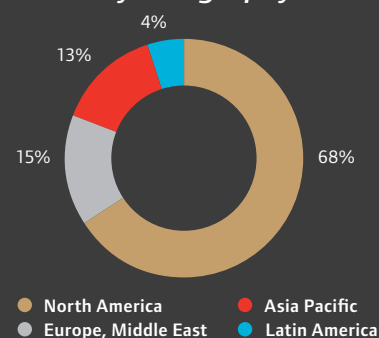
Adjusted Earnings Per Share*



Adjusted Operating Income plus Depreciation & Amortization*



2016 Revenue by Geography



*These are non-GAAP financial measures. Reconciliation of non-GAAP financial measures can be found preceding the 2017 Notice and Proxy Statement. See page 19 of the Annual Report.

I was delighted to see our employee engagement scores continue our long-term improvement trend in 2016. Our people feel they are winning — individually, as a team and as a company. It was particularly inspiring to see our associates' highest rankings in sustainability, ethics and values, and safety, which further helped us achieve top-quartile employee engagement scores among all industries.

Employee engagement fuels the contributions we are making to address critical social sustainability issues through volunteerism, customer partnerships and corporate social responsibility to meet the needs of our local communities. We're working to improve food security, drive quality education, improve gender equality, support sustainable cities and communities, and create resilient infrastructures. Employees from around the globe came together in 2016 to package meals for 110,000 undernourished children, moving us one step closer to reaching our 2020 goal of providing food and nutrition education to 200,000 children around the world.

I am proud of our team for delivering record performance in 2016, both operationally and financially.

Equally important, our people believe that environmental sustainability and energy efficiency are critical to our future success. With their support, we're able to stay out in front of our customers' expectations, the competition and the regulatory environment — making us a leader in reducing energy use and greenhouse gas emissions.

Two years ago we made a public, enterprise-wide Climate Commitment to significantly reduce the greenhouse gas emissions of our products and operations. We're on track to complete this goal and, through 2016, have avoided approximately 6.7 million metric tons of CO₂e globally. This equates to avoiding annual CO₂ emissions from energy used in more than 700,000 homes or more than 7.1 billion pounds of coal burned. At the same time, we've helped pioneer the development of several next-

generation, low-global warming potential (GWP) EcoWise™ products that meet or exceed global refrigerant transition requirements while delivering high energy efficiency.

Our plan for 2017 is to capitalize on last year's positive momentum to maximize growth while delivering productivity and discerning investment and allocation of our cash. Our commercial and residential heating, ventilation and air conditioning (HVAC) businesses are strong and focused on growth areas with equipment, controls and services. Our transport refrigeration business is diverse and agile and will continue to execute its strategy as in the past. Our industrial businesses are focused on margin expansion as markets stabilize. From a capital allocation perspective, strengthening and growing our business organically will be our highest priority, and I am confident Ingersoll Rand will continue to deliver top-tier financial performance.

I am proud of our team for delivering record performance in 2016, both operationally and financially. We're building a more strategically and operationally integrated, top-tier diversified industrial company and a more valuable and sustainable Ingersoll Rand in every way.

On behalf of our entire team, I extend our deep appreciation to you for your support this past year. We're committed to sustaining our leadership globally for you and all the company's stakeholders, and I look forward to keeping you apprised of our progress.

Sincerely,



Michael W. Lamach
Chairman and CEO

Letter From Our CTO



“With these dynamics in mind, our innovation roadmap is focused on ensuring that Ingersoll Rand remains positioned in the right markets with the right products, services and technology capabilities.”

PAUL A. CAMUTI
SENIOR VICE PRESIDENT, INNOVATION
AND CHIEF TECHNOLOGY OFFICER

We sustain and grow our business by creating innovative customer solutions — new products and services, as well as the technologies that make them possible. In addition to helping our customers achieve their business objectives, we design these solutions to outperform competing offerings in the marketplace by delivering greater value, efficiency, productivity and connectivity, as well as a seamless user experience.

Our customers’ needs are shaped by global macro trends, the majority related to environmental, economic and social sustainability. Looking ahead to the next three to five years, we expect that several of these trends will have an especially powerful impact on our customers and our business. Chief among them are climate change, urbanization and industrialization, demographic shifts, demands for enhanced energy productivity, and the increasing ubiquity of connected technologies.

With these dynamics in mind, our innovation roadmap is focused on ensuring that Ingersoll Rand remains positioned in the right markets with the right products, services and technology capabilities. Our success in executing against this roadmap depends on how well we understand our customers and the business imperatives they face.

This understanding starts with deep and mutually beneficial relationships with customers themselves. We leverage the customer intimacy we’ve developed by applying advanced data analytics, combining marketplace perspectives with terabytes of information continually streamed from Ingersoll Rand equipment installed across the globe.

We have pledged to significantly reduce greenhouse gas emissions from our operations...by 2020.

We augment this customer insight with feedback drawn systematically from our global supplier base. Suppliers provide valuable information that helps us gauge our performance versus competitors. Our strategy is also informed by knowledge gained from our extensive interactions with regulatory authorities, the higher education community and NGOs around the world.

The Ingersoll Rand Business Operating System (BOS) is the framework we use to translate the market intelligence we’ve gathered into new products, services and solutions that create value for customers and profitable growth for Ingersoll Rand. Focusing on excellence in four areas of expertise —

innovation, technical, engineering and product management — the BOS guides us in our strategy to drive growth and improve margins through innovation:

- We define innovation excellence as the ability to rapidly transform creative ideas into commercially viable product and service offerings while optimizing project selection and development.
- We work to achieve technical excellence by assembling the processes, systems and talent we need to drive technical edge into our products, services and solutions, including technology maturation and partnering.
- We strive for engineering excellence by working to improve our performance through skilled project management and disciplined engineering execution.
- All this translates into growth in sales and market share through excellence in product management — strategic marketing that brings customer, channel and competitive analysis to our teams.

The value stream methodology — working across functions to deliver customer value — is fundamental to our success in delivering growth and margin improvement. The value stream process provides teams across the company with tools that enable them to focus on products, process and customers, eliminating waste and improving cycle times. Six years into our value stream journey, virtually all company operations and our entire portfolio of major product and service offerings are currently part of value streams.

We are working strategically to increase our exposure to emerging markets.

As indicated by our Materiality Assessment, driving innovation for developing markets is an issue of significant importance to our stakeholders and Ingersoll Rand. We are working strategically to increase our exposure to emerging markets. We are also strategically committed to addressing social and environmental imperatives to assist in expanding energy and other resource efficiency knowledge in developing regions.

We employ approximately 3,400 technologists at 14 engineering and technology centers globally, including facilities in Bangalore and Chennai in India, Prague in the Czech Republic and Shanghai in China. Our innovation efforts have been particularly successful in China, Brazil, Mexico and India, which make up approximately 50% of our emerging market revenue. In these four countries, we have established large local teams with full capabilities, manufacturing facilities and strong localized channel partners.

Our innovation efforts have been particularly successful in China, Brazil, Mexico and India, which make up approximately 50% of our emerging market revenue.

As in our North American and European centers, these four facilities are locations for our technology networks of excellence, composed of specialists in materials and chemistry, modeling and simulation, product architecture, brazing and joining as well as precision machining. Sharing in-house expertise in these areas across our businesses enables us to leverage our scale and capabilities, differentiate our products and solutions, and accelerate our speed to market.

As a global provider of energy-efficient technology solutions, we are positioned to pursue opportunities that arise from the nexus between energy efficiency and climate change mitigation. While energy resource demands and climate change represent great risks for society and the planet, we recognize that the innovation that addresses these issues is a potential growth driver for our business.

Reflecting these dynamics, nexus opportunities are a material topic for Ingersoll Rand and our stakeholders. The Ingersoll Rand Climate Commitment is the centerpiece for our initiatives in this dimension. We have pledged to significantly reduce greenhouse gas emissions from our operations and product portfolio by 2020, and incorporate alternatives with lower-global warming

potential (GWP) refrigerants across the company's product portfolio by 2030.

Executing on this pledge in 2015, we launched the EcoWise™ portfolio of products using next-generation, low-global warming potential refrigerant. The EcoWise portfolio currently includes Trane and Thermo King products and product families that deliver higher energy efficiency with a smaller carbon footprint than comparable legacy products.

End-of-use considerations — supported by embedded Design for Sustainability tools — are integral to our product development process and a material topic for Ingersoll Rand. The majority of our businesses have implemented product end-of-use programs. Several include aftermarket strategies that focus on designing for disassembly, repair and reusability of product components, as well as the recycling of remaining materials.

Our ability to deliver the value inherent in digital information and communication technologies is becoming more and more integral.

Our ability to deliver the value inherent in digital information and communication technologies is becoming more and more integral to our social and environmental performance as these technologies become more ubiquitous. Every one of our businesses is executing on a connected strategy — from our Thermo King transport refrigeration units with truck telematics to the Trane Intelligent Services combining sensors, data analytics and human expertise to optimize the performance of buildings. Even our Club Car golf carts and utility vehicles have GPS-enabled telematics solutions.

In summary, to be a great company is to be a sustainable company. I believe that innovation will continue to drive our success, as well as the world's success, in achieving resource efficiency and sustainable design.

I look forward to keeping you informed about innovation at Ingersoll Rand in the years ahead.

Sincerely,



Paul A. Camuti
Senior Vice President,
Innovation and Chief
Technology Officer

Our Company

Ingersoll Rand

Ingersoll Rand (NYSE: IR) creates comfortable, sustainable and efficient environments that advance the quality of life across the globe. We heat, cool and automate homes and buildings; enhance commercial and industrial productivity; keep transported food and perishables safe and fresh; and deliver fun, efficient and reliable transportation solutions. Diversity, engagement and teamwork drive innovation and fuel our passion for exceeding customer expectations. Together with principled leadership and ethical business practices, our high-engagement culture delivers enduring results that lead to a sustainable world.

Read more about our company, brands and governance in our 2016 Annual Report and [on our website](#).

Our Employees

Ingersoll Rand employs nearly 45,000 people worldwide. We respect and value their diverse cultures, backgrounds and perspectives, and we understand that the success of our strategies requires high employee engagement. We strive to

create an environment where all employees win when the company wins – that is, where our people can learn and thrive in their careers and realize their aspirations in a dynamic and progressive organization.

Read more about our employees [on our website](#).

Ingersoll Rand Population

as of December 31, 2016

| REGIONS | EMPLOYEE TYPE | FEMALE | | MALE | | TOTAL |
|--------------------|---------------|---------------|--------------|---------------|---------------|---------------|
| Asia Pacific | Hourly | 10.27% | 318 | 89.73% | 2,779 | 3,097 |
| | Salaried | 33.14% | 1,340 | 66.86% | 2,703 | 4,043 |
| EMEA | Hourly | 4.23% | 116 | 95.77% | 2,626 | 2,742 |
| | Salaried | 27.62% | 900 | 72.38% | 2,358 | 3,258 |
| India | Hourly | | | 100.00% | 258 | 258 |
| | Salaried | 8.12% | 112 | 91.88% | 1,268 | 1,380 |
| Latin America | Hourly | 14.70% | 167 | 85.30% | 969 | 1,136 |
| | Salaried | 29.80% | 382 | 70.20% | 900 | 1,282 |
| North America | Hourly | 20.82% | 2,615 | 79.18% | 9,943 | 12,558 |
| | Salaried | 27.82% | 3,416 | 72.18% | 8,864 | 12,280 |
| Grand Total | | 22.28% | 9,366 | 77.72% | 32,668 | 42,034 |

Governance, Ethics and Risk Management

The core values of Ingersoll Rand — integrity, respect, teamwork, innovation and courage — are the foundation of our enduring success. Integrity leads this list of values because it is fundamental to our 146-year reputation as a company that can be trusted by employees, customers, suppliers, shareholders and the communities in which we operate. Integrity is fundamental to our philosophy of corporate governance. We operate in accordance with the law and the highest standards of ethical conduct and do what is right for our stakeholders, for the environment and for society.

Read more about our company's approach to governance, ethics and risk management in our 2016 Annual Report and **on our website** [📄](#).

Customer Satisfaction

Ensuring customer satisfaction and loyalty continues to be a priority at Ingersoll Rand. We are committed to better understanding customer perspectives and refining our offerings to meet and exceed their expectations for reliability, energy efficiency and sustainability. We track customer satisfaction by collecting monthly and quarterly customer feedback sales, delivery, product and service/support experiences. We leverage Customer Relationship Management (CRM) systems to drive common processes, connect deep insight on customers and competitors and drive strategic growth programs that aim to deliver a superior customer experience and financial returns to Ingersoll Rand.

We measure satisfaction through the Customer Satisfaction Index (CSI), a transaction measurement made up of a combination of Net Satisfied, Net Committed and Net Promoter monthly. For our distribution channels, we use a relationship measurement of Net Satisfied and Net Delighted quarterly. We measure specific attributes of the customer experience to understand where we have high and low levels of satisfaction. These attributes include:

1. Sales experience
2. Product experience

3. Delivery experience
4. Service and support experience

We use a consistent global measurement process to capture the voice of the customer and CSI scores of each strategic business unit (SBU). The data is updated and reviewed with SBU leadership quarterly. All businesses communicate their customer satisfaction data to leadership and functional teams. These teams develop action plans to address items that require immediate corrective action or long-term, sustainable resolution. The data is also used to validate and inform the businesses' strategic improvement plans. Additionally, we have 2020 targets related to customer satisfaction that include goals to increase the reliability, durability, health and safety of our products.

We monitor and analyze any score fluctuations by each business regularly, and Michael W. Lamach, chairman and CEO, selects one SBU to share its results with Ingersoll Rand leaders each quarter.

We do not report our CSI scores publicly; however, we have seen an incremental improvement in all business since 2012.

Regulations and Policy

Energy efficiency remains integral to our global portfolio innovation efforts. To deliver growth with a focus on innovation, in 2013, we expanded our efforts to understand and capture the full spectrum of our product and service impacts by incorporating life cycle assessments (LCAs), customer opportunity assessments, resource consumption and sustainability risk analysis (including emerging regulations) into the Ingersoll Rand Product Development Process (IRPDP).

We are engaged with policymakers to bring solutions to topics that are material to our business, with two areas where the company is most active including energy efficiency and refrigerant policy. Ingersoll Rand supports cost-effective policies that facilitate market transition to more energy-efficient technologies. We support strong energy efficiency requirements for new and existing construction

and are working with governments in the United States, Canada, Mexico, the European Union, China and India to facilitate adoption and enforcement of such programs.

We actively participate in international forums, such as the United Nations Framework Convention on Climate Change and the Montreal Protocol, to help create an organized approach to global refrigerant transitions. We are also working proactively with government agencies and refrigerant suppliers to help identify alternatives and facilitate a practical transition that reduces greenhouse gas (GHG) emissions as early as possible.

PUBLIC POLICY

Ingersoll Rand engages in public policy both directly and through associations to understand and help shape future regulations. When appropriate, technical policy experts engage directly with regulators and other key stakeholders both in advance of and during the rulemaking process. We periodically review our approach to issues with the impacted business or function and leadership; during this review, we discuss strategies and make adjustments. Success is achieved when organizational alignment is maintained during the issue management process, when individuals and leaders feel prepared for interaction with policymakers, and when the businesses and functions are prepared to comply with regulations once final. Grievances are dealt with throughout the periodic review process.

We engage with government agencies and refrigerant suppliers in shaping a global transition to next-generation refrigerants with low-GWP. In accordance with our global Climate Commitment, we are working proactively with suppliers to identify and develop a viable, long-term low-GWP

alternative to R410A, which is the most prevalent hydrofluorocarbon (HFC) used in heating, ventilation and air conditioning (HVAC) today. This alternative is crucial to the success of the Kigali Agreement to the Montreal Protocol, which seeks to phase down HFCs by 85% by 2046.

Our key objective is to offer Ingersoll Rand customers the widest possible range of options. We continue to evaluate the available alternatives for global markets to ensure we have a strong service organization and supply chain in place to support their transition to low-GWP alternatives.

Political Activity and Contributions

The laws of many countries prohibit or strictly limit contributions by corporations to political parties and candidates. Although our employees may engage in personal political activity, they are prohibited from doing so on behalf of Ingersoll Rand or in their capacity as a company employee. In the United States, Ingersoll Rand manages a nonpartisan Political Action Committee (PAC), which is compliant with all applicable laws and is regulated by the Federal Election Commission (FEC). Under the FEC, all funds received by the PAC, and resulting contributions to federal candidates, are publicly disclosed. For a list of federal contributions, see [here](#). Although Ingersoll Rand employees may make personal contributions to political parties and candidates, they are not permitted to receive any type of reimbursement from the company.

INGERSOLL RAND FEDERAL POLITICAL ACTION COMMITTEE TOTAL CONTRIBUTIONS (U.S. ONLY)

| 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---------|----------|---------|----------|----------|----------|
| \$2,000 | \$17,500 | \$7,500 | \$37,500 | \$11,000 | \$24,500 |

COMPLIANCE

Ingersoll Rand is committed to operating in a way that safeguards our people and protects the environment. We realize that environmental impact, climate change and the health and safety of our employees and communities are among our most important sustainability focus areas. Our ongoing commitment to safety and sustainability is embedded in our business practices and reflects our belief that our long-term success is measured not only by financial performance, but also by a continued focus on good corporate citizenship.

To achieve a zero injury and incident culture and to meet our environmental goals, we are committed to integrating sound environmental, health and safety (EHS) practices into our everyday activities with our stakeholders. From a regulatory authority compliance perspective, Ingersoll Rand:

- Complies with or exceeds requirements of global, national, state and local statutes, regulations and standards protecting the environment, human health and safety. In all cases, whether or not applicable laws and regulations exist, we will apply sound EHS management practices.
- Conducts regular internal and third-party audits to verify compliance with EHS regulatory requirements and company standards.
- Monitors emerging issues and keeps abreast of regulatory changes and technological innovations.

Ingersoll Rand provides refrigeration, cooling and air conditioning solutions for our customers globally. Therefore, we take responsibility for managing materials in a manner that protects our environment, employees, customers and communities. Some refrigerants used in Ingersoll Rand products are considered ozone-depleting or high-GWP substances. Although we have strict guidance around handling these materials, leaks and spills can result in emissions as well as other environmental and safety hazards.

EHS MANAGEMENT

Our **EHS policy** is publicly available and has been signed by Michael W. Lamach, chairman and CEO. Keith Sultana, senior vice president of Global Operations and Integrated Supply Chain, serves as the executive sponsor of EHS programs across all Ingersoll Rand operations. EHS committees meet regularly to create or modify standard work to enhance performance.


All of our manufacturing facilities and service organizations are implementing and maturing our EHS management systems. Employee engagement and EHS committees are critical to effective EHS programs and improvements. We directly involve employees in strategic planning, assessing performance status, and as a means to ensure continuous engagement on the part of leadership, subject matter experts and production associates. These committees generally meet at least monthly.

The EHS function uses a software solution, Gensuite™, to collect and track data and provide monthly reports on EHS progress to the executive leadership team. The insights in these reports lead to program improvements and initiatives to drive continuous improvement in our EHS performance.

We focus on performance monitoring and improvement in the following areas:


- Pollution prevention, environmental management and integrated permitting
- Air emission management
- Water supply management, including a unique water quality management system
- Hazardous substance management
- General safety and health management
- Personal protective equipment
- Wastewater discharge management
- Waste management
- Dangerous substances
- Physical hazards
- Mechanical hazards
- Fire protection

Our corporate EHS group regularly monitors facility-level performance in these areas against global EHS standards and applicable regulatory requirements. We use a combination of third-party consultants and EHS staff to arrange independent audits of each Ingersoll Rand site at least once every three years. We also conduct annual self-assessments, following a standard protocol to identify opportunities to improve EHS performance. All personnel directly related to global integrated supply chain (GISC) and services activities receive EHS training annually.

Our foundation for recording and reporting accidents is the U.S. Occupational Safety and Health Organization (OSHA) regulation 29CFR1904. This standard is applied to Ingersoll Rand sites globally. Additionally, sites will comply with local regulations when they are stricter than the U.S. OSHA standard. Our EHS data is assured annually by a third party and the results of our 2016 assurance can be found [here](#) .

Employees have a number of ways to be involved in health and safety programs. Global health issues are addressed through multiple mechanisms, including, among others, high-risk travel destinations, global crisis emergency planning, practices for emergency medical responders and company health programs. Additional awareness training is planned for service personnel who perform work in medical healthcare facilities.

During acquisitions, Ingersoll Rand executes a formal due diligence process that includes EHS considerations. Formal change management programs are implemented for new operations and/or the introduction of new or redesigned products. EHS risk assessments are implemented at multiple levels, including pre-task, pre-project, within change management and when evaluating overall enterprise risks. Ingersoll Rand does not subscribe to Article 15 of the Rio Principles and therefore currently does not address the precautionary approach and principle.

Ingersoll Rand received no significant fines for non-compliance in 2016. Additional information can be found [here](#) .

2016 Awards and Rankings

SUSTAINABILITY

- Dow Jones Sustainability Index: Named to the Dow Jones Sustainability World and North America Indices for the sixth consecutive year.
- CDP: Received an A- on the 2016 Global Climate Change Report from CDP.
- FTSE4Good Index Series: Added for the second year to the prestigious index for meeting stringent environmental, social and governance criteria.
- *Corporate Responsibility Magazine's* 100 Best Corporate Citizens: Ranked on the publication's 17th annual 100 Best Corporate Citizens list for the third consecutive year.
- *Green Builder Magazine* 2016 Eco-Leader: Named a 2016 Eco-Leader by proactively striving to make the world a better place to live through innovations in conservation, waste reduction and reduced carbon emissions.

SUPPLIER RELATIONSHIPS

- MBN USA Buyers of the Year
- WE 100 Top 100 Leaders in SD
- 2016 Champions of Supplier Diversity
- WE 100 Corporations of the Year
- NAVOBA 2016 Military Friendly Supplier Diversity Programs
- 2016 Corporate 101: America's Most Admired Corporations

TALENT/CULTURE

- Human Rights Campaign Foundation Corporate Equality Index: Earned a perfect score of 100% in workplace equality on its 2017 Corporate Equality Index (CEI).
- *FORTUNE* World's Most Admired: Recognized on the magazine's World's Most Admired list for the fourth consecutive year.
- 2016 Dream Company Award: Ingersoll Rand India was awarded top honors for "Talent Management and Strategy" and "Diversity Impact" at the 2016 Dream Company Awards.
- 2016 Best Brand Image of the Year: Ingersoll Rand China was honored for the second consecutive year with the Best Brand Image of the Year award. The honor was awarded based on a social survey, joint recommendations from media, consulting agencies and local and industrial associations, as well as evaluations of the company's publicly-released information.

- Social Responsibility Awards: Ingersoll Rand China was awarded the Corporate Charity Award, presented at the Fifth China Charity Festival, and Best Charity Program of the Year for the AIDS-affected Orphan Program.
- The Manufacturing Institute's Women in Manufacturing STEP Ahead Award: Marcy McClanahan, a plant manager with Ingersoll Rand, was named as one of 130 recipients of The Manufacturing Institute's 2016 Women in Manufacturing STEP (Science, Technology, Engineering and Production) Ahead Award, recognizing women who demonstrate excellence and leadership in their careers.

GOVERNANCE

- Climate Change Leadership: Recognized by the U.S. Environmental Protection Agency (EPA) and other prominent climate organizations for its exemplary leadership in addressing climate change and reducing greenhouse gas emissions.
- Top 100 Chinese ESCOs: Named as one of the 2016 Top 100 Chinese Energy-Efficient Service Companies (ESCO).
- Goal Setting: We publicly commit to significantly increase the energy efficiency and reduce environmental impacts from our operations and product portfolio by 2030, with key milestones set for 2020.

OPERATIONAL EFFICIENCY

- CDP's Annual Climate Change Report: Awarded leadership status with a final letter grade of A-.
- DOE Better Plants Challenge: Joined the challenge as a partner by making a commitment to reduce our energy intensity in our U.S. operations by 35% by 2019.

PRODUCT PERFORMANCE

Thermo King

- China Cold Chain Industry Golden Chain Award: Named as China's Excellent Service Provider of Cold Chain Transport Technology and Equipment for its industry-leading products and technologies, as well as research and development (R&D) and application of innovative intelligent technology for a third year in a row.

Trane Commercial

- *Buildings Magazine* 2016 Money-Saving Products: Trane Axiom™ Water-Source Heat Pump was selected as a 2016 Money-Saving Product winner.
- *Consulting-Specifying Engineer* 2016 Product of the Year: Trane Sintesis™ air-cooled chiller

and Trane Air-Fi™ Wireless earned the Product of the Year Award from *Consulting-Specifying Engineer Magazine*.

- *Environmental Leader* Award: Trane Sintesis™ air-cooled chiller and Trane Series E™ CenTraVac water-cooled chiller earned Product of the Year awards from *Environmental Leader* at the fifth annual *Environmental Leader* Conference.
- Superbrands: The Seal of Brand Excellence: For the fifth consecutive year, Trane Mexico was recognized by Superbrands as a top brand with achievements that surpass its competitors.

Trane Residential

- Lifestory Research America's Most Trusted HVAC Brand: Ranked as the most trusted HVAC brand in a survey tracking how trust impacts customer evaluations of HVAC brands.
- Award for Design and Excellence (ADEX) Platinum Awards: The Trane Comfortlink XL950 Smart Control and Trane S-Series Furnace earned Platinum ADEX awards, distinguishing them as superior products.
- *Green Builder* Reader's Choice Award: Trane named the Reader's Choice for offering the greenest heating, ventilation and air conditioning products.

American Standard

- Most Reliable Heat Pumps & Air Conditioners: American Standard heat pumps and air conditioners were rated as the most reliable brand among leading manufacturers.
- ADEX Awards: Best Products of the Year: The American Standard Gold 824 Smart Control and AccuComfort™ Platinum 18 Air Conditioner were recognized by *Design Journal* and Archinterious as some of the best products of the year.

Compression Technologies & Services

- Plant Engineering 2016 Product of the Year Bronze Award Recipient: The Ingersoll Rand Next Generation R-Series Compressor with VSD was honored with a Bronze Award in the Plant Engineering 2016 Products of the Year.

Club Car

- *EHS Today*: Club Car named as one of the safest companies for 2016.

Memberships and Partnerships

- Advanced Energy Economy
- Air-Conditioning, Heating and Refrigeration Institute (AHRI)
- Alliance for Responsible Atmospheric Policy (ARAP)
- Alliance to Save Energy (ASE)
- Amcham China
- American Council for an Energy Efficient Economy (ACEEE)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Association of Energy Engineers (AEE)
- British Compressed Air Society (BCAS)
- Business Council for Sustainable Energy (BCSE)
- Business Roundtable
- China Federation of Logistics and Purchasing (CFLP)
- China Industrial Gases Industry Association (CIGIA)
- China Refrigeration and Air-Conditioning Industry Association (CRAA)
- Compressed Air and Gas Institute (CAGI)
- Energy Storage Association
- EU Alliance to Save Energy
- European Partnership for Energy and the Environment (EPEE)
- Hydraulic Institute
- International Light Transportation Vehicle Association (ILTVA)
- Manufacturers Alliance for Productivity and Innovation (MAPI)
- Material Handling Institute (MHI)
- National Association of Energy Service Companies (NAESCO)
- National Association of Environmental Management (NAEM)
- National Association of Manufacturers (NAM)
- National Golf Course Owners Association (NGCOA)
- Residential Energy Services Network (RESNET)
- Shanghai Energy Conservation Center
- Sustainable Energy for All (SE4ALL)
- The Energy and Resources Institute (TERI)
- The Indoor Environment and Energy Efficiency Association (ACCA)
- U.S. Business Council for Sustainable Development (USBCSD)

- U.S. Green Building Council (USGBC)
- US China Business Council (USCBC)
- Verband deutscher Maschinen- und Anlagenbau (VDMA)
- World Environment Center

Charters

Ingersoll Rand aligns with several charters that cover sustainability topics.

WE MEAN BUSINESS

Commit to reduce short-lived climate pollutant emissions ▶

Companies agree to include measurement of hydrofluorocarbons (HFCs) in their greenhouse gas (GHG) accounting, reduce emissions of short-lived climate pollutants (SLCPs), engage stakeholders in supply chain to reduce SLCPs, promote best practices and showcase successful efforts.

Adopt a science-based emissions reduction target ▶

Companies agree to set a science-based target that is in line with the Science-Based Targets Initiative's call-to-action criteria. Ingersoll Rand's goal of reducing the GHG refrigerant footprint of our products by 2020 by 50% and reducing the GHG emissions from our operations by 35% by 2020 was verified as a Science-Based Goal in 2016 by the Science-Based Target Initiative.

WECONNECT INTERNATIONAL ▶

WEConnect International is a global network that connects women-owned businesses to qualified buyers around the world. Through our membership with WEConnect in 2016, we initiated tracking with Women Business Enterprises globally.

GLOBAL HUMAN RIGHTS POLICY ▶

Many of the standards set forth in our Human Rights Policy align with basic working conditions and human rights concepts advanced by international organizations such as the International Labor Organization and the United Nations (UN).

CLINTON GLOBAL INITIATIVE

COMMITMENT TO ACTION ▶

Reducing Our Climate Impact For a Sustainable Future: Through this commitment Ingersoll Rand is creating more sustainable product choices for customers, improving the company's operating footprint globally, contributing to the development of lower GHG technologies and bringing about the avoidance of over 20 million metric tons of CO₂ emissions globally by 2020.

U.S. DEPARTMENT OF ENERGY (DOE) BETTER

PLANTS CHALLENGE PARTNERS ▶

Having met our original goal set in 2009 as part of the DOE Save Energy Now Leaders program, Ingersoll Rand became a Better Plants Challenge Partner in 2016 with a commitment to reduce energy intensity by 35% by end of year 2019.

CLIMATE AND CLEAN AIR

COALITION HFC INITIATIVE ▶

Under the HFC Initiative, Coalition partners support the development of HFC inventories and studies, information exchange on policy and technical issues, demonstration projects to validate and promote climate-friendly alternatives, and technologies and various capacity-building activities to disseminate information on emerging technologies and practices to transition away from high-GWP HFCs and minimize HFC leakages.

CLEAN ENERGY MINISTERIAL (CEM)

ADVANCED COOLING (AC) CHALLENGE ▶

The AC Challenge was designed to urge governments, companies and other stakeholders to make, sell or install super-efficient air conditioner or cooling solutions that are smart, climate-friendly and affordable. It was created as a call to action, recognizing that access to cooling improves health, productivity, economic growth and education.

Sustainability at Ingersoll Rand

Sustainability Governance Structure

We approach sustainability by integrating it into the anatomy of how we operate and help our customers succeed.

Our commitment to sustainability comes from the top of our organization. Accountability for these best practices is in the hands of our Internal Sustainability Strategy Council, a group of company executives who provide guidance on key business, social and environmental issues. In addition, we draw upon the expertise of an External Sustainability Advisory Council comprised of global thought leaders in infrastructure, energy policy and technology.

On a daily basis, the Ingersoll Rand Center for Energy Efficiency & Sustainability (CEES), a team of company experts, integrates sustainability into the business. The CEES team facilitates the company's sustainability-related work with government and nongovernmental organizations (NGOs), universities, and technology and industry leaders. These collaborations enable us to implement sustainability best practices in areas such as product innovation, employee engagement, operations, supply chain and **advocacy** 📍.

Read about our **Materiality Assessment** 📍, **Stakeholder Engagement** 📍 and **Value Chain** 📍.

About Our Reporting

We align our reporting with the Global Reporting Initiative (GRI) Standards at a core level. Our Sustainability Supplement focuses on our top material issues, as established in the upper right-hand quadrant of our Materiality Assessment. For each material topic, our report features a topic page that outlines relevant data, our management

approach and case studies and initiatives that illustrate our work in 2016.

A NOTE ABOUT OUR DATA

Throughout the report, we define our organizational boundary using the financial control approach. In 2014, we completed a corporate-wide review of Scope 1 and 2 greenhouse gas (GHG) emissions for all owned and leased assets using the Greenhouse Gas Protocol accounting standards. We feel this more accurately reflects the direct impact of our operational footprint.

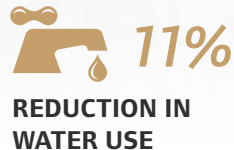
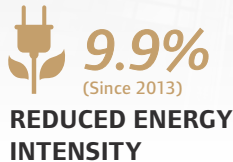
We report data from newly opened and acquired facilities as soon as valid data is available. For recently closed or sold facilities, the data is included for the time period it was part of the enterprise and to ensure year-over-year comparisons remain consistent. As such events occur, baselines are adjusted to account for these significant changes in our operations.

As our data collection system continues to mature and improve, the environmental data we report improves in accuracy and expands in breadth.

Data is presented in absolute and normalized terms. Normalizing environmental and energy data to total revenue provides us necessary insight into the level of eco-efficiency across our diversified operations and benchmarking against the performance of other industrial companies. Our safety data is normalized by the number of hours worked.

Our 2016 Data

Our Planet



Our People



EMPLOYEE GREEN TEAMS:



Our Products



Progress Toward 2020 Targets

| GOAL | TARGET | PROGRESS TOWARD TARGET |
|--|--|--|
| Governance: Enhance efforts to uphold our standards for ethical business conduct, transparency, compliance and oversight | | |
| Adhere to a Global Framework for Reporting our Sustainability Progress | Respond to the annual CDP request | <input checked="" type="checkbox"/> |
| Align with Global Human Rights Initiatives | Maintain and update a Global Human Rights Policy | <input checked="" type="checkbox"/> |
| Ensure Standard Guidelines for Responsible Business Behavior to Enhance the Reputation of our Company and Brands | Achieve training and certification on annual Code of Conduct by employees and business partners | <input checked="" type="checkbox"/> |
| | Issue robust communications to all employees to sustain ethical business culture | <input checked="" type="checkbox"/> |
| Maintain a Governance Structure that Enables the Delivery of our Long-Term Sustainability Plan | Board of Directors | <input checked="" type="checkbox"/> |
| | Enterprise Leadership Team | |
| | External Sustainability Advisory Council Internal Sustainability Council CEES | |
| Suppliers: Collaborate with suppliers to cultivate a sustainable and innovative supply chain to meet customer needs | | |
| Ensure Alignment of Business Partners to a Common Set of Ethical Beliefs and Expectations | 100% of new suppliers have agreed to our Business Partner Code of Conduct (BPCoC) | BPCoC progress: 93% (goal for 2016 was 85% of controllable spend) |
| | 60% of our direct spend will be Preferred | Preferred progress: 32% |
| Leverage Ingersoll Rand Product Development Process (IRPDP) to Use Preferred Suppliers | 80% of Early Sourcing Work Plan (ESWP) completed in Phase 1 of IRPDP | On track |
| Maximize Marketplace Connectivity by Fostering Supplier Diversity | Extend supplier diversity program to spend with diverse companies globally | On track – WEConnect membership in 2016 and initiated tracking with Women Business Enterprises Globally |
| Partner with Suppliers to Minimize the Environmental Impact of our Supply Chain | All businesses will have a packaging improvement plan | Packaging improvement plans added at our Monterrey, Clarksville, Pueblo sites, with implementation of returnable packaging saving \$704,000 annually |
| | Establish baseline of suppliers who have participated in waste, energy and water reduction programs by 2016 and track improvement through 2020 | On track – Non-haz waste progress: 21.5% intensity reduction. Haz waste progress: 28% intensity reduction. |
| | Establish baseline of suppliers in water stress areas with a water conservation program by 2016 and track improvement through 2020 | On track |
| | Reduce emissions due to freight: goal is 5% | On track |
| Minimize Impacts of our Customers by Ensuring a Viable Supply Chain | Designate 90% of direct material spend assessed on a quarterly basis for risk | 77% |

| GOAL | TARGET | PROGRESS TOWARD TARGET |
|---|---|--|
| Operational Footprint: Optimize the use of natural resources in our operations to reduce environmental impact | | |
| Optimize Energy Use | Increase energy efficiency in owned facilities by 10% | 10% increase in efficiency |
| | Increase fuel efficiency in owned fleet | 1600 metric tons of CO ₂ e saved |
| | Evaluate all long-term leases >100K sq. ft. against environmental and energy criteria | Developed guidebook with environmental criteria and certifications |
| Reduce our Scope 1 and 2 Greenhouse Gas (GHG) Emissions | Reduce scope 1 and 2 emissions by 35% | 28.6% decrease in emissions intensity |
| Improve Waste Management in our Operations | Reduce non-hazardous waste to landfill by 30% | 14% reduction |
| | Reduce hazardous waste by 20% | 21% reduction |
| Improve Water Management in our Operations | Reduce water used at sites located in water-stressed areas by 25% | 30.4% reduction |
| Customer Outcomes: Innovate to deliver optimal economic and performance value over product lifecycle | | |
| Design Products for World-Class Resource Efficiency During Use of Product | Establish portfolios that meet world-class environmental criteria (energy consumption, emissions from the use of the product) | EcoWise™ portfolio |
| Reduce Direct GHG Emissions | Reduce the GHG refrigerant footprint of our products by 50% | 34% to goal |
| Increase Reliability and Durability | Improve quality and time to solution | On track |
| Reduce Environmental Impact at End of Products' Useful Life | Perform a life cycle assessment (LCA) on 100% of new products | In process – 14% of new products had an LCA |
| | 100% of New Product Development (NPD) projects in IRPDP have end-of-use manual created | In process – We have seven end-of-use manuals |
| Improve Health and Safety | Improve service ability through IRPDP | Standard work developed |
| Our People: Build a Winning Culture that is values-based, inclusive and engages and develops people for premier performance | | |
| Attract and Retain Top-Quality, Diverse Talent and Leadership | Create slates with diverse candidates | In process |
| | Retain 95% of key talent | On track |
| Develop People and Processes to Build Strategic Capabilities | 95% of employees have development plans in place | On track |
| | Improve Leadership Effectiveness Index by 80% | On track |
| | Achieve a Growth and Development Index score of 75% for strategic capability development | On track |
| Foster an Inclusive, Engaging Workplace that Connects Employees to Company Purpose | Achieve employee engagement rate of 80% | On track |
| | 75% of employees participate in community or sustainability initiatives | In process |
| Provide a Safe and Secure Workplace that Supports Employee Well-Being and Productivity | Provide accessibility to wellness programs to ¾ of employee base | On track |
| | Achieve world-class performance in lost time incident rate, 60% reduction from 2013 base | On track |

| GOAL | TARGET | PROGRESS TOWARD TARGET |
|--|--|--|
| Corporate Citizenship: Address social and environmental imperatives that create shared value, result in sustained customer and employee loyalty, and improve the communities where we have business operations | | |
| Expand Competency in Energy and Other Resource Efficiency | Share energy conservation knowledge with 200 officials in developing regions | On track – Ingersoll Rand is leading the conversation |
| | Launch signature program to increase female representation in manufacturing positions and advance technical workforce development programs at 100 community colleges and technology institutes worldwide | On track – achieving through participation in vocational technical programs and Tools for Schools |
| Expand Competency in Science, Technology, Engineering and Math | Launch signature program to increase female representation in manufacturing positions and advance technical workforce development programs at 100 community colleges and technology institutes worldwide | Same target as above |
| | Sponsor 20,000 females in STEM-related activities to increase career interest | On track – achieving through support of mobile science labs in India |
| Address Nutrition and Food Waste Reduction | Provide food and nutrition education to 200,000 children | On track – achieving through support of Feeding Children Everywhere, American Heart Association and Second Harvest |
| Support Housing and Shelter Needs | Volunteer 40,000 hours related to housing and shelter | In process – leveraging Green Teams and our global day of service in conjunction with Habitat for Humanity |

2020 GOALS AND STRATEGIC DEVELOPMENT GOALS
**EMBEDDING SUSTAINABILITY
ACROSS THE ENTERPRISE**



GOVERNANCE

Enhance efforts to uphold our standards for ethical business conduct, transparency, compliance, and oversight

| | | |
|---|---|---|
|  Adhere to a Global Framework for Reporting our Sustainability Progress |  Ensure Standard Guidelines for Responsible Behavior to Enhance the Reputation of our Company and Brands |  Maintain a Governance Structure that Enables the Delivery of our Long Term Sustainability Plan |
| RESPOND to the annual CDP request | ACHIEVE training and certification of annual Code of Conduct and Ethics by employees and business partners | <div style="text-align: center;"> <p>Board of Directors</p> <p>Enterprise Leadership Team</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;">External Sustainability Advisory Council</div> <div style="border: 1px solid black; padding: 5px;">Internal Sustainability Council</div> <div style="border: 1px solid black; padding: 5px;">CEES</div> </div> </div> |
|  Align with Global Human Rights Initiatives MAINTAIN AND UPDATE a Global Human Rights Policy | ISSUE robust communications to all employees to sustain ethical business culture | |

SUPPLIERS

Collaborate with suppliers to cultivate a sustainable and innovative supply chain to meet customer needs

| | | |
|--|--|--|
| <p>Ensure Alignment of Business Partners to a Common Set of Ethical Beliefs and Expectations</p> <p>100% of new suppliers have agreed to our Business Partner Code of Conduct</p> <p>60% of our direct spend will be Preferred</p> <p>80% of Early Sourcing Work Plan (ESWP) completed in Phase 1 of IRPDP</p> <p>Leverage IRPDP to Use Preferred Suppliers</p> | <p>Maximize Marketplace Connectivity by Fostering Supplier Diversity</p> <p>EXTEND supplier diversity program to spend with diverse companies globally</p> <p>Minimize Impacts of our Customers by Ensuring a Viable Supply Chain</p> <p>DESIGNATE 90% of direct material spend assessed on a quarterly basis for risk</p> | <p>Partner with Suppliers to Minimize the Environmental Impact of our Supply Chain</p> <p>ALL BUSINESSES will have a packaging improvement plan</p> <p>baseline of suppliers who have participated in waste, energy, water reduction programs by 2016 and track improvement through 2020</p> <p>baseline of suppliers in water stress areas with a water conservation program by 2016 and track improvement through 2020</p> <p>emissions due to freight</p> |
|--|--|--|

OPERATIONAL FOOTPRINT

Optimize the use of natural resources in our operations to reduce environmental impact

| | | |
|---|--|--|
| <p>Optimize Energy Use</p> <p>INCREASE energy efficiency in owned facilities by 10%</p> <p>INCREASE fuel efficiency in owned fleet</p> <p>EVALUATE all long term leases > 100k sq. ft. against environmental and energy criteria</p> | <p>Reduce our Scope 1 and 2 Greenhouse Gas Emissions</p> <p>REDUCE scope 1 and 2 emissions by 35%</p> <p>Improve Water Management in our Operations</p> <p>REDUCE water used at sites located in water stressed areas by 25%</p> | <p>Improve Waste Management in our Operations</p> <p>REDUCE non-hazardous waste to landfill by 30%</p> <p>REDUCE hazardous waste by 20%</p> |
|---|--|--|

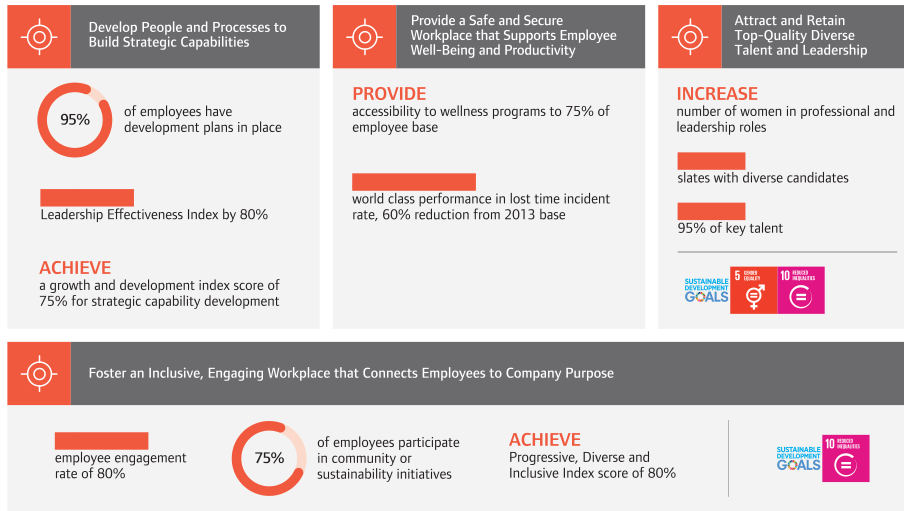
CUSTOMER OUTCOMES

Innovate to deliver optimal economic and performance value over product lifecycle

| | | |
|--|---|--|
| <p>Design Products for World Class Resource Efficiency During Use of Product</p> <p>ESTABLISH portfolios that meet world class environmental criteria (energy consumption, emissions from the use of the product)</p> <p>IMPROVE quality and time to solution</p> | <p>Reduce Direct GHG Emissions</p> <p>REDUCE the GHG refrigerant footprint of our products by 50%</p> <p>IMPROVE service-ability through IRPDP</p> | <p>Reduce Environmental Impact at End of Products' Useful Life</p> <p>PERFORM an LCA on 100% of new products</p> <p>100% of NPD projects in IRPDP have end of life manual created</p> |
|--|---|--|

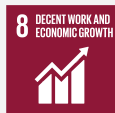
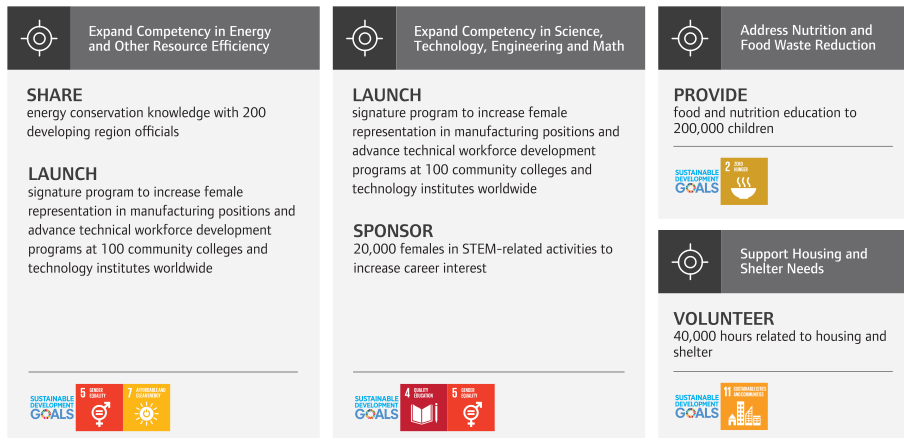
OUR PEOPLE

Build a Winning Culture that is values-based, inclusive and engages and develops people for premier performance



CORPORATE CITIZENSHIP

Address social and environmental imperatives that: create shared value, result in sustained customer and employee loyalty, improve the communities where we have business operations



Environmental Sustainability: *Our Planet*

Our commitment to sustainability extends to the environmental impacts of our people, operations, and products and services. As a global enterprise leading the way to a more sustainable future, Ingersoll Rand is focused on heating, cooling and automating homes and buildings; enhancing industrial productivity; keeping transported food and perishables safe and fresh; and delivering efficient and reliable smart transportation solutions. From the efficiency of our buildings to our progress in managing energy, water and waste, we continue to find ways to reduce the company's impact on the environment and embed sustainability throughout our businesses.

Climate Change

Global action to address climate change remains a critical priority for companies across the world. According to the **Environmental Protection Agency (U.S. EPA)**, one quarter of global greenhouse gas (GHG) emissions come from electricity and heat production. As a global provider of products that heat, cool and automate homes and buildings, our industry has an important role to play in helping to mitigate global climate change.

That is why, in 2014, we issued our global Climate Commitment.

OUR CLIMATE COMMITMENT

Increase energy efficiency and reduce the company's climate impact with operational and product-related climate targets:

1. **50%** reduction in the GHG refrigerant footprint of our products for our customers by 2020 and lower-global warming potential (GWP) alternatives across our portfolio by 2030
2. **\$500 million** investment in product-related research and development over the next five years to fund the long-term reduction of GHG emissions
3. **35%** reduction in the GHG footprint of the company's office buildings, manufacturing facilities and fleet by 2020



In 2016, the EPA honored Ingersoll Rand with the Organizational Leadership Award. The award recognizes organizations that not only have their own comprehensive GHG inventories and aggressive emissions reduction goals, but also exemplify extraordinary leadership in their internal response to climate change and engagement of customers, peers, partners and supply chain. Scott Tew, Executive Director of the Center for Energy Efficiency and Sustainability (CEES), accepted the award on the company's behalf (photo).

Read more about our efforts to reduce GHG emissions and refrigerants related to our business operations and products under **Greenhouse Gas Emissions and Refrigerants** and **Product Environmental Impact**.

Greenhouse Gas Emissions and Refrigerants

Our company is committed to managing our greenhouse gas (GHG) emissions. Over the past three years, we have reduced the GHG emissions associated with our operations by 168,312 metric tons of CO₂e, or 21.9%, while total energy intensity has declined 10%.

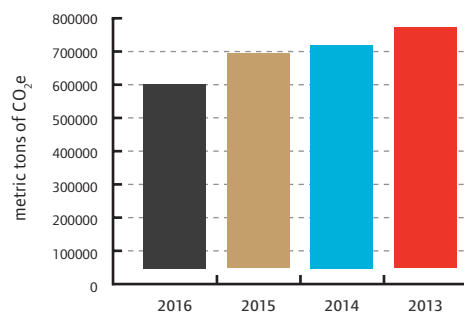
| REGIONAL GHG BREAKDOWN | 2016 | 2015 | 2014 | 2013 |
|--|---------|---------|---------|---------|
| Scope 1 (metric tons CO₂e) | | | | |
| NAR | 318,863 | 375,035 | 366,125 | 411,683 |
| LAT | 7,120 | 8,151 | 8,917 | 9,415 |
| EMEA | 45,764 | 41,404 | 35,219 | 40,500 |
| AP | 13,625 | 22,576 | 58,668 | 48,782 |
| Scope 2 (metric tons CO₂e) | | | | |
| NAR | 173,375 | 195,791 | 199,682 | 208,215 |
| LAT | 8,799 | 9,395 | 10,024 | 11,426 |
| EMEA | 9,965 | 13,149 | 10,940 | 12,298 |
| AP | 24,027 | 27,373 | 29,330 | 28,070 |

| GHG EMISSIONS (metric tons CO ₂ e) | 2016 | 2015 | 2014 | 2013 |
|--|--|---------|---------|---------|
| Direct CO ₂ e (GHG Scope 1) | 385,379 | 447,163 | 468,926 | 510,380 |
| Breakdown of Scope 1 Emissions | Emissions from fuel | 122,948 | 127,229 | 126,092 |
| | Emissions from refrigerants | 259,385 | 316,685 | 339,742 |
| Indirect CO ₂ e (GHG Scope 2) (Emissions from electricity) | 216,696 | 245,710 | 249,977 | 260,007 |
| Total (Scope 1 and 2 Emissions) | 602,075 | 692,873 | 718,903 | 770,387 |
| Normalized GHG Emissions (metric tons CO ₂ e/million USD) | 44.57 | 52.09 | 55.77 | 62.38 |
| Reduction of GHG emissions | 168,312 metric tons CO ₂ e | | | |

Outlined in our Climate Commitment, we have a goal to reduce Scope 1 and 2 emissions (on a per-unit revenue basis) by 35% by 2020, from 2013 levels. This goal was approved by the **Science-Based Targets Initiative** as a science-based target and will result in 300,000 metric tons of avoided CO₂e.

Approximately 36% of the Scope 1 and 2 GHG emissions from our operations are from the use of electricity. Read about our efforts to reduce our energy use through energy efficiency and renewable energy in the **Energy section**.

GHG Emissions Breakdown (Scopes 1 & 2)



| VOLATILE ORGANIC COMPOUND (VOC) AIR EMISSIONS | 2016 | 2015 | 2014 | 2013 |
|---|------|------|------|------|
| Direct VOC emissions in metric tons | 248 | 271 | 257 | 289 |

| REFRIGERANTS DATA | 2016 | 2015 | 2014 | 2013 |
|---|---------|---------|---------|---------|
| Refrigerant Emissions (Refrigerant losses in pounds of refrigerant) | 350,060 | 403,049 | 410,285 | 474,545 |
| Normalized pounds to million USD | 25.91 | 30.30 | 31.83 | 38.42 |

PRODUCT EMISSIONS

Refrigerants are essential to many of our products and they account for 43% of our Scope 1 and 2 emissions. There is a growing awareness and concern regarding global warming potential (GWP) of such materials.

National, regional and international regulations and policies are being considered to curtail the use of refrigerants with high-GWP. We are planning for and managing transitions to sustainable solutions.

In 2014, through our global **Climate Commitment**, we set a goal to reduce the GHG refrigerant footprint of Ingersoll Rand products by 50% by 2020 and to incorporate refrigerant alternatives with lower GWP across the company's product portfolio by 2030. We are on track to achieve these goals and have avoided approximately 6.7 million metric tons of CO₂e globally, equal to the CO₂ emissions from the energy used in 700,000 homes during one year. By 2030, we aim to reduce our products' carbon footprint by 50 million metric tons, which is equal to the CO₂ emissions from approximately 5.6 billion gallons of gasoline consumed.

Our recent work on low-GWP refrigerant technology development demonstrates how Ingersoll Rand translates its public stance into practical innovation. For example, instead of waiting for the world's regulatory authorities to mandate the use of next-generation refrigerants, we are working with our suppliers to develop global solutions that are

energy-efficient and leverage current designs to help facilitate a smooth transition.

We also committed to investing \$500 million in product-related research and development from 2015 to 2020 to fund the long-term reduction of GHG emissions.

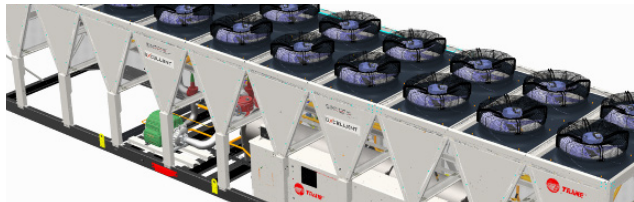
FUEL-RELATED EMISSIONS

In 2016, Ingersoll Rand Fleet continued to make strides to the 35% reduction by 2020 goal. We undertook several initiatives that will save \$700,000 and 1,600 metric tons CO₂e over the vehicle life for our fleet.

- We continued to minimize large displacement vehicles, only strategically deploying 8-cylinder engines where more effective.
- We made a major investment in hybrid vehicles. After a successful push in 2015, this year we officially switched to the hybrid as our standard vehicle. In situations where hybrids are not feasible, we are piloting vehicles with higher miles-per-gallon performance. These hybrids have a higher upfront cost after cost but significantly increase fuel economy.
- Another area where we invested in 2016 was in engines enabled with turbo boosters. The turbo boosters allow our fleet to go on roads with smaller displacement engines while maintaining the capability that our field partners require.

KEY INITIATIVES

Ingersoll Rand uses refrigerants in our manufacturing processes. In 2015, we formed a Refrigerant Management Technical Team to work across the organization to establish best operating practices and equipment specifications to reduce the potential for refrigerant leaks during refrigerant storage, use and recovery. Ingersoll Rand has begun using an optical gas imaging camera for the detection of refrigerant leaks at our manufacturing sites. This technology allows proactive identification and correction of leaks, thereby reducing cost of goods sold and avoiding losses of global warming-related materials. Ingersoll Rand has further implemented a monthly reconciliation process to assess refrigerant losses at the manufacturing sites.



MANAGEMENT APPROACH

Our Climate Commitment outlines goals that drive GHG emissions reductions in our operations and products. See our **Progress Toward 2020 Targets section**. The Commitment is signed by Ingersoll Rand chairman and CEO Michael W. Lamach. He announced the Commitment at the United Nations Climate Summit in 2014. A third party assures GHG emissions data from our operations every year. In early 2017, we performed an internal audit of the product GHG collection process to ensure the integrity of our data.



EcoWise™ Portfolio

In support of our Climate Commitment, in 2015, we launched the Ingersoll Rand EcoWise portfolio of products, specifically branded for next-generation, low-GWP refrigerants without sacrificing energy efficiency and safety.

In 2016, we added four new products to the EcoWise portfolio: Thermo King truck and trailer refrigerant units; Trane Sintesis™ eXcellent, an air-cooled chiller; Trane CenTraVac™ centrifugal chillers; and the Trane Series R™ RTWD, a water-cooled chiller. We continue to innovate the Trane chiller and Thermo King refrigeration portfolios, and we are committed to offering customers the most energy and operationally efficient system choices.

Environmental Leader Awards

In June 2016, Ingersoll Rand accepted three Product and Project of the Year awards from Environmental Leader. Given to products or projects with exemplary environmental sustainability attributes, we received awards for our Thermo King truck and trailer refrigeration units in Europe using R452A refrigerant, Trane Sintesis™ Air-Cooled chiller and Trane Series E™ CenTraVac Water-Cooled chiller. These products carry our EcoWise endorsement, meaning they are designed to lower environmental impact with next-generation, low-global warming potential refrigerants and high efficiency operation.

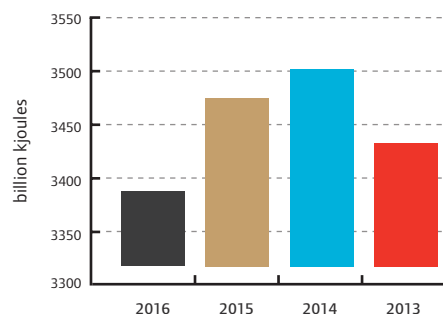
Judges applauded these products for their sustainable refrigerant features, ability to be used in existing equipment and innovative design.

Energy

Managing energy is important to our bottom line and the environment. Our plants require energy to manufacture products – approximately 400,000 megawatt hours (MWh) globally in 2016. Over the past three years, our total energy intensity has declined by 10%.

We have a goal to increase energy efficiency in facilities by 10% by 2020, from a 2013 baseline. Since 2013, we have achieved a 10% increase in energy efficiency in facilities. We will strive to exceed this through 2020.

Absolute Energy Use



| ABSOLUTE ENERGY USE | 2016 | 2015 | 2014 | 2013 | UNITS |
|------------------------|--------------|--------------|--------------|--------------|------------------------|
| Direct (Fuel use) | 2,062 | 2,132 | 2,125 | 2,069 | billion kJ |
| Indirect (Electricity) | 1,497 | 1,524 | 1,570 | 1,546 | billion kJ |
| Total | 3,560 | 3,656 | 3,695 | 3,614 | billion kJ |
| Normalized Energy Use | 0.264 | 0.275 | 0.287 | 0.293 | billion kJ/million USD |
| Natural Gas | 841 | 907 | 962 | 905 | billion kJ |
| Gasoline | 917 | 910 | 866 | 853 | billion kJ |
| Diesel | 232 | 227 | 213 | 249 | billion kJ |
| Propane | 62 | 71 | 76 | 62 | billion kJ |
| Aviation Fuel | 11 | 16 | 7 | 0 | billion kJ |
| Total | 2,062 | 2,132 | 2,125 | 2,069 | billion kJ |

ENERGY EFFICIENCY

Energy efficiency has been the cornerstone of our efforts to reduce our emissions. We will continue to maximize the energy efficiency of our operations because we believe that reducing energy consumption is foundational to reducing greenhouse gas (GHG) emissions.

RENEWABLE ENERGY

Replacing electricity generated from fossil fuels with that produced from renewable resources is key to addressing climate change, as well as creating long-term value for our employees and our customers. We are currently evaluating onsite renewable energy for all of our manufacturing sites globally, and have several projects in the pipeline that would cover approximately 20% of our manufacturing footprint. Where onsite renewables do not appear feasible, we are considering several financing models.

MANAGEMENT APPROACH

Our energy reduction goal guides our progress in managing our energy use. See our **Progress Toward 2020 Targets** section [▶](#).

In addition, we've implemented several tools that help us better measure and manage our energy use. These include the following:

- We implemented a company-wide Standard Work Management System within the Ingersoll Rand Business Operating System that drives effective and sustainable environmental, health and safety (EHS) practices and procedures.
- Our operating procedures require that an EHS Committee must be formed at all manufacturing and service locations and must include a sufficient number of management and hourly employees. The following items must be reviewed during each EHS Committee meeting: Performance against Enterprise, Strategic Business Unit (SBU), and/or local targets, objectives, and goals.
- We use EHS software solution Gensuite™ to manage EHS performance data, sustainability metrics and work tasks. The Gensuite™ library of tools presents a proven system with functionally-integrated and intuitive applications that realize EHS performance excellence and continuous innovation. Approximately 4,000 Ingersoll Rand team members are registered Gensuite™ users. Ingersoll Rand has realized systematic data quality improvements and increased the efficiency of delivery of our EHS compliance and risk management practices through use of Gensuite™.

Our Approach to Renewable Energy

Our approach for the near term is to invest in renewable energy where it makes sense, with the intention of replacing a significant portion of our fossil fuel-generated electricity consumption with renewable energy.

The bulk of this renewable energy mix will likely come from power purchase agreements (PPA), either on-site or virtually within a single region. We believe that large-scale investments in renewables, such as through a virtual PPA, are vital to shifting to a clean energy economy. Our intent is to be a significant investor in that effort.

For some of our sites, direct investment in renewable energy through an engineering, procurement and construction (EPC) contract may make the most sense. In some areas of the world, we are experiencing uncertainty in electricity prices and availability. By investing in on-site renewable energy, we will ensure greater continuity of our operations.

We aim to reduce our GHG emissions through the use of bundled renewable energy credits, meaning we will procure the physical electricity along with its environmental attribute.

Sustainability in Action: Monterrey Manufacturing Facility

Aligned with the Ingersoll Rand Climate Commitment, the company's Monterrey, Mexico, manufacturing facility underwent an energy optimization process that resulted in a 26% decrease in energy consumption over a three-year period. By using methods such as solar cells in parking lot lights, installing efficient LED lighting, improving air gauges and leveraging light sensors so that lights were never left on, the facility reduced energy consumption from more than 250,000 MMBtu's in 2013 to under 210,000 in 2016. To further this effort, the Monterrey facility continues to monitor energy use in real-time and promote energy efficiency throughout its facility.

KEY INITIATIVES

Energy Efficiency Projects

Through initiatives such as optimization of our heating, ventilation and air conditioning (HVAC) systems, Green Team programs, efforts to eliminate

leakage in our compressed air systems and re-lamping in many of our U.S. facilities, we are on track to meet our energy efficiency goal. We have reduced our energy intensity by 10% over the past three years. We are also a Department of Energy Better Plants Challenge Partner.



Mocksville Plant's Model Approach to Sustainability

During its sixth decade of operation, Ingersoll Rand's Mocksville, North Carolina, manufacturing facility experienced a renaissance of efficiency. In 2016, the site produced energy savings equal to the amount of energy used by 170 houses in one year.

Under local leadership, employees found creative ways to pinpoint areas for efficiency

and sustainability improvements, such as making sure the lights are shut off after every shift and re-fitting the facility with an energy-efficient lighting system, the latter of which saves the facility 300,000 kilowatt-hours annually.

Additionally, with its use of the Trane Tracer building automation system, the location saw a 6% reduction in energy consumption across HVAC use in recent months.

Materials

Since we manufacture many of the components included in our products, we employ a wide variety of renewable and non-renewable materials, including steel, copper and aluminum. We buy 85% of materials used in U.S. manufacturing from U.S. suppliers. We work closely with our suppliers to ensure they match our commitment to corporate social responsibility. We work with them to reduce packaging, shipping costs and related emissions.

Read more about **Supplier Transparency and Performance** [▶](#).

For more information about our materials management strategy, please refer to our **Form 10-K** [▶](#).

MATERIALS DATA

Savings in emissions from returnable packaging projects (annually) of more than 1,000 tons of CO₂e; reduction in solid waste from returnable packaging projects (annually) of more than 1,000 tons.

Approximately 14% by revenue of our total volume of products and materials was taken back in 2016 and reused or recycled by Ingersoll Rand.

MANAGEMENT APPROACH

Product Take-Back and Recyclability

The Ingersoll Rand Product Development Process (IRPDP) stipulates that we design with end-of-use considerations, including disassembly, repair and reusability of product components. IRPDP also encourages the use of recycled content in new product design. For several of our products, we have also developed specific end-of-use manuals. To date, we have created seven end-of-use manuals. Our goal is to create an end-of-use manual for 100% of New Product Development (NPD) projects by 2020. See our **Progress Toward 2020 Targets section** ●.

As part of the IRPDP, our Product Footprint Study tool — a streamlined life cycle assessment (LCA) — addresses material use and allows for a comparison between design scenarios. When we design a product, we account for all aspects of the product, including manufacturing, the use phase and end-of-use. By incorporating the life cycle considerations during the design phase, we identify and implement other environmental impact reductions that include packaging, recycling, manufacturing improvements, etc.

Packaging

As part of its environmental policy, Ingersoll Rand is committed to eliminating packaging waste. This includes considerations such as transport, recycling of packaging material and waste disposal concerns.

Our packaging engineers develop innovative solutions for packaging finished goods and parts. In addition, our global logistics team looks for ways to implement returnable packaging on inbound goods where feasible in our supply chain. A significant portion of the non-hazardous waste generated in our manufacturing facilities is from inbound packaging. We publish packaging guidelines for our business partners on our **website** ●.

According to the guidelines, packaging methods that include elements that have to be disposed of through a landfill are not acceptable for deliveries to Ingersoll Rand facilities or associated third-party warehouses. Preferred packaging systems

are returnable, reusable and recyclable. Not all manufacturing plants are currently using returnable packaging; however, efforts are being made to increase the presence of returnable packaging throughout Ingersoll Rand facilities.

KEY INITIATIVES

Eliminating Waste through Returnable Packaging

One of the most overlooked sources of waste in the supply chain is packaging waste. Recognizing that one-way packaging supply chains result in an unacceptable amount of waste, Ingersoll Rand initiated a Returnable Packaging program. Supported by the Global Logistics Returnable Packaging Engineers, the effort is currently underway at ten North American manufacturing sites. The program, aimed at reducing the more than 2,500 pounds of solid waste produced from packaging each year, has saved the company more than \$6 million. Currently, the Thermo King, Trane Commercial and Compression Technologies and Services (CTS) strategic business units are part of this initiative.

Material Take-Back Programs

Remanufactured equipment from Ingersoll Rand makes it easy to meet our goals by providing higher-efficiency products, reducing our environmental footprint and promoting the strength and ingenuity of our people. Ingersoll Rand's CTS business continues to expand remanufacturing capabilities in new regions to increase remanufacturing reach. In 2016, Ingersoll Rand's Material Handling business began offering a new trade-in incentive program.

Multiple businesses within Ingersoll Rand have a take-back program.

- Within Club Car, the dealer network and various end-of-use vehicle managers facilitate the take-back from the customer, returning the vehicle to Club Car for remanufacturing, which gives the vehicles a second life.

- The frame/chassis of Club Car products is made from aluminum, which is easily recycled. Recyclable plastics are used in Club Car cosmetic body panels. Club Car has an active recycling program with our lead acid battery supplier for any “bad” batteries generated on site. Lead acid batteries are recycled by dealers when replaced.
 - In our CTS business, air compressors are often kept by the customer until the end of the product’s life; therefore, remanufacturing is an important aspect of our sustainability philosophy that allows us to meet customer needs while acting as a good steward of the planet.
 - Our Trane Compressor Remanufacturing Operations in Charlotte, North Carolina, recovered 24% of components for remanufacturing. Recovered parts that meet specifications are reused in the remanufacturing process. Parts that do not meet our specifications are sent to a metal recycler to be put back into the raw material stream.
 - Residential HVAC units are recycled with 80% of the product being recycled by weight.
- We have increased our overall percentage of total revenues represented by products that are disassembled, remanufactured, reused or recycled.



The Manufacturing Institute Honors Marcy McClanahan

In 2014, the Ingersoll Rand Foundation made a commitment to help build The Manufacturing Institute’s leadership program, which shapes the development and pipeline of women leaders in the industry.

Marcy McClanahan, plant manager and site leader at the Trane Aftermarket Facility in Charlotte, North Carolina, was recognized among 130 women at the 2016 Science, Technology, Engineering & Production (STEP) Ahead Awards, sponsored by The Manufacturing Institute. Marcy embodies Ingersoll Rand’s culture of continuous improvement that drives growth, creates value, fosters employee engagement and enhances quality to make the customer experience better.

Improving Shipping Packaging

As part of our continuing efforts to reduce packaging, we are exploring returnable shipping containers. The shipping route from Mocksville, North Carolina, to Monterrey, Mexico, is one example of this effort. Returnable containers will eliminate reverse logistic costs, increase truck density on shipments from Mocksville and improve ergonomics. With the returnable containers, there is a 25% increase in trailer density of outbound shipments.

Energy Efficiency of Our Products

Nearly half of all global energy consumption takes place in commercial, industrial and residential buildings, with heating, ventilation and air conditioning (HVAC) and lighting systems representing the greatest opportunity for improvement. Industrial processes also consume significant amounts of energy around the world. More than 90% of our product portfolio directly addresses demands for greater energy efficiency with lower greenhouse gas (GHG) emissions in buildings, homes, industrial spaces and transport markets

around the world. We are committed to addressing the environmental impact of our products to help our customers operate more sustainably.

The core of our growth strategy is to invest in opportunities related to energy efficiency and environmental sustainability in buildings, industrial processes and transportation around the world. We are considered industry leaders in developing and commercializing next-generation, energy-efficient technologies that incorporate refrigerants with lower-global warming potential (GWP).

“Energy efficiency requires action now and can be the most effective way of reducing greenhouse gas emissions. We are leading our industry toward a more sustainable world and are signaling to our customers, employees and shareholders that our future products will match our legacy of efficient, reliable and sustainable solutions. When we create more sustainable choices, improve our operating footprint globally and continue to develop lower greenhouse gas emission options, our customers — and the climate — benefit.”

— Michael W. Lamach, Ingersoll Rand CEO

PRODUCT ENERGY EFFICIENCY DATA

Products in our EcoWise™ portfolio must be at least 5% more efficient than the minimum standard, where standards apply.

MANAGEMENT APPROACH

Paul Camuti, Senior Vice President and Chief Technology Officer, oversees Product Stewardship. His oversight includes engineering, innovation, product development and growth strategy. All Ingersoll Rand businesses use the Ingersoll Rand New Product Development (IRPDP) process.

Our EcoWise portfolio of products is designed to lower environmental impact with next-generation, low-GWP refrigerants and high efficiency operation. We have a 2020 goal to generate 5% of revenue from products that meet world class environmental criteria (water, electricity, fuel consumption from the use of the product). See our **Progress Toward 2020 Targets** section [▶](#).

Ingersoll Rand also relies on the Energy Star program to guide energy efficiency requirements of our products.

“The Energy Star program doesn’t just help our Trane brand differentiate between its energy-efficient consumer HVAC products, but it also helps our customers in understanding and marketing the energy performance of their building,” said W. Scott Tew, Executive Director, Ingersoll Rand Center for Energy Efficiency and Sustainability. “Energy Star is a proven, credible and 100% voluntary program that will grow in consumer confidence if it remains managed by EPA.”

KEY INITIATIVES

Several tools help us track and manage the energy efficiency of our products. Recently, we created a Product GHG Calculator in partnership with a third party to track our product-related emissions, including emissions generated from electricity. Through the web-based calculator, we are able to simplify data collection, distribute the responsibility of data collection, analyze data and report results in a consistent and credible manner.

Connected Products

Connected buildings, industrial facilities, homes and vehicles are providing our customers with more information, accessibility and productivity, and we realized increased growth in 2016 stemming from smart, wireless and digitally connected solutions. Each of our businesses is executing a digital strategy. For example, our Energy Services and Controls business uses a growing set of digital platforms in actively servicing 6,500 connected buildings worldwide, and the QX series from our Power Tools business features wireless communications between the tool and the assembly line, creating a plant-wide network to give operators total control of the line.

Ingersoll Rand Raises Standards for Innovation, Energy-Saving in Electronics Industry

In April, Ingersoll Rand participated in the fourth China Information Technology EXPO (CITE) and the 86th China Electronics Fair, showcasing Nirvana90, an oil-free rotary air compressor, and IR Box, a new air system controller providing 24/7 mobile access.

For the electronics industry, high-quality compressed air is critical to manufacturing processes such as thin film transistor (TFI) and liquid crystal display (LCD) panel purging, chip packaging and manufacturing of semiconductors. Improving energy efficiency of air compressors can greatly impact production costs, as a 1% improvement in efficiency of the air compressor system can save more than 1 million yuan per year in electricity charges.



Next Generation R-Series Reduces Customers' Energy Costs

Our Compression Technologies and Services (CTS) business expanded its groundbreaking line of Next Generation R-Series contact-cooled rotary screw air compressors. Launched in 2016, our new RS30n and RS37n models boost air flow output for our customers by up to 15% and reduce their energy costs by up to 35%, while improving system reliability.

“Plant managers and facility owners are under extraordinary pressure to reduce costs, while improving productivity and energy efficiency,” said Eric Seidel, Vice President of Product Management for CTS. “We introduced our 30-37 kilowatt models late in 2015, raising the bar on performance. Now, by adding variable speed models, we are meeting market needs for plants that have fluctuating air demands.”

Product Life Cycle Approach (LCA) and End-of-Use Considerations

Many of our products are built to operate for 15 to 20 years. Consequently, designing them to meet current and future regulations adds value for our customers today while helping them prepare for the

more stringent regulatory environments to come. We have a goal to perform a life cycle assessment (LCA) on 100% of new products by 2020. In addition, we have a goal to create an end-of-use manual for 100% of New Product Development (NPD) projects.

| PRODUCT LIFE CYCLE/PRODUCT END-OF USE DATA | |
|--|----------------------------------|
| % of new products receiving LCA by EOY 2016 | 14% |
| % of NPD projects in IRPDP that have end-of-use manual by EOY 2016 | We have seven end-of-use manuals |

MANAGEMENT APPROACH

The Ingersoll Rand Product Development Process (IRPDP) applies standard work to the product development life cycle to ensure we are meeting customer needs, assessing risk, embedding sustainability and developing intellectual property — and ultimately meeting our objectives. IRPDP

has generated or improved more than 60 product development projects during this period, more than doubling our product development improvement metrics.

IRPDP consists of several modules that can be applied at various stages of product development.

The Project Engineering Team at Unicov

The Next Generation R-Series compressors were only recently introduced, yet the cross-functional team based at the Compression Technologies and Services plant in Unicov, Czech Republic, already completed the engineering build of the fifth release of the next-generation contract-cooled compressors. The main objective of this effort is to increase the efficiency of Ingersoll Rand compressors to meet European regulations in 2018 while improving reliability and overall performance.

The new compressors are 90kW to 160kW in single- and double-stage, fixed- and variable-speed configurations. Once testing is completed, the compressors will head to the assembly lines for production — a first in Europe.

Trane Continues to Innovate Chiller Portfolio

In 2016, Trane announced its Series R® RTWD water-cooled chiller for commercial and industrial buildings. Joining the Ingersoll Rand EcoWise™ portfolio of products, the Series R RTWD chiller offers an infinite unloading compressor design, wide operating temperature range, heat-recovery options up to 140 degrees Fahrenheit and advanced controls and high efficiencies.

Trane continues to innovate its chiller portfolio by offering customers the most energy and operationally efficient choices for their buildings. Meeting the recent customer demand for climate-friendly systems, the Series R RTWD is reliable, safe and efficient while offering customers the added benefit of sustainability now and in the future.

One of the modules is focused on Design for Sustainability and consists of tools and standard work focused on environmental impact. Phase 2 of IRPDP includes specific deliverables where the product team identifies risks related to environmental, health and safety (EHS) and/or sustainability in compliance with related codes that affect the product.

Both our Extensive (full) LCAs and our Streamlined LCAs cover our product impacts from cradle to grave, including impacts from all stages — raw material, manufacturing, use phase and end-of-use.

We have 2020 goals that address LCA and end-of-use. Please see our **Progress Toward 2020 Targets section**.

Water

Ingersoll Rand considers water quality for both intake and discharge an important issue at all of our sites. We track our water use at the facility level on a monthly basis through our Gensuite™ environment management system. The system’s Water Watch module also tracks compliance with environmental permits related to our water discharge limits and reporting requirements.

We take aggressive action when approaching a discharge limit to adjust systems to avoid an exceedence. We set an internal limit to be below 50% of our permit level at all of our facilities globally. Our process discharge waters are first internally treated and then discharged with the same or higher quality as the withdrawn water.

We reduced our water use by approximately 11% in 2016 from 2015.

KEY INITIATIVES Analyzing Water Stressed Regions

Periodically we conduct a risk assessment using the World Resources Institute (WRI) Aqueduct™ tool and designate sites that score medium-high or high for water stress. We consider physical risk quality and quantity, as well as regulatory and reputational risk. In 2016, 10 sites globally were considered to be in areas of medium-high to high water stress. For these sites, we have a 2020 target in place to reduce water consumption by 25%. These 10 sites combined account for 7% of the company’s total water use. On average, these sites reduced their water consumption in 2016 by more than twice as much as the company overall.

| WATER DATA | 2016 | 2015 | 2014 | 2013 |
|---|------|------|------|------|
| Water use (million cubic meters) | 3.30 | 4.20 | 4.04 | 3.71 |
| Normalized water use (cubic meters/million USD) | 244 | 316 | 313 | 300 |
| Wastewater permit exceedences | 4 | 8 | 16 | 14 |

Rain Water Harvesting, Waste Reduction in Sahibabad

Many regions in India are classified as water stressed. Given this situation, the Ingersoll Rand plant in Sahibabad, India, worked to reduce its water consumption by 43% and

treated effluent by 20%, resulting in a savings of 400,000 rupees per year in treatment costs and a 30% reduction of hazardous waste. The plant also implemented rain water harvesting to recharge the groundwater, improving levels by 3,000 kL per year.

Waste

We continue our journey toward zero waste to landfill for our non-hazardous waste materials. For 2016, we reduced our non-hazardous waste to landfill by 8.9% compared to 2015. We continue to explore and implement returnable packaging

opportunities, source reduction projects and waste segregation that aid in recycling opportunities. Our 2016 recycling rate increased by 7.7% compared to 2015. For every pound of non-hazardous waste sent to the landfill, we recycled 4.5 pounds.

| WASTE DATA | 2016 | 2015 | 2014 | 2013 |
|---|--------|--------|--------|--------|
| Total hazardous waste generated (metric tons) | 1,171 | 1,231 | 1,461 | 1,488 |
| Normalized (metric tons / million USD) | 0.09 | 0.09 | 0.11 | 0.12 |
| Total non-hazardous waste generated (metric tons) | 34,626 | 32,987 | 34,316 | 34,609 |
| Normalized (metric tons / million USD) | 2.56 | 2.48 | 2.66 | 2.80 |
| Non-hazardous waste to landfill (metric tons) | 5,943 | 6,527 | 7,215 | 6,921 |
| Normalized (metric tons / million USD) | 0.44 | 0.49 | 0.56 | 0.56 |
| Non-hazardous waste recycled (metric tons) | 26,809 | 24,956 | 25,795 | 23,689 |
| Normalized (metric tons / million USD) | 1.98 | 1.88 | 2.00 | 1.92 |



Zero Waste to Landfill

Landfills have the potential to cause a number of issues, including pollution, the spread of disease and wildlife disruption. Because of this, in 2016, the Douai, France facility for Ingersoll Rand's Material Handling business launched its "Zero Waste to Landfill" project with the aim to reduce its environmental impact by improving waste management through the company's global Green Team program. The team successfully eliminated its waste to landfill through negotiating a specific contract with a key supplier of waste management services. The project further established Ingersoll Rand's dedication to creating to a sustainable world and was well-received in the local community.

Thermo King's Galway Facility Sets the Standard for Sustainability

Taking the philosophy that everything in Galway is recyclable, Thermo King's facility in Galway, Ireland, decided to initiate its "Zero to Landfill" project, which aimed to reuse as much material as possible to eliminate the waste sent to landfills. The company took measures such as installing a rainwater harvesting facility, reusing electrical wiring, delivering engines on reusable steel pallets instead of wooden crates and encouraging employees to bike to work. This facility celebrated four years with zero waste to landfill and is setting the standard for sustainability.



Social Sustainability: *Our People*

Ingersoll Rand defines social sustainability as caring about and investing in the needs of our associates and communities over the long term. We partner with our stakeholders in pursuit of positive societal change, ensuring all parties operate with integrity and an ethical mindset. In doing so, we share responsibilities for delivering results the right way. We strive to engage our employees, produce a better experience for our customers, innovate with our suppliers and collaborate with local nonprofits and educational institutions to improve the quality of life in the communities where we do business.

Occupational Health and Safety

Creating and sustaining a safety-focused, zero-incident culture is a top priority for everyone at Ingersoll Rand. This commitment starts with our CEO and permeates the entire organization.

Ingersoll Rand manufactures a variety of products, offers service and installation at customer locations, and may be called upon 24/7 and 365 days a year.

To ensure our injury prevention efforts are truly top tier, we completed a benchmarking activity in 2016 that examined injury rates from multiple instances of several employment sectors, including diversified manufacturing, financial, mining, construction and education. Our analysis determined injury rates needed to be less than 0.6 for Total Recordable Incident Rate (TRIR) and 0.06 for Lost Time Incident Rate (LTIR) (per 200,000 total work hours) to be considered world-class in injury prevention. In 2016, we continued to reduce our incident rates and are approaching world-class injury prevention performance.

KEY INITIATIVES

In 2016, our injury prevention efforts were heavily focused on:

- Maturing our Behavior-based Safety (BBS) program.
- Expanding our ergonomics program and aggressively reducing risk factors at targeted workstations.

OCCUPATIONAL HEALTH AND SAFETY DATA

In 2016, we achieved a 3% reduction in TRIR, and LTIR remained unchanged.

The company experienced zero work-related fatalities in 2016.

The company's employees, including supervised contract employees, worked a total of 90,411,774 hours in 2016.

Everyone at Ingersoll Rand is responsible for their own safety, and implementation of the BBS program is taking us to the next level of performance. Our BBS program is building a better culture of ownership where employees feel responsibility for their coworkers' safety as much as their own. The BBS program establishes a worldwide structure to promote open discussions with management regarding work-related hazards and safety issues. In responding to this year's employee engagement survey, 93% of employees stated they believe Ingersoll Rand is committed to employee safety.

We communicate our safety expectations through quarterly CEO town hall meetings, as well as monthly environmental, health and safety (EHS) meetings at both the facility and service organization levels. These meetings raise awareness of safety compliance issues and provide our employees with opportunities to share best practices.

Tradeport Achieves Three Years without a Lost-Time Incident

Ingersoll Rand's Tradeport Distribution Center in Memphis, TN., rolled out Behavior-based Safety training in 2013 to teach employees how to stop unsafe behaviors and communicate with each other about working safely. Demonstrating they take safety to heart and are actively participating in Tradeport's safety culture, the employees' efforts led to a significant safety milestone: three years without a lost-time incident. Continually looking to improve, a new training department was created to implement a more formal program with a focus on health and safety.

Club Car Named One of America's Safest Companies

EHS Today, a leading publication for EHS management professionals, honored Club Car as one of America's Safest Companies for 2016. This recognition highlights Club Car's commitment to safety and the dedication of front-line supervisors and employees to consistently prioritize safety.

To qualify for the award, Club Car documented its industry leadership in safety categories, such as management commitment, employee involvement, innovative solutions, comprehensive training, emphasis on prevention and lower injury rates than the industry average. In addition, the business reported zero lost-time injuries, a 57% decrease in recordable injuries from 2013-2015, world class safety engagement scores and more than four million hours worked without a lost-time incident.

Supplier Diversity

Ingersoll Rand is committed to a diverse and innovative supply base. Supplier diversity is integral to our global supply chain strategy, not only because it is consistent with our values, but because it enhances competitiveness and capacity building, drives market connectivity, and creates jobs and economic growth in the marketplace.

The supplier diversity program, launched in 2012, embraces suppliers whose ownership is primarily minority, woman, veteran, LGBT, or people with disabilities.

We focus on three pillars:

- 1) increased utilization of diverse suppliers;
- 2) supplier development and mentoring; and
- 3) strategic outreach.

We use a seven-step strategic sourcing process that includes a Supplier Decision Matrix, which enables us to avoid using price as the primary driver for supplier selection. Instead, we consider a range of factors as agreed upon by a cross-functional team, such as supplier diversity, quality and risk.

SUPPLIER DIVERSITY DATA

We purchased \$370 million in goods and services from diverse-owned businesses in 2016, a 9.5% increase from 2015.

Since the inception of the program, we have purchased more than \$1.2 billion in goods and services from diverse-owned businesses in the United States.

“Supplier diversity is integral to our global supply chain strategy, not only because it is consistent with our values, but also because it enhances competitiveness and capacity building, drives market connectivity and creates jobs and economic growth in the marketplace,” said John Evans, Vice President, Global Procurement.

Supporting Women Business Enterprises

In 2016, Ingersoll Rand joined other organizations to make a commitment through WEConnect International to expand inclusive sourcing by collectively spending \$15 billion with women-owned businesses globally over the next five years. This demonstrates Ingersoll Rand’s commitment to developing progressive, diverse and inclusive supplier relationships.

Minority Business Enterprise Center of Excellence

In 2015 the Ingersoll Rand Foundation awarded a \$50,000 grant to the National Minority Supplier Development Council and the TriState Minority Supplier Development Council to fund a Minority Business Enterprise (MBE) Center of Excellence (COE). The COE was officially launched in 2016 and includes 10 corporations and 22 MBEs in Tennessee, Kentucky and West Virginia. Over the course of 18 months, the corporations will benchmark and share Supplier Diversity best practices and will provide group and one-on-one mentoring to the 22 MBEs. The goal of the program is to create stronger corporate Supplier Diversity programs with greater capacity and competitiveness.

Employee and Community Engagement

Our social sustainability vision extends to involvement with the communities in which Ingersoll Rand associates live and work. Across the globe, Ingersoll Rand associates support our local communities on a personal level. Ingersoll Rand assists its employees in contributing both time and financial support to local nonprofit groups and community organizations.

Prominent among our community initiatives is the Ingersoll Rand Glocal (global + local) program. The Center for Energy Efficiency and Sustainability (CEES) launched Glocal in 2014 to encourage our employees to partner with local nonprofits and community organizations as a way to advance Ingersoll Rand’s social sustainability efforts, nurture authentic engagement and improve local enterprise relations. Employee-led volunteer Green Teams take part in community projects that seek to help the environment, increase capacity and enhance quality of life.

EMPLOYEE AND COMMUNITY ENGAGEMENT DATA

We saw a 30% increase in the number of our people who volunteered to make a difference in their local communities in 2016. Employees volunteered more than 19,000 hours of their time.

The Ingersoll Rand Foundation donated more than \$5.4 million in philanthropic gifts to community partners.

KEY INITIATIVES

Wujiang Glocal Green Team Kicks Off 2016 Tree Planting Activity

Employee Green Teams from across the company are making a positive impact in their communities. A key CEES program, the Glocal program, is an extension of our Global Green Teams initiative. The program aims to build social sustainability programs with lasting impact in the communities where we operate

and live. A pilot Glocal program in Wujiang, China, hosted a successful tree planting activity in their community in 2014 and repeated the event with greater participation in 2015.

On March 12, 2016, the Wujiang Glocal Green Team launched the third tree planting activity together with the local company, Haichen Logistics Group and Futong Precision Machinery Co. Ltd. The event attracted more than 200 volunteers. This year's activity invited volunteers' families for participation. All the family members worked hand-in-hand to dig holes, plant seedlings and deliver on their commitments to environmental protection. A total of 150 trees were planted and lined up on the Wujiang plant property. The program aims to plant 2,500 trees over 10 years to protect green environment in both Wujiang and the China society. So far, a total of 300 trees have been planted.

Ingersoll Rand India Launches Mobile Science Lab

Ingersoll Rand extended its partnership with the Agastya International Foundation by launching its seventh Mobile Science Lab in India – with the latest location in Sahibabad. The lab will benefit disadvantaged government school children in remote areas and train teachers from government schools.

Each of the seven Mobile Science Labs travels to remote schools and is equipped with more than 100 hands-on science models covering a wide range of topics in physics, chemistry, biology and math for classes five through 10. The labs will also conduct science fairs and summer camps where young instructors will be identified and trained to demonstrate science concepts to their peers through peer-to-peer learning.

Business Sustainability: Our Products

Products account for a significant portion of our social impact. We review our efforts to improve the environmental impact from our products in our **Energy Efficiency of Products** and **Product Life Cycle Approach (LCA) & End-of-Use Considerations** sections. In this section, we review how we contribute solutions to pressing social challenges by working with our supply chain through innovation and product deployment.

Supply Chain Transparency and Performance

Ingersoll Rand has a combined annual spend of \$8.5 billion for direct and indirect commodities. Our global procurement team sources these commodities from a large, multi-tiered supply base. Using our Preferred Supplier Program and Supplier Council, we promote business with those strategic suppliers who best align with our expectations on quality, service and value.

We operate with a “make where we sell” philosophy. For example, 95% of Ingersoll Rand products sold in the U.S. are manufactured in the U.S. This philosophy allows us to deliver products to market more quickly, implement local preferences, reduce freight costs and improve our quality and reliability by being close to our supplier partners.

MANAGEMENT APPROACH

The ability to establish mutually beneficial supplier relationships is a key success factor in our business. We aim to engage local supply in all regions on a global basis as much as possible, provided they

meet our cost and quality expectations. We have systematic processes in place to govern these relationships, ensuring our suppliers share our values and adhere to our standards of business ethics, health and safety, and environmental and social responsibility.

As part of our enterprise risk management processes, we assess the sustainability and business continuity risks associated with our supply chain. The Ingersoll Rand Business Partner Code of Conduct, which includes our Global Human Rights Policy, is now integral to our standard purchase agreement and communicates the social, environmental, quality and compliance-related expectations that we have of our supply chain partners.

Our Business Partner Code of Conduct requires that suppliers not violate basic human rights of life, liberty and security. No harsh or inhumane treatment, including any sexual harassment, sexual abuse, corporal punishment, mental or physical coercion or verbal abuse of workers will be tolerated. Suppliers must have an effective environmental policy and

MATERIALITY TRACEABILITY AND SOURCING

SUPPLIER ENVIRONMENTAL ASSESSMENT

New suppliers that were screened using environmental criteria

93% of controllable spend suppliers have agreed to our Business Partner Code of Conduct

SUPPLIER SOCIAL ASSESSMENT

New suppliers that were screened using social criteria

93% of controllable spend suppliers have agreed to our Business Partner Code of Conduct

conduct their operations in a way that protects the environment. Suppliers must also obtain and keep current all required environmental permits and meet all applicable environmental rules, regulations and laws in the countries where they do business. Our Business Partner Code of Conduct can be found [here](#) and [here](#).

Our target is that 100% of all new suppliers will have agreed to our Business Partner Code of Conduct by 2020; at the end of 2016, 93% of controllable spend suppliers have agreed.

We also have a 2020 target that 90% of our direct material spend will be assessed on a quarterly basis for risk. At the end of 2016, 78% of our direct material spend was assessed on a quarterly basis for risk.

Understanding how our suppliers are performing, both environmentally and socially, enables us to manage risk and collaborate with those that are best in class.

For more information about risk factors associated with our supply chain, please refer to our **Form 10-K**.

New Suppliers

In implementing our supplier selection process, we use a Quality Supplier Onsite Assessment to screen 100% of our new direct material suppliers based on social and environmental criteria. For example, the assessment asks if suppliers have a program for tracking and managing water use and hazardous waste, and if they are located in high-risk water areas. The assessment also screens for human rights and labor practices criteria by asking, for example, if the supplier hires and pays all employees at or above local law requirements and if they refrain from using prison or forced labor.

KEY INITIATIVES

Preferred Supplier Initiative

The Ingersoll Rand Preferred Supplier Program is a key initiative to identify and engage world-class suppliers. The program highlights those suppliers that best align with our high expectations on customer and business standards for quality, service, value and risk.

Preferred Suppliers will be the first choice for early engagement on new product development and strategic sourcing programs and will have priority opportunity to extend their product and service offerings to all Ingersoll Rand locations. At the end of 2016, 30% of direct spend was with Preferred Suppliers.

In 2016, we sent a sustainability survey to our top 100 suppliers in spend as well as suppliers attending our annual supplier conference and several diverse suppliers. We had a 54% response rate and the majority of suppliers that responded are tracking hazardous waste, water and energy usage, have a corporate responsibility program and have packaging reduction programs. We also had 87% who were willing to collaborate with Ingersoll Rand on sustainability initiatives.

Ingersoll Rand Hosts Global Supplier Conference

100 of the company's top suppliers came together for the Ingersoll Rand Global Supplier Conference, which concluded with a meeting of our newly established Global Supplier Council. "Gathering our top suppliers was a great way to demonstrate we're seeking partners who, like Ingersoll Rand, aim to invest in innovation and delight the customer while advancing the goal of global sustainability," said John Evans, Vice President, Global Procurement.

Conflict Minerals Statement

Ingersoll-Rand plc has conducted a reasonable country of origin inquiry (“RCOI”) regarding the minerals specified by Rule 13p-1 of the Securities Exchange Act of 1934, as amended (the “conflict minerals”) necessary to the functionality or production of products manufactured by the company for the fiscal year ended December 31, 2015. The company

exercised due diligence on the source and chain of custody of its conflict minerals using the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (the “OECD Framework”).

For more information about our approach to conflict minerals, please [click here](#).

Technology and Innovation

At Ingersoll Rand, we create new technology with an eye toward the world that our customers will inhabit in the future. We believe that innovation — finding new ways to meet the market’s future needs for reliable, energy-efficient solutions — is critical to driving our organic revenue growth.

In 2016, we spent \$207.9 million on research and development. We launched 80 new products and services, spanning nearly every business and region. Our average innovation revenue from 2014-2016 was 22%.

Looking ahead to the next three to five years, we expect that several trends will have an especially powerful impact on our customers and our business. Chief among them are climate change, urbanization and industrialization, demographic shifts and demands for enhanced energy productivity.

Read more about our innovation process in the [letter](#) from our Senior Vice President of Innovation and Chief Technology Officer, Paul Camuti.

INNOVATION FOR DEVELOPING MARKETS

One of our core strategies is to increase our exposure to emerging markets. Overall, emerging market revenues make up 21% of the company’s revenue for 2016. Our emerging market strategy has been particularly successful in China, Brazil, Mexico and India. In these four countries, we have established large local teams with full capabilities, manufacturing

facilities and strong localized channel partners.

The Ingersoll Rand heating, ventilation and air conditioning (HVAC) business in China is participating in the “Coal to Electricity” program initiated by China’s government. The program is intended to significantly lower coal consumption for winter heating in North China, prevent air pollution and reduce PM2.5 emission to improve the air quality in China over the long term. Our market and engineering teams and sales channels are collaborating to develop a new product with vapor injection and variable speed technology to deliver heating capability that meets the needs of low temperature environments.

We continue to aggressively increase our participation in early-stage markets for Ingersoll Rand products. We use a three-step process to prioritize our investments in emerging markets.

- First, we consider the macroeconomic and geopolitical conditions of an emerging market at the country level.
- Where these factors are acceptable, we next perform an analytical assessment of the current attractiveness of our business, considering competitors, customers and channels.
- Finally, we consider how the attractiveness of this business will likely evolve over time.

The Ingersoll Rand fluids business used this process to identify and prioritize its expansion efforts in markets where we had inadequate coverage. Based on analytics performed in 2014, the business



Thermo King Unveils Intelligent Solutions for the Future of Refrigerated Transport

Thermo King introduced a series of truck and trailer solutions including the new SLXi single- and multi-temperature trailer refrigeration platform designed to answer today's demands for fuel efficiency, intelligence, connectivity and sustainability. The new SLXi range is loaded with features that allow transport companies to substantially reduce the environmental footprint. Annual CO₂ emissions have been cut by 2.4 tons and NOx exhaust emissions reduced by 15% compared to its predecessor. R-452A refrigerant lowers the GWP approximately by half compared to the incumbent R-404A. Fuel consumption has been lowered 10% to 20%, compared with its predecessor.

determined to focus on four new markets, which included three emerging markets: Mexico, Brazil and United Arab Emirates. We have embarked on hiring and training local sales and application resources to improve business and channel development in each of these countries and achieve aggressive revenue growth targets.

In parallel with these market expansion initiatives, we are developing innovative technologies and products targeted for the unique requirements of developing markets. A key focus is atmospheric water generation to address the global problem of water scarcity.

Water scarcity affects agriculture, food processing, industrial production and basic sanitation. The United Nations Food and Agriculture Organization

(FAO) estimates that about 1.2 billion people live in water scarce regions today, and this figure will increase to 1.8 billion by 2025. Many methods are being used to address water scarcity. Condensate water from air is one of the methods being explored and useful where pure drinking water is difficult or impossible to obtain due to significant contamination of ground water.

Atmospheric water generation (AWG) is the extraction of water vapor from the atmosphere by cooling the air below its dew point, thereby producing potable water. The atmospheric air is a promising alternative, sustainable and ubiquitous water source. AWG not only reduces dependence on rain water, ground water or natural water bodies for water supply, but the water produced is purer than groundwater or supply drawn from natural water bodies. In addition, AWG can eliminate complex water distribution systems because it is deployed at point of use.

Energy efficiency forms the backbone of AWG, and more innovations are expected in this domain. Our role as a leading HVAC solutions provider, together with our commitment to global sustainability, strongly position Ingersoll Rand to lead the way in AWG technology research. Our engineering and innovation teams are currently investigating the commercial feasibility of a number of AWG solutions.

MANAGEMENT APPROACH

We have a 2020 goal to share energy conservation knowledge with 200 officials in developing regions. See our Progress Toward 2020 Targets section.

We operate four engineering and technology centers globally, including facilities in Bangalore and Chennai in India, Prague in the Czech Republic and Shanghai in China.

Ingersoll Rand uses frequent exchange programs with global engineering leaders. In addition, we make temporary and permanent assignments of engineers from emerging markets into developed markets. Engineers are sent to the U.S. and Europe locations on short-term assignments to

get hands-on experience on new technologies and collaborate on projects with their extended business engineering teams. We also form global distributed team structures for all new developed market product engineers to grow skills in emerging market R&D teams.

Product Reliability

The safety and reliability of our products is imperative to our success. That's why we thoroughly incorporate these considerations in all phases of our product development process — from research through manufacturing to installment and service.

It is our standard practice to comply with regulations and various voluntary codes concerning product labeling and service information, marketing communication and customer safety. Each business

unit has a designated legal counsel who follows a process for addressing issues of non-compliance in these areas. Due to market differences, tracking of non-compliance related incidents in the areas of product labeling, marketing communication and customer safety is the responsibility of each business. As such, we do not collect this data or make general statements on this topic at the enterprise level.

MANAGEMENT APPROACH

Customer health and safety is integrated into our Ingersoll Rand Product Development Process (IRPDP). Phase 2 of our new process includes specific deliverables where the product team identifies risks related to environmental, health and safety (EHS) and/or sustainability in compliance with related codes that affect the product. A service-ability review is conducted at multiple gates and is



Thermo King Launches New Refrigeration Unit in Brazil, Central and South America

To help trucking companies and fleet owners with temperature control and fuel efficiency, Thermo King launched a refrigeration unit in Brazil and Central and South America. The innovative, low-maintenance SLXe400 uses temperature control technology to ensure cargo integrity and simplified controls to make operation easy. It runs with Thermo King's **GreenTech engine** for low emissions and uses the R-404A refrigerant with zero potential damage to the environment. With the unit, Latin American customers can increase energy efficiency and sustainability while lowering upfront and operating costs. Since the launch of the SLXe400, Thermo King has seen market share recovery in Brazil, with additional success reported across Argentina, Peru, Uruguay, Ecuador and Columbia.

Club Car, Power Tools Partner for Manufacturing Support, Design Feedback

To best support their respective Strategic Business Units (SBUs), Club Car and Power Tools formed a symbiotic relationship where Club Car's manufacturing site in Augusta, GA., uses the latest equipment and product support from Power Tools. In return, Power Tools receives helpful design feedback from Club Car, as well as the ability to trial new and pre-production products. The cross-SBU team of engineers, product managers, operations supervisors and technical support staff host biweekly meetings to ensure regular communication. During these meetings, Club Car shares feedback on product design and performance, enabling Power Tools to better understand users' needs and help bring better tools to market.

part of the independent design review.

Paul Camuti, senior vice president and CTO, oversees Product Stewardship via his oversight of engineering, innovation, product development and growth strategy.

We have two 2020 targets related to customer health and safety. See our **Progress Toward 2020 Targets section** [🔗](#).

KEY INITIATIVES

We measure the health and safety of our products through service-ability, reliability and durability. These metrics evaluate the initial customer quality and the time it takes to resolve a design issue from the time it is first identified. We also measure the percentage of New Product Development (NPD) projects in IRPDP that have service-ability review. We are seeing a decrease every year in the time it takes to achieve a solution for a reported issue.

Social Impact of Our Products

Ingersoll Rand creates comfortable, sustainable and efficient environments that advance the quality of life across the globe. We know our products can help promote nexus solutions — products that promote climate change mitigation through energy efficiency. Read more about our efforts in the **Energy Efficiency of our Products section** [🔗](#).

As a global provider, we also recognize an opportunity to innovate solutions for those living at the base of the pyramid — that is, those living on less than \$2.50 (USD) per day. We have activities in process to develop solutions that are affordable for this segment of society.

MANAGEMENT APPROACH

Nexus Opportunities

More than 90% of our product portfolio directly addresses demands for greater energy efficiency with lower greenhouse gas emissions in buildings, homes, industrial spaces and transport markets around the world. Across all of our brands and businesses, our growth and operational excellence strategies are focused on opportunities to simultaneously address the world's growing demand for products that consume less energy while also accelerating the global transition to a less carbon-intensive way of life.

Our Climate Commitment outlines our approach to capturing this opportunity. Read more on our **Climate Change** [🔗](#) page.

Base of the Pyramid Solutions

We have a 2020 goal to share energy conservation knowledge with 200 officials in developing regions. See our **Progress Toward 2020 Targets section** [🔗](#).

GRI Context Index

| GRI STANDARD | DISCLOSURE | PAGE NUMBER(S) AND/OR URL |
|---|--|---|
| GENERAL DISCLOSURES | | |
| GRI 102: General Disclosures 2016 | Organizational Profile | |
| | 102-1 Name of the organization | Please see our FORM 10-K Annual Report, cover page . |
| | 102-2 Activities, brands, products, and services | Please see our FORM 10-K Annual Report, page 4 . |
| | 102-3 Location of headquarters | Please see our FORM 10-K Annual Report, cover page . |
| | 102-4 Location of operations | Please see our FORM 10-K Annual Report, page 17 . |
| | 102-5 Ownership and legal form | Please see our FORM 10-K Annual Report, cover page and page 3 . |
| | 102-6 Markets served | Please see our 2016 Annual Report/2017 Notice and Proxy Statement, page 3 . |
| | 102-7 Scale of the organization | Please see our FORM 10-K Annual Report, pages 6-7 . |
| | 102-8 Information on employees and other workers | Please see Our Company: Our Employees . |
| | 102-9 Supply chain | Please see Business Sustainability: Our Products: Supply Chain Transparency and Performance . |
| | 102-10 Significant changes to the organization and its supply chain | Please see our FORM 10-K Annual Report, pages 4-5 . |
| | 102-11 Precautionary Principle or approach | Please see Our Company: Regulations and Policy: EHS Management . |
| | 102-12 External initiatives | Please see Our Company: Charters . |
| | 102-13 Membership of associations | Please see Our Company: Memberships and Partnerships . |
| | Strategy | |
| 102-14 Statement from senior decision-maker | Please see Letters from Our Leadership: Letter From Our CEO . | |
| Ethics and Integrity | | |
| 102-16 Values, principles, standards, and norms of behavior | Please see our Code of Conduct and two pages (here & here) on Governance, Ethics and Risk Management . | |
| Governance | | |
| 102-18 Governance structure | Please see our Governance, Ethics and Compliance; Risk Management page and our Sustainability Governance Structure page. | |

| GRI STANDARD | DISCLOSURE | PAGE NUMBER(S) AND/OR URL |
|---|--|---|
| GENERAL DISCLOSURES | | |
| GRI 102: General Disclosures 2016 | Stakeholder Engagement | |
| | 102-40 List of stakeholder groups | Please see our Value Chain and Stakeholder Engagement pages. |
| | 102-41 Collective bargaining agreements | 28.5% of employees are covered by collective bargaining agreements. |
| | 102-42 Identifying and selecting stakeholders | Please see our Value Chain and Stakeholder Engagement pages. |
| | 102-43 Approach to stakeholder engagement | Please see Our Company: Customer Satisfaction and our Value Chain and Stakeholder Engagement pages. |
| | 102-44 Key topics and concerns raised | Please see Our Company: Customer Satisfaction and our Value Chain page. |
| | Reporting Practice | |
| | 102-45 Entities included in the consolidated financial statements | All entities are included in this report. Please see our FORM 10-K Annual Report, page 5 . |
| | 102-46 Defining report content and topic Boundaries | Please see Sustainability at Ingersoll Rand: About Our Reporting , our Materiality Assessment and our Value Chain page. |
| | 102-47 List of material topics | Please see our Materiality Assessment . |
| | 102-48 Restatements of information | Please see Sustainability at Ingersoll Rand: About Our Reporting . |
| | 102-49 Changes in reporting | Please see Sustainability at Ingersoll Rand: About Our Reporting . |
| | 102-50 Reporting period | Calendar Year: January 1-December 31, 2016 |
| | 102-51 Date of most recent report | 1/1/17 |
| | 102-52 Reporting cycle | Annual |
| | 102-53 Contact point for questions regarding the report | Misty Zelent - Director of External Communications Phone: 704-655-5324 Email: mzelent@irco.com |
| | 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 | This table is the GRI Content Index, please see pages 48-54. | |
| 102-56 External assurance | Please see our Assurance Statement and Sustainability at Ingersoll Rand: About Our Reporting . Our environmental and safety data is assured by an independent third party. The assurance process is led by the Vice President, Environmental, Health and Safety, Operations, who reports to the Senior Vice President, Global Operations, and Integrated Supply Chain. | |

| GRI STANDARD | DISCLOSURE | PAGE NUMBER(S) AND/OR URL |
|--|---|---|
| MATERIAL TOPICS | | |
| Materials Used; Product End-of-Life Considerations | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Environmental Sustainability: Our Planet: Materials . |
| | 103-3 Evaluation of the management approach | Please see Environmental Sustainability: Our Planet: Materials . |
| GRI 301: Materials 2016 | 301-3 Reclaimed products and their packaging materials | Please see Environmental Sustainability: Our Planet: Materials and Environmental Sustainability: Our Planet: Product Life Cycle and End-Of-Use Considerations . Data is collected at the strategic business unit level and is based on production and financial data. |
| Energy-Efficient Products; Company Energy Use | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Environmental Sustainability: Our Planet: Energy and Environmental Sustainability: Energy Efficiency of Our Products . |
| | 103-3 Evaluation of the management approach | A third party assures our energy data every year for company operations. Please see Our Data: Progress toward 2020 Targets . |
| GRI 302: Energy 2016 | 302-1 Energy consumption within the organization | Please see Environmental Sustainability: Our Planet: Energy . We do not sell energy, and no conversion factors were needed. Methodology: ISO 14064-1. |
| | 302-3 Energy intensity | Please see Environmental Sustainability: Our Planet: Energy . Fuel, electricity, heating and cooling are included in the intensity ratio. All energy used was consumed within the organization. |
| | 302-4 Reduction of energy consumption | Please see Environmental Sustainability: Our Planet: Energy . Fuel, electricity, heating and cooling are included in the reductions. 2013 is our base year for our Climate Commitment and 2020 targets. Methodology: ISO 14064-1. |
| | 302-5 Reduction in energy requirements of products and services | Please see Environmental Sustainability: Our Planet: Energy Efficiency of Our Products . |
| Greenhouse Gas Emissions | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Environmental Sustainability: Our Planet: Climate Change and Greenhouse Gas Emissions and Refrigerants . |
| | 103-3 Evaluation of the management approach | A third party assures our greenhouse gas (GHG) emissions data every year. We also performed an internal audit of the product GHG collection process in early 2017. Please see our Our Data: Progress toward 2020 Targets . |
| | Specific management approach for emissions | We have no existing plans to purchase offsets to reduce our emissions. Please see Environmental Sustainability: Our Planet: Energy for more information about our renewable energy approach. |

| GRI STANDARD | DISCLOSURE | PAGE NUMBER(S) AND/OR URL |
|----------------------------|---|--|
| MATERIAL TOPICS | | |
| Greenhouse Gas Emissions | | |
| GRI 305: Emissions 2016 | 305-1 Direct (Scope 1) GHG emissions | <p>Gross direct (Scope 1) GHG emissions: Please see Environmental Sustainability: Our Planet: Greenhouse Gas Emissions and Refrigerants ●.</p> <p>Gases included in the calculation: HFCs, VOCs, and those emissions associated with the combustion of fossil fuels (CO, CO₂, SO₂, NO_x, N₂O, HCs). We do not emit CH₄, SF₆, PFCs, or NF₃.</p> <p>Biogenic CO₂ emissions: Not Applicable.</p> <p>Base year for the calculation: 2013. This is the base year of our 2020 targets and our Climate Commitment. Please also see Environmental Sustainability: Our Planet: Greenhouse Gas Emissions and Refrigerants ● and Sustainability at Ingersoll Rand: About Our Reporting ●.</p> <p>Source of the emission factors and the global warming potential (GWP) rates used: IPCC AR5 - 100 year; EPA Climate Leaders, Emissions Factors for Greenhouse Gas Inventories, November 19, 2015.</p> <p>Consolidation approach for emissions: Financial control.</p> <p>Standards, methodologies, assumptions, and/or calculation tools used: The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard; ISO 14064-1.</p> |
| | 305-2 Energy indirect (Scope 2) GHG emissions | <p>Gross location-based energy indirect (Scope 2) GHG emissions: Please see Environmental Sustainability: Our Planet: Greenhouse Gas Emissions and Refrigerants ●.</p> <p>If applicable, gross market-based energy indirect (Scope 2) GHG emissions: Not Applicable.</p> <p>If available, the gases included in the calculation: Gases included are those indirectly emitted through the production of electricity.</p> <p>Base year for the calculation: 2013. This is the base year of our 2020 targets and Climate Commitment. Please also see Environmental Sustainability: Our Planet: Greenhouse Gas Emissions and Refrigerants ● and Sustainability at Ingersoll Rand: About Our Reporting ●.</p> <p>Source of the emission factors and the global warming potential (GWP) rates used: 2014 eGRID January 2017; International Energy Agency, "CO₂ EMISSIONS FROM FUEL COMBUSTION, Full Document," 2016 Edition, Table "CO₂ emissions per kWh from electricity generation," page II.64.</p> <p>Consolidation approach for emissions: Financial Control.</p> <p>Standards, methodologies, assumptions, and/or calculation tools used: The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard; ISO 14064-1.</p> |
| | 305-4 GHG emissions intensity | <p>Please see Environmental Sustainability: Our Planet: Greenhouse Gas Emissions and Refrigerants ●.</p> <p>Gases included in the calculation: HFCs, VOCs, and those emissions associated with the combustion of fossil fuels (CO, CO₂, SO₂, NO_x, N₂O, HCs). We do not emit CH₄, SF₆, PFCs, or NF₃. Gases included are those indirectly emitted through the production of electricity.</p> |
| | 305-5 Reduction of GHG emissions | <p>Please see Environmental Sustainability: Our Planet: Greenhouse Gas Emissions and Refrigerants ●.</p> <p>GHG emissions reduced as a direct result of reduction initiatives: Green team project led to the reduction of 2,064 Metric Tons of CO₂.</p> <p>Gases included in the calculation: HFCs, VOCs, and those emissions associated with the combustion of fossil fuels (CO, CO₂, SO₂, NO_x, N₂O, HCs). We do not emit CH₄, SF₆, PFCs, or NF₃. Gases included are those indirectly emitted through the production of electricity.</p> <p>Base year or baseline: 2013. This is the base year of our 2020 targets and Climate Commitment.</p> <p>Scopes in which reductions took place: Scope 1 and Scope 2.</p> <p>Standards, methodologies, assumptions, and/or calculation tools used: The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard; ISO 14064-1.</p> |
| | 305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions | <p>Please see Environmental Sustainability: Our Planet: Greenhouse Gas Emissions and Refrigerants ●.</p> |

| GRI STANDARD | DISCLOSURE | PAGE NUMBER(S) AND/OR URL |
|---|---|--|
| MATERIAL TOPICS | | |
| Regulatory Compliance | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Our Company: Regulations and Policy: EHS Management . |
| | 103-3 Evaluation of the management approach | Please see Our Company: Regulations and Policy: EHS Management . |
| GRI 307: Environmental Compliance 2016 | 307-1 Non-compliance with environmental laws and regulations | Please see Our Company: Regulations and Policy: EHS Management . |
| Material Traceability and Sourcing | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Business Sustainability: Our Products: Supply Chain Transparency and Performance and Environmental Sustainability: Our Planet: Materials . |
| | 103-3 Evaluation of the management approach | Please see Business Sustainability: Our Products: Supply Chain Transparency and Performance and Environmental Sustainability: Our Planet: Materials . |
| GRI 308: Supplier Environmental Assessment 2016 | 308-1 New suppliers that were screened using environmental criteria | Please see Business Sustainability: Our Products: Supply Chain Transparency and Performance . |
| GRI 414: Supplier Social Assessment 2016 | 414-1 New suppliers that were screened using social criteria | Please see Business Sustainability: Our Products: Supply Chain Transparency and Performance . |
| Public Policy | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Our Company: Regulations and Policy: Public Policy . |
| | 103-3 Evaluation of the management approach | Please see Our Company: Regulations and Policy: Public Policy . |
| GRI 415: Public Policy 2016 | 415-1 Political contributions | Please see Our Company: Regulations and Policy: Public Policy: Political Activity and Contributions and our Governance, Ethics and Risk Management page. |
| Product Reliability | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Business Sustainability: Our Products: Product Reliability . |
| | 103-3 Evaluation of the management approach | Please see Business Sustainability: Our Products: Product Reliability . |
| GRI 416: Customer Health and Safety 2016 | 416-2 Incidents of non-compliance concerning the health and safety impacts of products and services | Please see Business Sustainability: Our Products: Product Reliability . |

| GRI STANDARD | DISCLOSURE | PAGE NUMBER(S) AND/OR URL |
|-----------------------------------|--|--|
| MATERIAL TOPICS | | |
| Product Life Cycle | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Environmental Sustainability: Our Planet: Product Life Cycle Approach (LCA) and End-of-Use Considerations . |
| | 103-3 Evaluation of the management approach | We have 2020 targets related to product life cycle. We measure these goals annually to ensure we are on track. Please see Our Data: Progress toward 2020 Targets . |
| N/A | Product Life Cycle | Please see Environmental Sustainability: Our Planet: Product Life Cycle Approach (LCA) and End-of-Use Considerations . |
| Customer Satisfaction | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Our Company: Customer Satisfaction . |
| | 103-3 Evaluation of the management approach | Please see Our Company: Customer Satisfaction . |
| N/A | Customer Satisfaction | Please see Our Company: Customer Satisfaction and our Stakeholder Engagement page. |
| Innovation for Developing Markets | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Business Sustainability: Our Products: Technology and Innovation . |
| | 103-3 Evaluation of the management approach | Please see Business Sustainability: Our Products: Technology and Innovation . |
| N/A | Innovation for Developing Markets | Please see Business Sustainability: Our Products: Technology and Innovation . |
| Base of the Pyramid Solutions | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Business Sustainability: Our Products: Social Impact of Our Products . |
| | 103-3 Evaluation of the management approach | Please see Business Sustainability: Our Products: Social Impact of Our Products . |
| N/A | Base of the Pyramid Solutions | Please see Business Sustainability: Our Products: Social Impact of Our Products . |
| Technology and Innovation | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Business Sustainability: Our Products: Technology and Innovation and Letters from Our Leadership: Letter From Our CTO . |
| | 103-3 Evaluation of the management approach | Please see Business Sustainability: Our Products: Technology and Innovation . |
| N/A | Technology and Innovation | Please see Business Sustainability: Our Products: Technology and Innovation and Letters from Our Leadership: Letter From Our CTO . |

| GRI STANDARD | DISCLOSURE | PAGE NUMBER(S) AND/OR URL |
|-----------------------------------|--|---|
| MATERIAL TOPICS | | |
| Nexus Opportunities | | |
| GRI 103: Management Approach 2016 | 103-1 Explanation of the material topic and its Boundaries | Please see our Materiality Assessment and Value Chain pages. |
| | 103-2 The management approach and its components | Please see Business Sustainability: Our Products: Social Impact of Our Products and Environmental Sustainability: Our Planet: Energy Efficiency of Our Products . |
| | 103-3 Evaluation of the management approach | Please see Business Sustainability: Our Products: Social Impact of Our Products and Environmental Sustainability: Our Planet: Energy Efficiency of Our Products . |
| N/A | Nexus Opportunities | Please see Business Sustainability: Our Products: Social Impact of Our Products and Environmental Sustainability: Our Planet: Energy Efficiency of Our Products . |