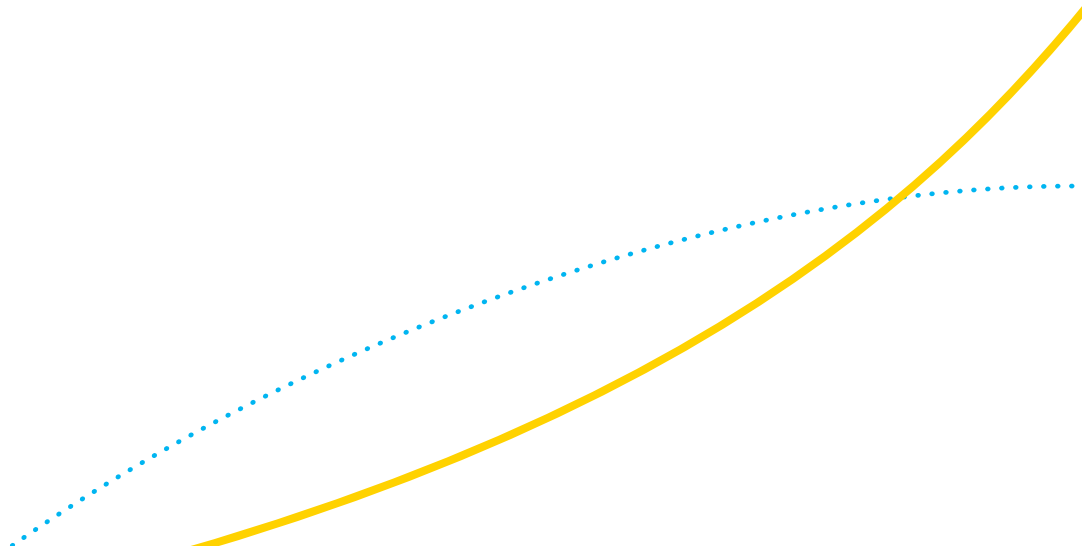




## 2018 Sustainability Report



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## Forward-looking statements

This report contains “forward-looking statements” within the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on management’s reasonable expectations and assumptions as of the date of this report. Actual performance may differ materially from projections and estimates expressed in the forward looking statements because of many factors not anticipated by management

including the risk factors described in the Company’s [Form 10-K](#) for its fiscal year ended September 30, 2017. The Company disclaims any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements contained in this report to reflect any change in the Company’s assumptions, beliefs or expectations or any change in events, conditions, or circumstances upon which any such forward-looking statements are based.

# S U S T A I N A B I L I T Y 2 0 1 8



## Grow

**responsibly through sustainability-driven opportunities that benefit our customers and our world.**

We help customers improve their sustainability performance through higher productivity, better quality products, reduced energy use, and lower emissions.



## Conserve

**resources and reduce environmental footprints through cost-effective improvements.**

We set aggressive environmental performance goals for greenhouse gases, energy, water, and our fleet, and we measure progress to continually improve our own operations.



## Care

**for our employees, customers and communities—protecting our license to operate and grow.**

We are building a culture of safety, simplicity, speed, and self-confidence. Our goal is zero accidents and zero incidents. We are committed to developing our people, supporting our communities, engaging suppliers and upholding our integrity.



# Chairman, President and CEO Message



It was 25 years ago, in 1993, that Air Products issued its first-ever report on the environment and safety entitled, “Where We Stand.” The initial report included a few similar statistics that you will still find one quarter century later in this, our 2018 annual edition. However, as you can expect, with continuing reporting enhancements throughout the ensuing years and more stringent, necessary reporting standards placed on businesses, this report will share with you so much more about Air Products as a company. And we are pleased to do so.

I am proud to brief you on our 2018 report with my annual Chairman’s Message, and I invite you to learn more about Air Products’ dedicated approach to Sustainability, which is provided for you in greater detail in the following pages.

## Commitment to Safety

A lot has happened since 1993, but one major priority that has remained consistent at Air Products has been our commitment to safety, which we believe is paramount to Sustainability. I have shared with you previously, on several occasions, that safety is our primary focus every day—24/7; that I personally believe the only acceptable goal is zero accidents or incidents; and that I believe Air Products has a moral responsibility to ensure the safety of our employees.

Strong goals and public sentiments may set the baseline for a company’s intent, but the genuine proof of its commitment to safety is demonstrated by actual results. I am very pleased to share with you that Air Products’ safety performance throughout 2017 was the best in our company’s more than 75-year history. I commend our more than 15,000 talented and dedicated employees around the world for their commitment and tremendous results.

## Sustainability is at the Core of our Business

We believe Sustainability really is at the core of what we do as a business. We demonstrate this through the innovative technologies that we develop, the way we produce our products, and the way we make our customers’ processes better, all aimed at benefitting the environment.



Grow • Conserve • Care

SUSTAINABILITY

## Honoring our Commitment

In the same manner, we reaffirmed our commitment as a company during the past year and have not wavered from the ideals of the Paris Agreement. In June 2017, I publicly stated: “Let me assure you that, at Air Products, we share society's concerns about the impacts of climate change on our environment. And we remain committed to Sustainability and the goals we have set.” We believe Air Products, as a global citizen, has a higher purpose beyond excellent financial performance, and reaffirming our environmental commitment to the world is part of that higher purpose.

## Our Sustainability Strategy is our Guide

Our Sustainability Goals are detailed very clearly in this report, as is the progress we have made on our 2020 environmental performance targets. I firmly believe we will successfully achieve our Sustainability Goals through our Sustainability Strategy of “**Grow**, **Conserve** and **Care**.” You will read stories throughout this report of how we “live” our Sustainability Strategy every day. The strategy provides us a foundational approach as we strive to:

- **Grow**—lead the Industrial Gas industry in profitability and contribute greater than 50 percent of revenues from offerings that improve energy efficiency, lower emissions, and meet societal needs.

We are demonstrating our commitment to “Grow” by our innovative, world-class projects in Jazan, Saudi Arabia; Kochi, India; projects in China; through our advanced technologies that assist our customers in decreasing their own emissions and increase efficiencies; as well as the enhanced product offerings like our Freshline® IQ Tunnel Freezer and SafeChill™ System for customers.

- **Conserve**—save energy, reduce greenhouse gas emissions, conserve water, and effectively manage hazardous waste.

We are demonstrating our commitment to “Conserve” through our energy management; continually analyzing our carbon risks; successfully capturing millions of tons of carbon emissions for beneficial use; participating in global emissions initiatives like FRET21; conserving fresh water; reducing hazardous waste; and employing renewable energy at several Air Products locations.

- **Care**—lead the Industrial Gas industry in safety, build a diverse and inclusive workforce, ensure ethical behaviors and compliance, and measure the positive impacts of our employee and community engagement efforts.

We are demonstrating our commitment to care through our pursuit of safety—with our best yearly performance in company history, and to our care of the environment as well; through caring corporate responses to assist the public impacted by crises around the world where natural disasters occur; promoting programs that educate employees to life saving behaviors, and simple things like holding “Safety Week” for employees around the world and stressing the need to be safe drivers—be it as company truck drivers, or employees driving their children to school, or themselves to and from work.

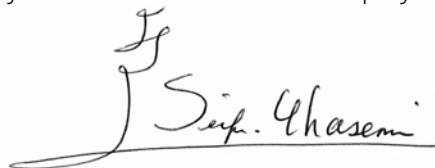
We also care about our communities, and have realigned our Foundation strategy to be consistent with our company purpose. Through one of our key focus areas—Science, Technology, Engineering, and Mathematics (STEM)—we have reached over 50,000 people and are helping advance future engineers and scientists. And we had our best year for United Way contributions, reaching \$2.8 million in donations.

## Commitment and Motivation of our People

Finally, as you may know, our company goal is to be the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to our customers. We took action this past year and strategically added “most diverse” to our company’s goal.

We continue to make strides toward this goal, but there is always work to be done. We recognize this and are committed to make progress. I have always said that the only sustainable long-term competitive advantage is the degree of commitment and motivation of the people in the enterprise.

I hope you enjoy learning more about Air Products’ approach to Sustainability throughout this report. We very much appreciate your continued interest in our company.







Seifi Ghasemi  
Chairman, President and Chief Executive Officer of Air Products



# 2017 Progress on our Sustainability Goals

In 2016, Air Products set new sustainability goals across all aspects of our **Grow-Conserve-Care** sustainability framework. This process was aligned with the identification of our sustainability priorities and engagement with key stakeholders. In 2017, we continued to make good progress against these goals:

Grow	Air Products' 2020 Goal	2017 Status
Economic Performance 	LEAD the industrial gas industry in PROFITABILITY as measured by EBITDA margin, operating margin and ROCE	EBITDA margin*: 34.1% Operating margin*: 21.6% ROCE*: 12.1%
Customer Sustainability 	ENABLE customers to AVOID CO <sub>2</sub> EMISSIONS while CONTRIBUTING >50% of REVENUES from sustainable offerings	CO <sub>2</sub> e avoided: 54 MM MT Revenues from sustainable offerings: 52%
Ethics & Integrity 	REQUIRE 100% of employees to be trained in and certified to Air Products' Employee CODE OF CONDUCT and ensure all allegations of misconduct are reviewed and closed	Training and certification: 91%
Compliance 	CONTINUOUSLY IMPROVE COMPLIANCE systems and performance	Enhanced governance systems





\*Adjusted









Grow • Conserve • Care

## SUSTAINABILITY

Conserve	Air Products' 2020 Goal	2017 Status
Energy Savings 	SAVE ENERGY by reducing use intensity by 2.5% for ASUs and 1.5% for HyCOs (from 2015 baseline)	ASUs: 1.6% reduction HyCOs: 0.6% reduction
GHG Reductions 	REDUCE GHG emissions intensity by 2% (from 2015 baseline)	1.4% reduction
Distribution Efficiency 	IMPROVE distribution efficiency and reduce CO <sub>2</sub> emissions intensity by 10% (from 2015 baseline)	14% improvement
Water Conservation 	CONSERVE WATER and lower use intensity by 5% (from 2015 baseline)	9% reduction

Care	Air Products' 2020 Goal	2017 Status
Safety 	LEAD the industrial gas industry in SAFETY as measured by recordable and lost-time incident rates	Recordable rate: 0.34 LTI rate: 0.06
Talent & Diversity 	BUILD the MOST DIVERSE and INCLUSIVE workforce in the industrial gas industry	Female share of workforce: 23%
Community Support 	ENHANCE our ability to measure the positive impacts of our EMPLOYEE and COMMUNITY ENGAGEMENT	\$6 million in cash and product donations
Supplier Sustainability 	ENSURE 100% of new supplier agreements include HUMAN RIGHTS and CONFLICT MINERALS clauses	Conflict Minerals clauses added to global terms and conditions

# Our Businesses

Air Products reported fiscal 2017 results under five segments:

- Industrial Gases—Americas
- Industrial Gases—EMEA (Europe, Middle East, and Africa)
- Industrial Gases—Asia
- Industrial Gases—Global
- Corporate and other

## Regional Industrial Gases

The regional Industrial Gases (Americas, EMEA, and Asia) segments produce and sell atmospheric gases such as oxygen, nitrogen, and argon (primarily recovered by the cryogenic distillation of air) and process gases such as hydrogen, carbon monoxide, helium, syngas, and specialty gases. We supply gases to customers in many industries, including metals, glass, chemical processing, energy production and refining, food processing, metallurgical industries, medical, and general manufacturing. We distribute gases to customers through a variety of supply modes, including liquid or gaseous bulk supply delivered by tanker or tube trailer and, for smaller customers, packaged gases delivered in cylinders and dewars or small on-sites (cryogenic or non-cryogenic generators). For large-volume customers, we construct an on-site plant adjacent to or near the customer's facility or deliver product from one of our pipelines.

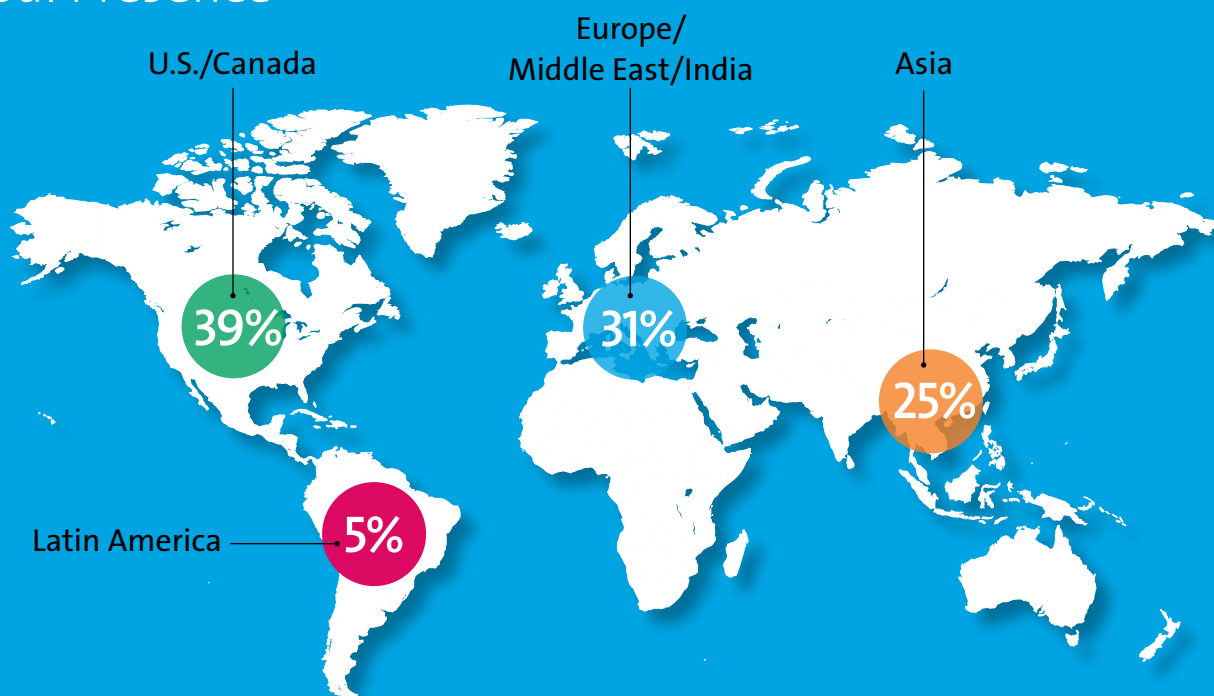
## Industrial Gases—Global

The Industrial Gases—Global segment includes cryogenic and gas processing equipment sales for air separation. The equipment is sold worldwide to customers in a variety of industries, including chemical and petrochemical manufacturing, oil and gas recovery and processing, and steel and primary metals processing. The Industrial Gases—Global segment also includes centralized global costs associated with managing all the Industrial Gases segments.

## Corporate and other

The Corporate and other segment includes two global businesses: the liquefied natural gas sale of equipment and process technology business, and the liquid helium and liquid hydrogen transport and storage container business. It also includes corporate support functions that benefit all business segments.

## Global Presence\*





# Air Products FY '17



**\$8.2**  
billion in sales



**~15,000**  
employees



**50**  
countries of operation



**\$35**  
billion market cap



**7+**  
decades in business



**170,000+**  
customers



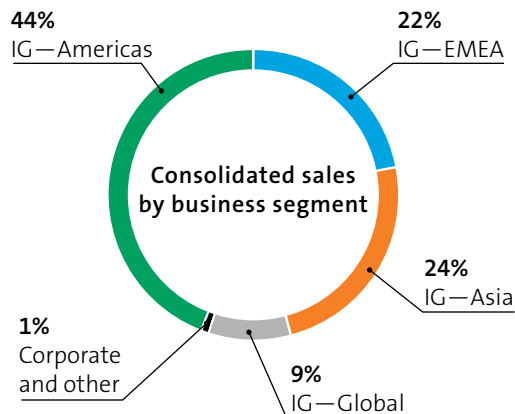
**1,800**  
miles of industrial gas pipeline



**750+**  
production facilities

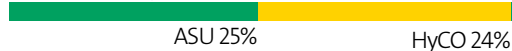


**30+**  
industries served



## Supply Modes

### 49% On-site/Pipeline



### 29% Liquid Bulk



### 12% Packaged Gas



### 10% Equipment & Services





Grow • Conserve • Care

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# Grow responsibly through sustainability-driven opportunities that benefit our customers and the world

## Delivering Business Value: FY '17

**52%**

of revenues from sustainable offerings

**\$58**

million in R&D spending

**\$1**

billion in capital expenditure

**606**

patent families

**\$30**

million in cumulative energy and water costs avoided

**54**

million metric tonnes of CO<sub>2</sub>e avoided by customers

**7%**

increase in EBITDA

**\$1.7**

billion adjusted operating income

**34.1%**

adjusted EBITDA margin



“Air Products is committed to continually improving our Sustainability. It is an important expectation of many of our customers, employees, other key stakeholders, and prospective customers as we grow. While we are proud of our achievements, we recognize that Sustainability includes the process of growth, and we need to continue improving the way we do business to remain among the leaders in our industry sector.”

— Richard Boockock, Senior Vice President and Special Advisor to the Chairman



# Products that benefit our customers around the world

Our gases, equipment and applications expertise enable our customers in dozens of industries to improve sustainability performance by increasing productivity, producing better quality products, reducing energy use and lowering emissions. For additional examples, see our sustainable offerings [website](#).

■ The research and development team at Air Products has been at the forefront of food freezing for over 50 years, pioneering cryogenic technology and continuing to push the boundaries of efficiency, versatility and hygiene. Our **Modified Atmosphere Packaging (MAP)** and **Freshline®** solutions extend the shelf-life of food, improve the taste, reduce waste, and help to keep production costs down.



■ For nearly 40 years, Air Products has been providing its customers sustainable product solutions for treating water and wastewater. We offer equipment and services—marketed under the **Halia®** trade name—for a variety of applications, including wastewater treatment plants, improving fish health in aquaculture, and drinking water treatment and purification.



■ Air Products has been at the vanguard of **oxy-fuel technology** since it was first introduced over 50 years ago. Our oxy-fuel combustion technologies are used in energy-intensive applications like cement, metals and glass manufacturing to increase production, lower fuel costs, reduce emissions and optimize efficiency.



■ Air Products' **Biogas membrane separators** are used to produce methane from farm waste, manure, or municipal waste. The proprietary hollow fiber membranes purify the biomethane by removing unwanted elements from the biogas stream, so it can be used to generate heat and power.



■ Air Products is also the world's leading supplier of **liquefied natural gas (LNG)** process technology and equipment, with over 100 LNG trains currently operating around the world. LNG technology and equipment enables economical transport of stranded energy sources around the globe. More LNG is produced using Air Products' mixed component refrigerant and liquefaction processes than any other processes in the world.



■ No company knows hydrogen like Air Products, nor has any company spent as much time developing hydrogen as a fuel. With more than 50 years of hydrogen experience, we're at the forefront of hydrogen energy technology development. **SmartFuel® hydrogen fueling station** technology provides complete fueling infrastructure, from supply to dispensing for fuel cell vehicles, hydrogen-powered forklifts and other material handling vehicles. Hydrogen fuel can be used in many different types of transportation, either with a fuel cell or in an internal combustion engine, to eliminate or significantly reduce emissions.



■ Air Products is the world's leading provider of **hydrogen**. We operate over 100 hydrogen plants with a combined 1,500 years of operating experience. Hydrogen is used in refining heavier, sour crudes, increasing yields and reducing emissions for cleaner transportation fuels. Many industries such as electronics, foods, glass, chemicals, and more benefit from its unique properties to improve quality, optimize performance and reduce costs.



■ As a leading producer and supplier of **helium**, Air Products has pioneered many of the helium extraction, production, distribution, and storage technologies still in use—including cryogenic equipment for most of the world's helium recovery plants. Air Products offers liquid helium and helium gas in a variety of purities and concentrations. Helium enables magnetic resonance imaging (MRI), and our high-purity medical oxygen, nitrogen, and other medical gases help to sustain life. Helium is also valued as a gas for lifting, breathing, leak detection, and shielding, as its unique properties optimize performance and productivity, reduce labor cost, and improve safety.



## Strategy, Opportunities and Risks

Our strategy is simple – create value in the markets we serve, particularly energy, environmental and emerging markets. Providing our customers with innovative products and excellent service underpins everything we do. In serving our customers, we serve our higher purpose, supplying products that benefit the environment in a more efficient and sustainable manner.

We supply industrial gases and related equipment that help our customers be more energy efficient and sustainable. Our oxyfuel burners improve productivity for glass and steel manufacturers while reducing energy consumption and emissions. As the world leader in hydrogen production, we supply vast quantities of hydrogen to petroleum refiners to lower sulfur content and help in the making of cleaner-burning gasoline and diesel fuels, significantly reducing vehicle emissions. We are also a leader in

hydrogen fueling infrastructure and are helping to build the hydrogen economy around the world. Furthermore, we remain a global leader in liquified natural gas equipment, air separation plants, and hydrocarbon recovery and purification equipment.

At the same time, we are continually working to improve our own productivity and reduce our impact on the environment consistent with our 2020 Sustainability Goals. Additional details are provided in the Conserve section of this report.

Sustainability supports our organic growth. For example, more stringent emissions requirements increase the use of our products as our customers and their end users strive to meet environmental regulations. Consumer behavior can also impact growth – the growing use of electronic devices around the world is driving the market for

rechargeable batteries, which require oxygen for their production. Likewise, the increased use of solar-based solutions is raising the demand for argon, which is used in the manufacturing process.

We believe that cash generation is a core driver of long term value. Air Products generates a significant amount of cash, and the effective deployment of that cash is critical. We are committed to managing debt and using our cash to make thoughtful investments and acquisitions in line with our strategy to generate favorable returns on investment. Our decentralized operating model continues to release an entrepreneurial energy that is keeping both costs and politics at a minimum.

We are now well positioned to deploy capital for growth. Our portfolio actions and the strong cash flow generation of our company provide us with an expected capacity of over \$15 billion to invest over the next five years.

### Breaking New Ground in the Middle East

In 2015, Air Products was awarded a contract by Saudi Aramco to build, own and operate the world's largest industrial gas complex under a joint venture (JV) of Air Products and Arabian Company for Power and Water Development (ACWA Holding). For 20 years, the facility will supply 75,000 metric tons per day (TPD), including 20,000 TPD of oxygen and 55,000 TPD of nitrogen, to Saudi Aramco's refinery in Jazan, Saudi Arabia.

The new facility is part of the Jazan Economic City, and associated Jazan Refinery Complex Project, which includes 40km<sup>2</sup> of strategic developments by the Saudi government intended to provide economic stimulus to Jazan Province through large-scale business, industrial, residential and commercial growth.

Air Products is using its proprietary technology to design and build the industrial gas complex, which contains six of the



company's largest air separation units. Once built, the facility will be owned by a JV of Air Products and ACWA Holding.

Construction has been challenging, as the location is part of the hottest place in the country, with mean maximum temperatures ranging from 40°C (104°F) in July to 31°C (88°F) in January. Coastal lagoons result in high humidity, and rainfall is extremely low at less than three inches per year. There is also a high prevalence of sand storms during the summer months.

Air Products recruited internally and externally for the skilled workers needed for the construction and operation of the facility. Workers from 30 different countries have been hired, and during the peak of construction, 6,000 workers were onsite. The cultural and language differences of these workers provided additional challenges, including expectations around safety. But the Company's commitment to safety was heartily embraced, and the results were clear. The project achieved the most significant safety milestone in Air Products' history—20 million hours without a lost-time injury, with over 15 million of these hours completed in fiscal 2017 alone.

Construction and pre-commissioning is well underway, and will be completed in 2018. Commercial operation of the facility is scheduled to commence in late 2018/early 2019.

**We see strong investment opportunities for growth:**

- **First**, acquisitions of small- and medium-sized industrial gas companies or assets or businesses from other industrial gas companies.
- **Second**, purchasing existing industrial gas facilities from customers to create long-term contracts where Air Products owns and operates the plants and sells industrial gases to customers based on a fixed fee. We see opportunities for oxygen and hydrogen plants around the world in this ‘asset buyback’ category. We also see the opportunity to expand our scope of supply to include operating existing gasification units and the sale of syngas to customers under long-term agreements. Essentially, these opportunities are the same as the traditional on-site business model that we have—something that we do every day—but with existing rather than new production assets.
- **Third**, executing very large industrial gas projects around the world driven by demand for more energy, cleaner energy and emerging market growth. Some of these new large projects could also include gasification and syngas supply.

We are committed to staying disciplined, and we will not invest unless we are confident the risk/return profile will create significant value for our shareholders.

Some of our industrial gas acquisitions during 2017 included Dixons of Westerhope Limited, the UK’s largest independent Packaged Gases businesses; a majority stake in the industrial gases business of Muscat Gases Company, a leading industrial gases company in Oman; and the acquisition of Vitalox, an independent Spanish industrial gases company, by our wholly-owned subsidiary, Carbueros Metálicos.



In expanding our scope of supply, we are growing and evolving with the needs of our customers and the world. Much of our growth over the long term will be in emerging markets, particularly China, India, the Middle East, and Russia. In the Middle East, we are expanding our engineering capabilities and executing very large projects that are driven by demand for more and cleaner energy. In December 2017, Air Products India established a new office in Pune, providing space for an anticipated ~300 employees.

Also in 2017, we brought on-stream a world-class hydrogen project in India, a large air separation unit (ASU) in Korea and our seventh ASU in China, providing oxygen for coal gasification. We continue to make great progress on the Jazan Project in the Kingdom of Saudi Arabia.

We also established a world-class technology center in the Dhahran Techno Valley Science Park to serve Saudi Arabia and the Middle East region.

In September 2017, we announced an agreement to form a \$1.3 billion joint venture (JV) with Lu’An Clean Energy Company serving the syngas-to-liquids production facility in Changzhi City, Shanxi Province, China. The JV will own

and operate the air separation units, gasifiers and syngas cleanup systems to provide syngas to Lu’An under a long-term agreement. The creation of this world-class JV is perfectly aligned with Air Products’ strategy to deploy cash to grow through asset buybacks and by expanding its scope of supply. We closed on this deal in 2018.

We also signed an investment cooperation agreement with Yankuang Group for a \$3.5 billion coal-to-syngas production facility to be built in Yulin City, Shaanxi Province, China. These investments will bring the benefits of cleaner energy to millions of people in China.

While our strategy provides opportunities for Air Products’ continued success and growth, the Company’s economic performance may be affected by various risks, many of which are beyond our control. These risks are routinely reviewed by Company leaders and the Board of Directors, and auditable risks are included in the Company’s Internal Audit program.

**The risks, which are described in detail in our 2017 Annual Report, include:**

- Unfavorable conditions in the global economy, or the markets we serve may decrease the demand for our goods and services;
- Changing economic and political conditions with foreign jurisdictions, as well as disruptions by civil unrest, acts of sabotage or terrorism, and other local security concerns could, which adversely affect our international operations;
- Operational risks, if they materialize, could result in loss of life, damage to the environment, or loss of production, all of which could negatively impact our ongoing operations and reputation;

- Our ability to grow revenue, earnings, and cash flow at anticipated rates depends on identifying, successfully acquiring and integrating businesses and assets at appropriate prices, and realizing expected synergies and operating efficiencies;
- The security of our Information Technology systems could be compromised, which could adversely affect our ability to operate;
- Because our industrial gas facilities use substantial amounts of electricity, energy price fluctuations could have material impacts;
- A disruption in the supply of energy, components, or raw materials, whether due to market conditions, legislative or regulatory actions, natural or other events, could prevent us from meeting our contractual commitments;
- Our supply of crude helium is largely dependent upon natural gas production, so lower volumes of natural gas can reduce our supplies available for resale;
- Catastrophic events outside our control, including severe weather conditions such as hurricanes, floods, earthquakes, storms, epidemics, or acts of war may impact our operations;
- We are continually developing and implementing new technologies and product offerings that may result in technological failures and project impacts;
- Legislative, regulatory and societal responses to global climate change can create financial risk through regulation of emissions, including of the power sector; and
- The Company could be subject to changes in its tax rates, the adoption of new U.S. or foreign tax legislation, or exposure to additional tax liabilities.

## Growing in India

Air Products initially entered India in January 1999 through a joint venture (JV) company called INOX Air Products Pvt Ltd. Better known as INOXAP, the JV is jointly owned by the Jain family—former owners of the Industrial Oxygen Company—and Air Products. INOXAP represents a significant part of Air Products' business interests in India and is one of the largest manufacturers and suppliers of industrial gases, with more than 35 operating locations and 1,200 employees throughout the country.

Separate from the JV, in 2017, Air Products successfully commissioned its first hydrogen production facilities in India. The industrial gas complex in Kochi, Kerala, India supplies hydrogen, syngas, nitrogen, and oxygen to the Bharat Petroleum Corporation Limited (BPCL) refinery expansion project. The complex, comprised of two large steam methane reformers (SMRs), an air separation unit, and a gas turbine power plant, enables BPCL to convert heavy crude to clean fuels meeting Euro IV/V specifications. It also enables BPCL to increase its capacity from 190,000 to 310,000 barrels per day.

A large, multi-national team of Engineering, Construction, and Operations personnel from India, the United Kingdom, the Netherlands, and the U.S. contributed to the project. From design to construction to operation, they were a true testimony to the strength of our international execution ability.



The plant features the latest technology advancements to maximize energy efficiency and emissions reduction, and includes optimal heat integration, which in turn lowers feedstock consumption during production. The gas turbine, which is integrated with the two SMR trains, produces electricity for the entire Air Products' facility.

At the peak of construction, a labor force of more than 1,500 workers were at the site each day. And they kept safety at the forefront of their work, completing over eight million hours without a lost-time injury (LTI). During the entirety of the project, the team completed 10 million construction hours with only one LTI. This significant achievement was enabled by the hard work and collaboration of the construction supervision teams of Air Products and our alliance partner, Technip.

They worked closely with all the contractors and workers on the site to ensure our safety requirements were met, and to promote safety every day and in every activity.

The Kochi facility is a great example of how we are making a positive impact on projects around the world; in this case, by applying our Basic Safety Principles to build one of the most efficient HyCO plants in our history. Indeed, our investment in the Kochi facility represents an important step-change in our position in this hugely diverse country, as well as an important growth vehicle for Air Products in the future.

And this success has led to another opportunity—in 2018, BPCL selected Air Products to build, own and operate a new syngas production facility to supply its new Propylene Derivatives Petrochemical Project.

# Our Contributions to the UN Sustainable Developmental Goals (SDGs)

In 2015, the 193 UN member states, in collaboration with many organizations, developed the Sustainable Development Goals. The 17 goals and 169 targets are aimed at achieving the following by 2030: ending poverty and hunger and promoting dignity, equality and a healthy environment; protecting the planet through sustainable consumption and production; managing resources, and taking action on climate change; ensuring that all human beings can

have prosperous and fulfilling lives as technology progresses in harmony with nature; fostering peaceful, just and inclusive societies that are free from fear and violence; and partnering with stakeholders to implement the goals.

Air Products has programs or products that align with most of the SDGs, though we are focusing activities on a few goals where we have the most impact, including SDGs 4 through 9.



## Grow

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

Our business strategy is focused on serving energy, environmental and emerging markets, which will continue to grow as population and infrastructure needs increase. Through our technologies and products, we support higher levels of economic productivity and resource efficiency. We offer competitive salaries and benefits that attract, motivate and retain the best talent.



## Conserve

**Goal 6:** Ensure access to water and sanitation for all

**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all

We have set aggressive goals to reduce our consumption of water and energy. In addition, our products enable clean energy and water, and improve energy efficiency for our customers. We are also investing in research and development to improve efficiencies and reduce environmental impact for our company and our customers.



## Care

**Goal 4:** Ensure inclusive and quality education for all and promote lifelong learning

**Goal 5:** Achieve gender equality and empower women and girls

For many years, Air Products has promoted Science, Technology, Engineering and Mathematics (STEM) educational programs through primary schools, universities, workforce programs, and communities to help build the talent pool for technical resources. We also are committed to becoming the most diverse and inclusive industrial gas company.



## Innovation and Technology

Our success is built on delivering excellent products and service to our customers. We are committed to providing them with the right innovations and solutions to make their processes better. At the same time, we're focused on improving our own processes to increase efficiency and reduce environmental impact.

Our Application Technology Teams, located in the United States, Europe and Asia, focus on new value creation for our customers through technology, equipment, and process solutions. Our sustainable approach helps customers improve productivity, product quality or cost, while enabling them to reduce

dependence on hazardous materials or meet stringent environmental regulations. The regional teams collaborate closely on new application development that allows technologies developed in one region to be implemented across other geographies.

A few of the recent successes include:

**Cleanfire® HRx™ Oxy-fuel Burner**—A unique burner for the glass industry that enables ultra-low NOx, high efficiency and foam reduction for improved glass quality. Successful trials were completed in the United States, UK, France and Korea, and additional trials are planned.

**Electron Attachment™ Fluxless for Wafer Level Packaging**—A novel flux-free technology for wafer bump and copper pillar reflow processes that eliminates the use of chemical fluxes, cleaning equipment and cleaning solutions. The technology is currently in trials with customers in U.S. and Asia.

**Freshline® IQ Tunnel Freezer**—A low cost, modular tunnel freezer that enables vaporized liquid nitrogen to be dispersed optimally throughout the tunnel, which translates to the shortest freezer required to cool or freeze product, as well as minimized running costs.



Freshline® IQ Tunnel Freezer

### Gasification Growing in China

Gasification is used to convert different feedstocks into syngas for making substitute natural gas, hydrogen, transportation fuels, power, steam, and chemicals. The technology is proven and mature, with over 900 gasifiers currently in operation and over 1,000 in construction or planned. Over 230 of these gasifiers are in China, where the government has established an ambitious plan for coal gasification growth—product volume increases of 35% to 41% between 2015 and 2020.

Gasification is not new to Air Products—we have supplied gasifiers for at least 30 years and own and operate gasifiers in the U.S. In early 2018, we announced our acquisition of Royal Dutch Shell plc's (Shell's) Coal Gasification Technology business, as well as Shell's patent portfolio for Liquids (Residue) Gasification.

The use of coal for gasification also emits less pollution than from a coal-fired power plant. When compared to ultra-supercritical plants and on a per-unit-of-coal basis, coal

gasification has lower emissions of sulfur oxides, nitrous oxides, particulate matter, and carbon dioxide. In addition, the CO<sub>2</sub> generated via gasification is capture-ready, meaning that it is ready for use or sequestration.



#### **Transient Heating Oxy-fuel Burner**—

Used for the non-ferrous metal recycling market, this burner enables directed and distributed heating that improves energy efficiency and yield of various metals. The burner has been successfully installed in the U.S., Taiwan and Brazil, and additional trials are planned.

Our Global Gases Technology Team is focused on two, strategic areas: plant productivity and equipment products. Each year the Team creates a Technology Plan that establishes the research and development (R&D) budget and includes a productivity target aimed at saving millions of dollars. The Team works closely with Operations to meet this target through activities such as condition monitoring, network optimization and plant efficiencies.

From an equipment products perspective, the Team develops new technologies and improves cycle management and power efficiency of existing equipment. Recent examples include:

#### **PRISM® Vacuum Swing Adsorption (VSA)**

**Oxygen Generator**—This technology works at ambient temperature, significantly reducing power consumption and capital investment, and provides a reliable oxygen supply using a molecular sieve that helps our customers maximize efficiency and reduce energy requirements, along with featuring a smaller physical footprint and shorter installation and start-up time.

#### **PRISM® PHG830 Hydrogen Generator**—

This technology combines Air Products' proprietary reformer technology with its hydrogen pressure swing adsorption capabilities. This highly efficient system uses less natural gas and other utilities, saving customers energy and associated costs. It also has a smaller physical footprint, and shorter installation and start-up time.

#### **Patents Registered and Saudi Arabia Tech Center Established**—

In 2017, Air Products received 36 patents. The Company takes a critical approach to patents, requiring significant internal review and vetting before submitting patent applications. Overall, the Company currently has 606 active patents protecting its products and services.

We are growing our technical capabilities in areas of the world where industry is expanding rapidly. In 2017, we signed an agreement with Dhahran Techno Valley Company to build and develop a world-class technology center to serve the Kingdom of Saudi Arabia and Middle East region. Once complete, the center will become the hub through which Air Products will provide technology expertise in support of new opportunities for industrial gases in the region, delivering the latest technology focused on providing improvements in process safety, energy efficiency, reliability and operational excellence to serve our regional customers.

## **Saving Diwan's Magnet**

Magnetic Resonant Imaging (MRI) machines work by creating powerful magnetic fields that enable mapping of the human body. Liquid helium is used to keep the superconducting magnets cool. Late one evening in August 2017, Air Products Dubai got a call from the Diwan clinic in the remote area of Salalah, in the southern part of Oman. The compressor system that was used to cool the clinic's MRI system had stopped working, and the helium level was dropping quickly.

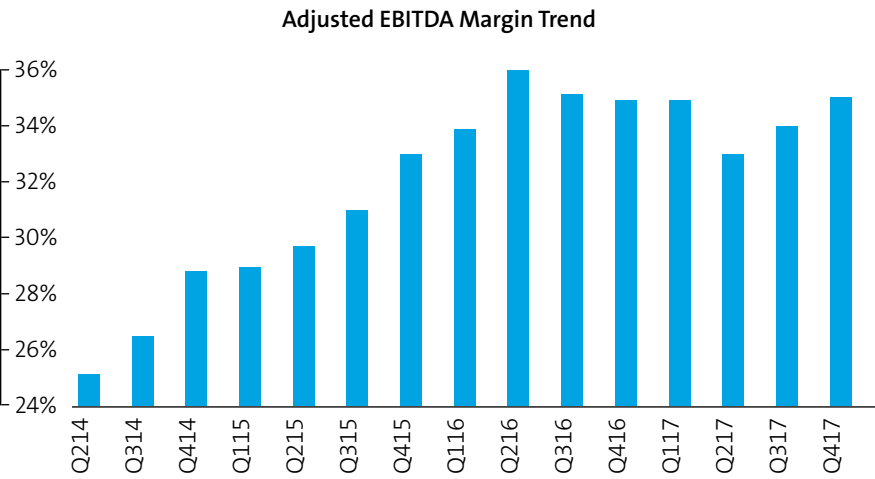
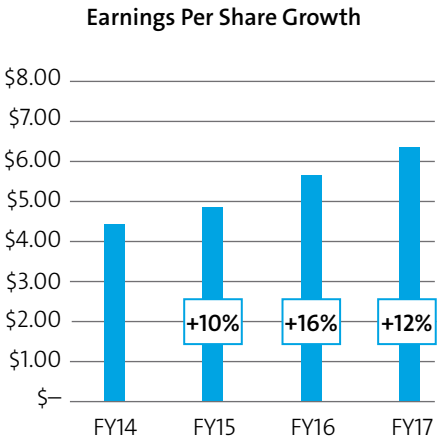
We worked through many challenges to get to the clinic, including transporting the helium 1,300 km and crossing the UAE-Omani border, which had a restricted opening schedule for trucks. When the helium arrived, the starting level was at a critical level. Six hours later, the refill operation successfully finished, reaching the necessary level of helium. The customer was relieved when the system was out of the risk zone, saying it was a "joy for me to work with such a dedicated partner."



# Economic Performance

In 2017, we delivered excellent safety and financial performance and are continuing to drive for speed, simplicity and self-confidence in everything we do. We focused on our core industrial gases business by completing the separation of our former Electronic Materials Division through the spin-off of Versum Materials, Inc. (Versum) and the sale of our former Performance Materials Division to Evonik Industries AG (Evonik). Fiscal 2017 sales of \$8.2 billion increased nine percent over the prior year, primarily due to volume growth and continued

progress on the Jazan Project within our Industrial Gases—Global segment. We delivered operating margin of 17.4%, adjusted operating margin of 21.6%, and adjusted EBITDA margin of 34.1%. We generated strong cash flow and returned \$800 million to shareholders through dividends, and for the 35th consecutive year, we increased our quarterly dividend by 10% from \$.86 to \$.95 per share. Also, for the third consecutive year, we reported double digit growth in our earnings per share of \$6.31, an increase of 12% for the fiscal year. Additional details are available in our [2017 Annual Report](#).



\*Amounts are non-GAAP measures.

## Freshline® SafeChill™ System

Campylobacter bacteria are sometimes found on the surface of raw chicken and can cause a food poisoning called campylobacteriosis. Nine million cases of this type of food poisoning are believed to occur annually in the European Union. Our new patented Freshline® SafeChill™ system uses super-chilled air to cool down the chicken surface resulting in a reduction of harmful bacteria.



# Digital Transformation

Digital Transformation. The Internet of Things (IoT). Industry 4.0. They all represent opportunities for Air Products to improve our ability to support customers, increase our own efficiencies, and differentiate our company. They also enable smarter products, more agile and efficient operations, and seamless interactions with our customers, all connected to the world around us.

The Company's Digital Center of Excellence (COE) is leading the transformation. Based on opportunities identified by regional business and technology personnel, the COE has created a three-year roadmap of business capabilities to be developed. Because the digital world changes quickly, the roadmap is updated at least annually.

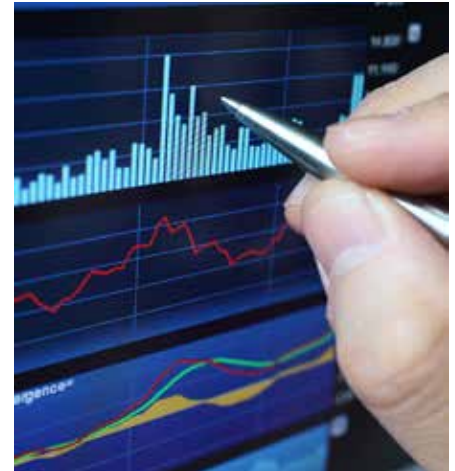
The use of digital technologies is enabling step-change improvements in plant productivity and reliability. For example, our internally developed and patented ProcessMD™ platform for process monitoring and fault diagnostics has been deployed enterprise-wide for both process and equipment condition monitoring for fixed and moving equipment. Leveraging real-time plant data and connectivity, ProcessMD is able to identify, diagnose and resolve process abnormalities. The platform is also able to incorporate image-and-audio-based analytics and connected devices to further enhance machine performance.

Air Products' digital transformation also includes enhancements to the current suite of Engineering tools that will increase functionality and integration across the entire platform. This will allow for seamless data flow between applications and the Engineering teams.

In addition, new, more robust and efficient tools will be implemented to replace those nearing end of life and those not aligned with the Company's digital roadmap. The refreshed toolset will be a fully integrated IT solution that enables our engineers to work smarter, not harder, improving efficiencies across all phases of Engineering, Procurement, and Construction. The transformation within Engineering will facilitate a collaborative environment for our global teams that will increase productivity and improve cycle times.

Some of these technologies are being extended to our customers. In 2017, the company rolled out its Plant Performance Advisor (PPA), which is built via ProcessMD. PPA employs predictive algorithms to analyze customer equipment and predict maintenance issues, allowing customers to develop action plans prior to an issue arising. Smart tablets are provided to customers to report problems and properly document them.

Customers are also pushing us in specific areas for increased digital capabilities. Packaged gas customers use digital for everyday commerce and expect us to do the same. For that reason, we have updated our customer portal to enable customers to see tank levels, recent orders, invoices and more. We have deployed other technologies such as WeChat in China, where customers can experience a virtual tour of a plant and place orders. To align with the digital advancements, we are redesigning the Air Products website to enable customers to find the information they need and connect them to our experts easily.



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## Other productivity improvements enabled by digital include:

- The use of digital tools to automatically upload maintenance information, including audio, photos and text, directly to SAP while in the field, thus making tracking easier and improving the integrity and quality of plant maintenance data.
  - Using video to connect operators at remote plants in China with technicians in Shanghai for real-time troubleshooting and support.
  - Globally implementing a supply chain visibility tool for liquid/bulk products, bringing together plant inventory, operations, and pipeline data, as well as power pricing and shipment information. This is coupled with planning tools to optimize production while meeting customer demands at the lowest overall cost.
  - Automating the supply chain for packaged gases by using mobile applications for container tracking and delivery.
  - Looking at IoT-based initiatives to lower the cost of telemetry for bulk customers.
- 

**“If you don’t go digital, you’re going to get left behind.”**

— Mark Binnig, Director Digital Transformation, Air Products

# Customer Sustainability

Air Products has over 170,000 customers across 30 industries. They come to Air Products for innovative thinking and solutions to their most pressing business challenges. We often construct our facilities on customer sites, allowing us to integrate with the customer in a way that enables products to be sent efficiently through pipelines, and utilities such as steam and water to be shared across plants.

We offer many products and applications that have sustainability benefits for customers and downstream users. Several have been noted already, including our oxyfuel burners and hydrogen for ultra-low sulfur diesel (ULSD).

Other products in this area include:

- Water treatment technology, which improves fish health in aquaculture and reduces unwanted byproducts in drinking water and sludge and volatile organic compounds (VOC) emissions from wastewater treatment plants;
- Membrane gas separators that generate gas onsite for industrial applications, and biogas membrane separators that use farm waste, manure, or municipal waste to make methane for heat and power generation;
- Cryogenic chilling and freezing solutions to help food producers increase product quality and reduce waste;
- Hydrogen fueling station technology for hydrogen powered fuel cell electric

vehicles that only emit a water mist from the tailpipe;

- World-leading liquefied natural gas (LNG) technology and equipment to meet the global growing demand for energy by making it possible to economically transport stranded energy sources around the globe; and
- Helium for magnetic resonance imaging and high-purity medical oxygen, nitrogen, and other medical gases which help to sustain life.

Examples of new products with sustainability benefits that were developed in 2017 are shown throughout this report. Two others of note include:

## CO<sub>2</sub> Capture Using Hollow Fiber

**Membranes**—Air Products AS and the membrane R&D Group of the Norwegian University of Science and Technology (Norges Teknisk-Naturvitenskapelige Universitet, or NTNU) are partnering to develop membrane technology that can be used to capture CO<sub>2</sub> from flue gases. Membrane technology is an attractive alternative for molecular separations because of its high energy efficiency, reliability, modularity, and small footprint. It also does not require any liquid solvents or regeneration steps.

**Oxiflow+ Cylinder**—This unique cylinder launched by Carbueros Médica in Spain improves patient safety while reducing gas waste. This is enabled through our patented Q-sensor™ technology that

shows cylinder content in liters, accurately predicts remaining oxygen treatment time when the cylinder is in use and has audible and visual alarms for critical gas levels. This results in fewer cylinders that are partially full being returned, thus reducing waste.

The company has set and exceeded a goal to ensure that over 50% of its revenues are derived from these products. For 2017, revenue from these products represented 52% of sales.

Our customers appreciate the products that we supply and the positive impacts they create. They also value our commitment to safety, reliability, quality, and excellent customer service. When serving our customers, the people who are closest to them are responsible for customer relationship management. Our regional businesses measure customer sentiment throughout the year, routinely monitoring and communicating data on customer satisfaction and feedback. Customer satisfaction ranged from 85% to 95% across the regions. We have a high level of customer loyalty, averaging 96% across the regions, which is important not only from an economic perspective, but also because switching gas providers often requires replacement of equipment and consumes resources. Finally, our Customer Service Teams are prepared to respond to customer questions, including ones related to sustainability which have continued to increase over the last several years.

## Helping Customers Avoid Emissions

For several years, Air Products has quantified potential emissions avoided by its customers using products that improve energy efficiency and/or reduce environmental emissions.

Through this process, we identify the sustainable offering; determine a base case against which the offering is compared;

develop product- and application-specific calculations, based on standard protocols and emissions factors (where available), to estimate potential emissions avoided; and apply sales data to these calculations to estimate the potential emissions avoided on a product/application basis.

Air Products estimates that the potential emissions avoided by industrial gas customers for these products and applications totaled 54 million metric tonnes of CO<sub>2</sub>e in 2017.



## Certifications

We understand our customers' expectations around certifications. Because of the importance of improving product quality, service, and overall value to customers, we have adopted [ISO 9001](#) as our model for quality assurance and obtained multiple ISO 9001 certifications. These certificates, which cover more than 95% of our manned facilities, are available on our website.

In 2017, two sites in the U.S. became the first CO<sub>2</sub> sites at Air Products to obtain [Food Safety System Certification \(FSSC\) 22000 Certification](#), joining 19 other sites that had already received this certification. Obtaining FSSC certification is a major achievement for the CO<sub>2</sub> business segment, and demonstrates that Air Products consistently delivers a high-quality product to meet our customers' demands.

## Data Privacy

Customers are concerned about data privacy. At Air Products, we believe it is our responsibility to safeguard the personal information of our employees and all other individuals with whom we work, including customers. We have established a [Global Data Privacy policy](#) to ensure that personal information is handled and stored in a secure manner. We also adhere to any additional data protection requirements in the countries in which we operate. We have had no substantiated complaints regarding breaches of customer privacy and losses of customer data.

## Marketing

Our marketing organizations and regional marketing managers promote, protect and enhance the value of our brand. We regularly benchmark respected external organizations for best practices and follow consistent guidelines for global promotional materials to ensure clarity and consistency of our message and identity standards. We are not aware of any instances of noncompliance, sanctions, warnings or fines regarding regulations for marketing communications during 2017.

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**We're focused on performing in a way that creates value, not scale . . . industry-leading performance, not short-term results. That's how we've always done it. It goes back to our founder, Leonard Parker Pool. He understood what industrial gas users wanted. Then he found a way to give it to them, fundamentally changing the industry forever. Listening, understanding, delivering for our stakeholders—that's the Air Products way.**

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## Protecting Personal Information

Protecting personal information is deeply valued and is increasingly important as methods used by those with dishonest intent grow more sophisticated. The General Data Protection Regulation (GDPR), effective in 2018, sets a new global bar for privacy rights, security, and compliance.

GDPR is fundamentally about protecting and enabling the privacy rights of individuals who are EU residents. It establishes strict global privacy requirements governing how to manage and protect personal data while respecting individual choice—no matter where data is sent, processed, or stored.

Air Products has been preparing for GDPR compliance since 2016. We've held awareness sessions with leadership of impacted functions, and communicated regularly with our employees. We also provided a video to our European Employee Forum and held country Works Council awareness sessions.



For our external stakeholders, we developed a new privacy notice and updated our Global Privacy Policy.

Supporting laws and acts that protect personal, private, sensitive and confidential information is about more than just

compliance; it means we are continuing to do business with integrity, and upholding the highest standards of ethics that are so important to us and to all of our stakeholders.

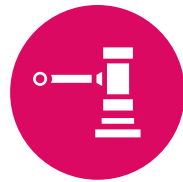


## Governance

Experience. It's what makes the difference between a good Board of Directors and a great Board. Our Board of Directors is composed of a diverse group of leaders with experience at major domestic and international companies. They have worked in key market sectors that reflect our customer base, and have sound financial and governance expertise. Their experience provides an understanding of business strategies and impacts, as well as challenges and risks.

The Board is responsible for advising and overseeing Company management to ensure that the long-term interests of shareholders are being served. These responsibilities are described in detail in the Corporate [Governance Guidelines](#) the Board has adopted. The Board has also adopted a Director [Code of Conduct](#) to help foster the highest ethical standards, integrity, and accountability; to help focus the Board and each director on areas of potential ethical risk and conflicts of interest; and to provide guidance to directors to help them recognize and deal with ethical issues and establish reporting mechanisms.

The Board has three standing committees that operate under [written charters](#) approved by the full Board: the Audit and Finance Committee; the Corporate Governance and Nominating Committee; and the Management Development and Compensation Committee. Each of these committees is led by an independent director and is comprised of independent directors with the experience necessary to ensure effectiveness. The Board and each committee undertakes an annual process to evaluate its performance against the responsibilities outlined in its respective charter.



Law



Policies



Regulations



Governance



Transparency



Requirements



Rules



Standards

### The Audit and Finance Committee

assists the Board of Directors in oversight responsibilities relating to the integrity of the Company's financial statements, financial reporting process, and systems of internal accounting and financial controls. Two directors on the Committee are financial experts. The Audit and Finance Committee appointed KPMG as the Company's independent registered public accounting firm for fiscal year 2017. During fiscal year 2017, KPMG billed the Company \$6.7 million in audit fees and \$9.8 million in total fees.

### The Corporate Governance and Nominating Committee

periodically reviews Board size and skills, retirements and tenure policies, and recommends Board candidates. To promote Board succession planning and refreshment, the Board has adopted a policy that limits non-executive director tenure to 15 years or attainment of age 72. The Board is fully declassified, and Director elections are held at Air Products' annual general shareholders meeting.

In terms of diversity, Corporate Governance Guidelines provide that, as a whole, the Board should include individuals with a diverse range of experience to give the Board depth and breadth in the mix of skills represented. This guideline is implemented by identifying candidates that bring diverse skills sets, backgrounds, and experiences, including ethnic, gender, and geographic diversity, to the Board when director candidates are needed.

The Board does not have a policy on whether the roles of Chairman of the Board and CEO should be separate or whether the Chairman of the Board should be independent. The Board determines which structure is in the best interests of the Company at any given time.

### The Management Development and Compensation Committee

assists the Board in the selection, evaluation, development and compensation of executive officers. It establishes the Executive Officer compensation philosophy and strategy, consistent with Company objectives and shareholder interests; evaluates the performance and compensation of the

CEO; provides oversight of the evaluation of Executive Officer performance and operations; and evaluates and approves severance arrangements and employment contracts for the CEO and other Executive Officers.

The full board has accountability for oversight of the Company's environmental and safety performance, which it reviews at least quarterly. The Corporate Governance and Nominating Committee has responsibility for monitoring the Company's response to important public policy issues, including sustainability, which is reviewed on a routine basis. Business ethics, climate change and talent management were key subjects discussed by the Board in 2017.

The Board compensation program balances financial results with other company values such as sustainability, safety, diversity and ethical conduct. Accordingly, some components of the program provide flexibility to recognize non-financial achievements or to reduce or recoup compensation where insufficient attention is paid to non-financial company objectives.

Additional information about the Board, including Director and Executive Officer compensation, the process for reviewing related party transactions, and details related to the above information is available in our most recent [Proxy Statement](#). The Company

has been tracking U.S. SEC and EU requirements for disclosure of the CEO-to-employee pay ratio and is developing the mechanisms necessary to comply with the requirements, including how to account for employees globally who are compensated through local payroll solutions rather than our centralized SAP HR system.

## Corporate Governance Highlights

### Board Size and Independence



We have 8 directors, and 7 are independent.

### Board Diversity



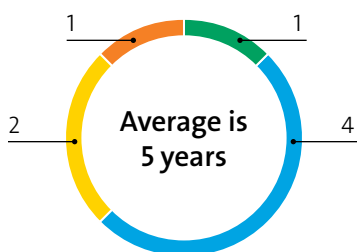
Women and minorities comprise 37.5% of the Board.

### Meeting Attendance

98%

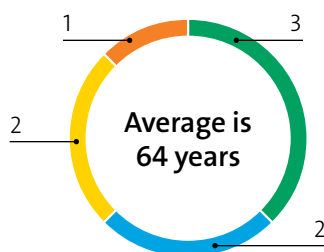
Overall attendance at Board and committee meetings  
There were 11 Board meetings in 2017.

### Director Tenure



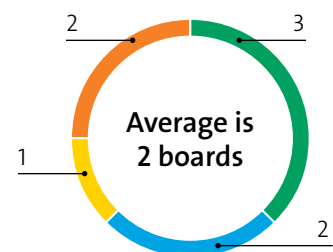
0–2 years    6–8 years  
3–5 years    9+ years

### Director Age



<59 years    66–70 years  
60–65 years    >70 years

### Other Public Company Boards\*



1 board    3 boards  
2 boards    4 boards

\*Maximum permitted is 5

## Company Governance



Seifi Ghasemi is Chairman, President and Chief Executive Officer of Air Products. In this role, which he assumed in July 2014, Mr. Ghasemi focuses on setting the strategy and policies of the company, developing leadership, and meeting shareholder commitments.

**Reporting to Mr. Ghasemi is the Executive Committee, which in 2017 was comprised of:**

**M. Scott Crocco**, Executive Vice President and Chief Financial Officer (CFO). Mr. Crocco is responsible for all aspects of the worldwide financial organization, including Controllershship, Treasury, Investor Relations, Tax, Audit, and Shared Business Services.

**Jennifer Grant**, Executive Vice President and Chief Human Resources Officer. Ms. Grant is responsible for leading the Human Resources (HR) strategy and the HR organization globally.

**Sean Major**, Executive Vice President, General Counsel and Secretary. Mr. Major has responsibility for leading the Company's legal organization worldwide.

**Corning Painter**, Executive Vice President—Industrial Gases. Mr. Painter has overall responsibility for the Company's worldwide Industrial Gases business, including Merchant, Tonnage, Microbulk, Packaged Gases, and HyCO.

**Dr. Samir Serhan**, Executive Vice President. Dr. Serhan leads the Company's Technology, Engineering and Manufacturing functions, excluding HyCO (hydrogen and carbon monoxide). He has profit and loss responsibility for the Liquefied Natural Gas technology and equipment, PRISM® Membrane Systems, and Gardner Cryogenics businesses.

Air Products' Sustainability Leadership Council sets our sustainability strategy and reviews programs and progress at least quarterly. The Council members now include:

- **Ray Bailey**, Vice President, Environment, Health, and Safety (EH&S) & Quality, who has direct operating responsibility for EHS policies, programs and performance.
- **Richard Boocock**, Senior Vice President and Special Advisor to the Chairman.
- **M. Scott Crocco**, Senior Vice President and CFO.
- **Art George**, External Communications Manager.
- **Jennifer Grant**, Vice President and Chief Human Resources Officer, who has direct responsibility for Human Rights, Labor Management, and Diversity and Inclusion.
- **Kearney Klein**, Vice President, Corporate Development.
- **Sean Major**, Executive Vice President, General Counsel and Secretary, who has direct responsibility for ethics, integrity and the Company's Code of Conduct.
- **Catherine McDonald**, Communications Director.
- **Simon Moore**, Vice President, Investor Relations and Corporate Relations, who has direct responsibility for interactions with investors, government officials and communities.
- **Julie O'Brien**, Sustainability Director.

The Council has an integral role in the assessment of sustainability priorities described throughout this report, and is the highest committee that reviewed the 2018 Sustainability Report.

## Shareholders and Rights

The largest shareholders of the Company are passive, [institutional investors](#). These investors and their holdings are disclosed in the Investor Relations area of the Company website. The CEO is required to build up a share ownership equivalent to six times his annual base salary. For members of the Executive Committee, this factor is three times annual base salary. Government institutions and founding family members do not own more than five percent of the voting rights of the Company.

Shareholder meetings are held annually, typically during the last week of January. [Proxy](#) materials are provided prior to the meetings in accordance with U.S. governmental regulations. Every owner of Company stock is entitled to one vote for each share owned. Shareholders can vote using the Internet, mobile device, telephone, mail, and in person at the Annual Meeting. Any shareholder owning at least \$2,000 or one percent of the Company's shares who has held at least the amount of shares continuously for the prior year can submit a resolution for consideration. Air Products does not employ dual class shares.

Investor Relations is very engaged with Company shareholders. Meetings, presentations and ongoing dialogue provide opportunities throughout the year to understand shareholder concerns, including those related to sustainability. Direct communications to the Board from shareholders and other interested parties is managed through a written procedure that is available through the Corporate Secretary's Office.

## Risk Management

Responsibility for risk oversight rests with the full Board, which periodically reviews the Company's risk management processes and policies. Their focus is on key risks, which currently include financial and accounting matters, compliance with legal and regulatory matters, financial reporting and controls, corporate governance, succession planning, training and retention of talent, EH&S and public policy and reputation. Collectively, our Board has financial, operational, and reputational risk management experience and is competent to make judgments about the risks facing the company.

The Audit and Finance Committee of the Board has specific responsibilities related to risk management. The Committee routinely discusses the Company's major risk exposures with management, the senior internal audit executive and the independent external auditor. Company risks are reported in the [Annual Report](#), and summarized in the Strategy, Opportunities and Risk section of this report.

In 2016, Internal Audit instituted a new risk assessment process to identify auditable risks, completing a comprehensive review that included risk themes encompassing strategic, operational, financial, compliance and IT categories. Risk areas were refreshed in 2017 and used to set Audit priorities. Results of these audits are routinely reported to leadership and the Audit and Finance Committee of the Board.

Several risks related to sustainability have been identified and audited through this process. Key sustainability risks include EH&S concerns, such as climate change, energy conservation, and water quality; talent-related issues, including labor relations, recruiting and retention, and succession planning; and ethics and integrity. These risks have also informed our materiality assessment.



# Ethics and Integrity

Integrity—behaving ethically and being true to our words—is a core value at Air Products and one we must never compromise. We do not tolerate ethics violations and have put strong policies and programs in place to prevent, detect, report and address these issues.

Ethics and integrity begins with the leadership of the Company. [Seifi Ghasemi](#), our Chairman, President and Chief Executive Officer, as well as members of our Board of Directors and Executive Committee, have taken firm positions on ethics and integrity. This is evidenced by the policies they promote and follow, and actions taken against ethics violations.

At the heart of our ethics and integrity efforts is our “Commit to Integrity” program, which includes our [Code of Conduct](#), related policies, standards and guidelines, and ongoing communications and training requirements. The Code of Conduct, which has been adopted by our Board of Directors, applies to 100% of company employees. Every employee is required to comply with the Code, complete mandatory training, and certify their understanding of the Code. This is a condition of employment at Air Products. In 2017, compliance with the Code of Conduct certification was 91%, which was lower than in the prior year due in large part to the addition of employees from acquisitions. Also in 2017, the company elected to increase the frequency of certification from a biannual to an annual certification. Beginning in 2018, annual Code of Conduct training and certification have been combined into a new, comprehensive online program that each employee will be required to complete every year. The goal for 2018 is 100% completion for the Code of Conduct training and certification.

## Committing to Integrity

Our [Code of Conduct](#) is available on our website in 22 languages and covers the following critical subjects:

- |  |   |
|--|---|
| • <a href="#">Corruption and bribery</a>         | • <a href="#">Anti-trust/anti-competitive practices</a> |
| • <a href="#">Discrimination</a>                 | • <a href="#">Money laundering/insider trading</a>      |
| • <a href="#">Confidentiality of information</a> | • <a href="#">Environment, health and safety</a>        |
| • <a href="#">Conflicts of Interest</a>          | • <a href="#">Whistleblowing</a>                        |

The [Code of Conduct](#) also applies to employees of joint ventures where Air Products has control. In addition, suppliers are expected to comply with the Code of Conduct in their dealings with us, as well as meet our [sustainability expectations](#).

Supporting the Code of Conduct is a series of internal governance policies aligned with each element of the Code. In 2017, Air Products updated and communicated changes to its policies related to anti-bribery and corruption; competition and anti-trust law; engaging third parties; accepting and providing gifts, meals or entertainment; and the reporting and investigation of claims of misappropriation of assets, business integrity concerns, legal matters and improper accounting matters. Changes were communicated with employees through our Intranet, particularly through the Company’s electronic newsletter. Specific training in these areas was required of certain employees based on their role in the company.

Air Products encourages anyone to report, as allowed by local law, misconduct or ethics violations. Employees are advised to ask questions, express concerns, or report suspected Code of Conduct violations to their manager or to our

Ethics and Compliance Team contacts, which are listed on the company’s Intranet. Air Products’ [IntegrityLine](#) also is available for employees who are in doubt about what to do, or whether an action is appropriate. Instructions for accessing IntegrityLine are available to employees on our Intranet in the same 22 languages as the [Code of Conduct](#). The availability of IntegrityLine is also communicated to employees via posters and electronic newsletter articles.

Our IntegrityLine is available to anyone who would like to report a potential issue about Air Products. It can be found in the Governance section of our website and is linked from various webpages, including our [Code of Conduct](#), [Human Rights Policy](#), [Conflict Minerals](#), and supplier information.

We do not tolerate discrimination, harassment, or retaliation. Those who take steps to uphold our integrity, and report in good faith will never suffer reprisals or retaliation.

Every allegation is reviewed and closed. The company employs a case management system for investigations, which is managed by our Global Asset Protection Director. The Director also leads the Company’s Investigation Council is comprised of representatives from each region and includes security investigators, Corporate Audit, Legal and



Human Resources. The Council meets every quarter to review cases, statistics, and trends so that the company can identify issues and address them as early as possible. In fiscal year 2017, the number of investigations increased by 20% compared to the prior year.

The company has deployed a Disciplinary Decision-Making Process for addressing allegations that have been confirmed. This is a very strong process that includes, as warranted, employee termination, the pressing of criminal charges, and internal communications about who was involved, what happened, and the disciplinary steps taken. These communications provide an opportunity for the Company to reinforce that improper behavior will not be tolerated. Over the past two years, the enhanced emphasis on reporting and discipline have driven a 13% increase the frequency of allegations being reported by employees and a 42% increase in managed investigations

Ultimately, the Company believes that it is the responsibility of each employee to uphold the ethical business standards on which our corporate and individual reputations depend.

We also conduct risk assessments for the potential for corruption risks across the organization. Anti-bribery and corruption is an element of the Internal Audit risk assessment process that is applied

across the company globally. Through the process, businesses and operations having the highest potential for corruption are identified and considered in annual audit planning. Risk levels are assigned based on location, work being performed, and other factors. Cases related to ethics and integrity issues are also considered in the audit planning process. Issues identified during audits are addressed in conformance with auditing procedures and the Company's disciplinary process. Significant risks related to corruption that have been identified through this risk assessment include relationships and transactions with governmental authorities, and the use of third-party intermediaries.

We have strengthened and simplified our process for evaluating potential corruption and bribery risks of third-party intermediaries. The risks of these intermediaries are determined using a consistent, global process that considers the work being done, where the work will be performed, compensation amount and method, and the potential for interaction with government officials. Third-party intermediaries rated as medium or high risk require due diligence. The findings of these investigations, together with the considerations noted above, are evaluated by Air Products' Business Compliance Office, Legal, Security and others as required based on the risk

and spend to determine if the vendor should be used. In addition, due diligence findings are reviewed with the third-party intermediaries for their input and to encourage ethical behavior. In 2017, the company reviewed nearly 300 new third-party intermediaries.

As disclosed in our [2017 Annual Report](#), there is an allegation of anticompetitive activities related to our Brazilian subsidiary and several other industrial gas companies. Other than this matter, we do not currently believe there are any legal proceedings, individually or in the aggregate, that are reasonably possible to have a material impact on our financial condition, results of operations, or cash flow.



## Governmental Relations

Maintaining the support and confidence of government officials and regulatory agencies is critical to our day-to-day operations. Governmental support and confidence is equally important to help ensure timely permitting and completion of our projects. For these reasons, Air Products engages with government officials in matters that support our businesses and operations.

These activities are governed by our [Policy on Political Contributions and Expenditures](#), which recognizes our responsibility to our stakeholders to participate in the political process while prohibiting the use of corporate funds for contributions to candidates in any country or region, even where allowed by law.

Corporate resources are used to advance public policy through the education of public officials about our business. For example, in 2017 we began construction of a new facility in Louisiana. Before submitting our first permit request, our Government Relations Team facilitated a meeting between senior officials at the state-level department responsible for environmental quality and our environmental team to introduce the new project and answer questions.

Corporate resources are also used to support the administrative functions of our employee Political Action Committee (PAC). Our employee PAC plays an integral role in advancing the nomination or election of qualified and responsible candidates, building and strengthening our relationships with elected officials, and facilitating positive interactions with governing bodies and regulatory agencies. In 2017, the employee PAC disbursed \$76,750 to political candidates in the U.S. that represented federal, state and local jurisdictions and all political parties.



Air Products also engages in lobbying on an as-needed basis to ensure that our business is not disadvantaged in regulation and rulemaking. For example, we have worked with governments in North America and Europe to ensure that our business model for producing on-site hydrogen is not disadvantaged from a carbon emissions perspective relative to a refinery customer making the hydrogen. Most recently we have been engaged with the government of Alberta, Canada on their climate change regulation that was finalized in late 2017. We have shown that our business model for on-site hydrogen promotes better energy efficiency, reliability, and environmental performance, which is in line with the purpose of the rule.

Lobbyists must be approved through our third-party intermediary process. Given the nature of their work and interaction with governments, these individuals and companies undergo due diligence and significant internal review. We also ask these vendors to review and acknowledge our [Code of Conduct](#), and often require anti-bribery and corruption training.

The Company's lobbying activities, relationships with government authorities, political contribution policies and political expenditures are monitored by the Corporate Governance and Nominating Committee of the Board. We report corporate spending on public policy matters in accordance with U.S. requirements, including to the U.S. Secretary of the Senate and Clerk of the U.S. House under the Lobbying Disclosure Act (LDA) and Honest Leadership and Open Government Act (HLOGA) requirements, and to the Internal Revenue Service.

## Tax Strategy

Because industrial gases cannot be transported efficiently beyond a relatively small geographic area, Air Products' operations, assets, sales and supply chains are primarily local. Accordingly, we earn and report our taxable profits in the same jurisdictions where we economically earn them. We do not report such taxable profits in tax havens or other countries where we do not have substantial operations.

We have policies in place to ensure that our tax planning is not overly aggressive and thus is sustainable. Parameters and controls have been established to guide our tax planning process. The controls include ongoing and at least quarterly reviews of all tax planning matters within the global tax group and between the global tax group and regional accounting staff. Likewise, there are a minimum of quarterly reviews between the Vice President - Taxes, the Chief Financial Officer, and the Corporate Controller and Chief Accounting Officer regarding tax planning and risks, and any large tax audit settlements must be approved by our Chief Financial Officer. In addition, the Audit and Finance Committee of our Board of Directors has oversight of, and frequently reviews, tax matters.

Due to economic and political conditions, the tax laws that apply to us can change in ways that are difficult to anticipate. Our future effective tax rates could be affected by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities, or changes in tax laws or their interpretation, including during audits. These risks, among others, are included in our enterprise risk management process. We are also vigilant in tracking and preparing for these laws, responsive during audits, and have established a reserve for uncertainties in taxes.

The taxes we pay each year are reported in our [Annual Report](#). Income and taxes are provided and broken down between U.S. federal, U.S. state, and foreign countries. In addition to the U.S., the major jurisdictions where we pay taxes include Canada, France, Germany, the Netherlands, Spain, United Kingdom, China, Singapore, South Korea, Taiwan, and Chile. More than 80% of our earnings outside the U.S. are in countries with a statutory tax rate of 24% or higher. We do not generate a disproportionate amount of taxable income in countries with very low tax rates, and we do not actively use

tax havens in our planning. A breakdown of our income and taxes on a country-by-country basis is not made publicly available because disclosure could result in competitive disadvantages.

In 2017, our adjusted effective tax rate was 23.2% on a non-GAAP basis. Additional details about taxes are provided in our 2017 Annual Report, Note 22. In addition, KPMG has reviewed the consolidated financial statements of Air Products, providing its opinion that the statements were in conformity with generally accepted accounting principles.





Grow • Conserve • Care





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# Conserve resources and reduce environmental footprints through cost-effective improvements

## Reducing Environmental Impact

**200**

thousand metric tonnes  
of CO<sub>2</sub>e avoided

**\$30**

million in energy and  
water costs avoided

**14%**

improvement in  
distribution efficiency

**2,600**

million gallons  
of water conserved

**330**

thousand MWh of  
energy conserved

**9%**

improvement in  
water efficiency

**1.4%**

reduction in GHG  
emissions intensity

**1.6%**

improvement in ASU  
energy efficiency

**16%**

reduction in  
hazardous waste



“Clean air, water and energy are critical to everyone, and to our businesses. We are working to manage these resources wisely, increasing efficiencies and consuming less while protecting the environment. These improvements are important, but perhaps more significant are the technologies we’re developing to address the environmental challenges of today and the future.”

— Julie O’Brien, Sustainability Director

# Protecting the Environment

Air Products believes that protecting the environment is a responsibility shared by all people and organizations. As a result, we are committed to improving environmental performance. We demonstrate this commitment through continual reduction in the environmental intensity of our operations, including environmental considerations in the design of our facilities and products, effectively managing environmental risks, and transparently communicating our environmental performance. These efforts are outlined in our [Environmental, Health and Safety \(EH&S\) policy](#), which covers all of Air Products, globally. We also encourage our suppliers to develop energy conservation and Greenhouse Gas (GHG) emission reduction programs, as well as water conservation and reuse programs as noted in our [Supplier Sustainability Expectations](#). Additional supplier requirements are described in the Care portion of this report.



From an environmental perspective, our greatest challenge is our GHG emissions, because they are so closely tied to continued business growth. Each time Air Products starts up a new plant, our gases can enhance our customer's efficiency and have an environmental benefit, while Air Products' absolute emissions increase. That is why we are working to improve our existing facilities while simultaneously growing

our capacity in a responsible way, implementing technology changes that increase efficiency and reduce environmental impact. If we can do that, we can continue to grow our business and at the same time make our customers' processes and products better, without proportionally expanding our environmental footprint.

## Environmental Goals

To continue to address environmental challenges and continually improve our operations, we have established four environmental sustainability goals for 2020, each of which uses operating performance from 2015 as a baseline year:

- Save energy by reducing use intensity by 2.5% for ASUs, and 1.5% for HyCOs
- Reduce GHG emissions intensity by 2%
- Conserve water and lower use intensity by 5%
- Improve efficiency and reduce CO<sub>2</sub> emissions related to distribution by 10%

Established in 2016, these goals were selected based on environmental parameters considered the most significant for Air Products. The target for each goal was developed through an iterative process that involved experts from several areas, including Distribution, EH&S, Engineering, Operations, and Sustainability. Key considerations for developing the goals included past performance, plans for facility start-ups and shut-downs, and benchmarking other companies in our industry. Goals were reviewed and approved by our Sustainability Leadership Council, and communicated to Air Products' Board of Directors.

These are very appropriate goals for Air Products because for decades, we have continually been working to improve energy efficiency, which is directly related to CO<sub>2</sub> emissions and water consumption. An example of this work is our fleet of ASUs in North America, where we have improved energy efficiency by almost 30% since 1980.

# Environmental Management, Risks and Compliance

Air Products has a global EH&S Management System that applies to 100% of our locations worldwide. This system integrates controls driven by corporate policies and governmental regulations, and supports the principles promoted by international standards such as [ISO 14001](#). Included in the management system are standards related to environmental risk assessment, best management practices, management of air emissions, water discharges, and wastes, and environmental considerations for M&A activities. While we believe our EH&S Management System fulfills the requirements of ISO 14001, we consider our customers’ needs and seek ISO 14001 certification when appropriate. ISO 14001 certification has been obtained for facilities in 9 countries, and certificates are posted on our public website.

Environmental risks are evaluated at multiple levels. At the highest level, they are considered in the Company’s enterprise-wide risk assessment process and reported to our Board of Directors. The Sustainability Leadership Council also regularly review them, and they may be considered by our EH&S Risk Council. Our “Centers of Excellence” (COE), comprised of subject-matter experts in environmental areas, identify potential risks to the Company, share best practices, and communicate their concerns to the regional businesses.

During product development, potential environmental impacts are evaluated using a phased process where environmental concerns are addressed before a product can move through a step and to the next phase of development. For commercial products, potential environmental impacts are assessed through our product risk review process, which establishes risk management measures for products based on their intrinsic environmental hazards. Depending on the potential environmental impact, we also conduct life cycle assessments of products and processes to identify areas for improvement. We also evaluate environmental protection during plant design and operation. Capital expenditure

authorizations, which are required to finance new projects, include environmental considerations.

We are subject to various environmental laws and regulations in the countries in which we have operations. Our Corporate EH&S Assurance Group audited 32 plants in 2017 for compliance with governmental requirements and internal standards, using our EH&S functional and operational expertise in production plants. Audit results are reported to senior management and, as needed, to the Board of Directors. There were no significant controversies related to Air Products and the environment in 2017.

## Environmental Governance and Oversight

Board of Directors	Formal oversight for environmental considerations, performance and goals
Sustainability Leadership Council	Policies, programs and performance indicators for sustainability initiatives
Vice President, EHS&Q	Direct operating responsibility for policies and programs
EH&S Risk Council	Evaluation of potential EH&S risks and impacts of proposed business activity and projects
Environmental Centers of Excellence	Focal points for the Company on environmental matters

## Improving the Environment at our Headquarters

Air Products’ headquarters, located in Allentown, Pennsylvania, is a 235-acre campus with 1.5 million square feet of buildings supporting administrative and R&D functions. The campus has grown with the company over the years, starting with one building in the 1950’s and increasing to six in the 1980’s.

Managing this large facility can be complex, particularly with the aging buildings and infrastructure. Despite these challenges, we have continued to improve the

environmental performance of our campus. During 2017, we reduced electricity by 8% and natural gas consumption by 3%. We also reduced water consumption by 2%. In addition, we recycled 59% of the waste we generated, including 435 tons of paper, cardboard, metal, wood and leaf wastes.

We are currently developing plans for a new headquarters in the Lehigh Valley, and sustainability is a key consideration for the design and operation of our new home.



Air Products people work hard to meet all environmental requirements and regulations every day, at every site. The vast majority of our sites use the SAP Compliance Management tool to administer compliance with environmental permits and regulations, and have done so since 2007. But with over 750 manufacturing facilities around the globe, there are opportunities for plant upsets and unintentional errors that may result in unintended non-conformances.

Compliance with environmental requirements is tracked on an on-going basis and reported internally every month. Incident reports, which are tracked in a Global Event Management tool, are required for any situation that may cause harm to the environment or does not maintain compliance with government regulations.

In fiscal year 2017, NOV's and KPI's were up slightly (6–8%), primarily due to incidents in the Americas for which a systematic analysis was initiated. The number of spills were consistent year-on-year, with one reportable spill of a fuel occurring in the Netherlands. Regulatory fines were up significantly due to an NOV related to an odor complaint in Chile; without this one incident, fines would have been slightly lower than in fiscal year 2016.

Compliance with environmental laws and regulations also results in capital expenditures and costs. During fiscal 2017, we spent \$7 million for capital improvement in our facilities to further control emissions and reduce waste. We spent another \$11.4 million in additional operating expenses directly attributable to environmental protection activities.

Air Products is engaged in active remediation at several sites, including some that were part of a former Chemicals business which was divested and is no longer part of our business. We accrue environmental investigation and remediation costs when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. The potential exposure for such costs was estimated to range from \$83 million to a reasonably possible upper exposure of \$97 million for fiscal year 2017.

### Global Environmental Measures

	FY17 Performance
Notices of Violation (NOV's) <sup>1</sup>	14
Key Performance Indicators (KPI's) <sup>2</sup>	34
Reportable Spills	1
Regulatory Fines	\$20,386

<sup>1</sup>A deviation from a regulation or permit requirement that is formally cited by a government agency.

<sup>2</sup>Any emission or discharge that exceeds a regulatory or permit limit, the discovery of missing or expired permits and NOV's.

## Efficient Use of Resources

The principal raw materials for making both atmospheric gases and hydrogen are air, energy, and natural gas. Air, which is considered by many to be a renewable resource, represents more than 93% of the raw materials we use on a weight basis. Similarly, 80% of the raw material used for our carbon dioxide business is from renewable sources.

Industrial gas manufacturing is energy intensive. Specifically, air separation units require significant amounts of

energy in the form of electricity or steam to compress air so that it can be cryogenically distilled into oxygen, nitrogen and argon. Likewise, the production of hydrogen consumes a significant quantity of natural gas as a feedstock and as a fuel in the production process. Despite this energy intensity, the use of industrial gases enables our customers to enhance their energy efficiencies and improve environmental performance, which avoids more carbon emissions than are generated during

gas production. Plus, we are continually working to improve our energy efficiency, which reduces our costs and environmental impacts.

Packaging is not a significant issue for Air Products because we supply the majority of our products in two-way bulk or semi-bulk containers or via pipelines. For small-scale supply, we use cylinders that are long life, returnable, and reusable transportable pressure vessels with typical life spans of 20 years or more.



## Energy Conservation and Efficiency

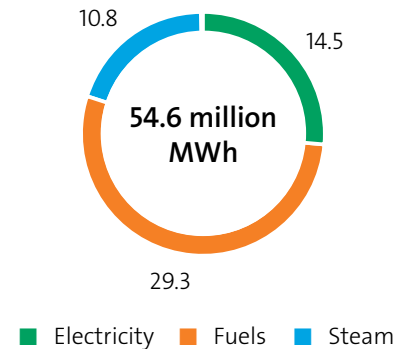
Energy consumption is an important variable cost of our production processes, and we carefully track and manage energy purchases. Our conservation programs are focused on continually improving energy efficiency across all our plants, and in particular, our larger facilities that consume the most energy.

Our energy consumption in 2017 was 54.6 million MWh, representing a 6% increase from 2016. The increase was a result of our growth which was driven by rising customer demands. Due to changes in our approach to energy reporting in 2018, Air Products is reporting on purchased energy for 2017 and has restated consumption for 2015 and 2016. Furthermore, our natural gas consumption is based on its use as a fuel in our facilities. The amount of natural gas used as a feedstock to produce hydrogen in our HyCO facilities is considered company confidential.

Of our electricity purchases in 2017, 22% was from renewable sources. This is an increase of 16% from 2016 due to our higher use of renewable energy in France and the UK, as well as increasing the amount of renewable energy we use that is available on the grids in certain regions where we operate.

In 2017, our ASUs realized a 1.6% reduction in energy intensity from a baseline year of 2015. Our HyCO units improved energy efficiency by 0.6%. These successes were realized through the commissioning of new, larger and more efficient facilities, as well as hundreds of facility improvement projects involving changes to equipment and manufacturing processes.

### Energy Consumption



## Using ISO 50001 for Energy Management

Everyone wants to save energy—from small communities to big governments. But when a large company like Air Products has so many different businesses in so many locations, it becomes a challenge. That is where ISO 50001 Energy Management System (EnMS) can help. The ISO 50001 standard provides organizations with a recognized framework for integrating energy performance into their management practices. It is a proven approach for industrial and commercial facilities to plan, manage, measure, and continually improve energy performance.

In 2017, our operations in France were certified to ISO 50001, following the successful earlier certifications of our energy systems for Spain and Germany. The cross-functional team in France worked with business, procurement, and operations personnel to embed the energy philosophy and work practices, enabling us to successfully pass external audits and gain accreditation. Managing energy usage on a day-to-day basis supports Air Products' approach to sustainability through which we are continually working to improve our energy efficiency and reduce our impact on the environment.



# Greenhouse Gases and Climate Change

We share society's concerns about the impacts of climate change on our environment. As a result, we are focused on developing real solutions, bringing the breadth of our innovation, problem solving abilities, and proven gases and technology capabilities to bear on climate change.

Our Greenhouse Gas strategy is focused on leveraging the business growth opportunities of climate change while managing its potential risks. In this capacity, we are identifying opportunities to use our core technology and product strengths to bring cost-effective solutions to our customers, and helping to reduce their environmental impact while improving our facilities to reduce emissions and costs. This approach is documented in our [Greenhouse Gases Policy Statement](#).

We believe the global challenge of greenhouse gases should be addressed through a diverse mix of solutions. With the increasing use of fossil fuels, and the world's continuing need for clean energy, we expect our gases and technologies to continue to improve efficiency and reduce GHG emissions in a variety of end-use markets. Our most significant contributions to address the global challenge of climate change will be in developing clean energy technologies with the potential to reduce emissions across the energy supply chain through a variety of emission reduction options.

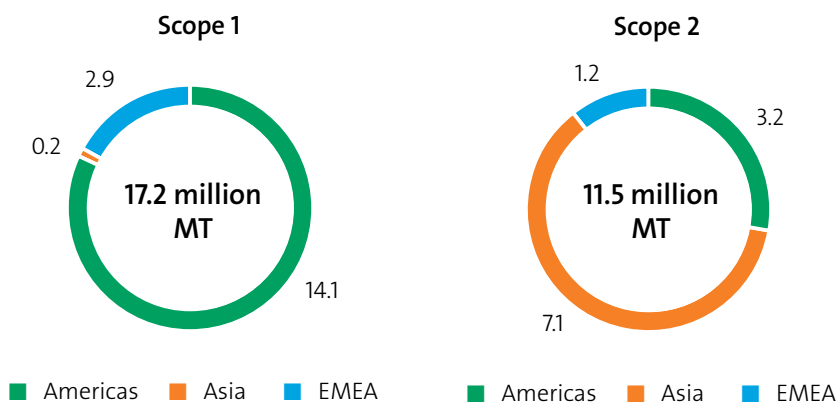
From our leading position supplying hydrogen to refineries to make low-sulfur, cleaner burning fuels; to large-scale oxygen systems for solid fuel combustion and oil or clean coal gasification; to delivery systems to support a future hydrogen economy, we continue to invest in research and development (R&D) to develop products and processes that contribute to cleaner air and GHG mitigation. In 2017, over half of our total R&D budget of \$58 million was spent on products and processes that improve energy efficiency and/or benefit the environment.

Meanwhile, as we grow our operations to meet the increasing needs of our customers, we are committed to improving our own facilities, acting on emission reduction opportunities, and decreasing our overall environmental impact. These efforts include ensuring the resiliency of our facilities through engineering plant design. For example, our structures and related foundations are designed based on regional wind velocities that consider 50 years of climate data. Likewise, in the design and layout of our plants we evaluate how to eliminate or minimize flooding risks based on site drainage where we identify this as an issue, as well as the use of flood walls and elevation for sensitive equipment if necessary.

Risks related to climate change are routinely reviewed by our GHG COE.

The COE is comprised of regional environmental experts representing the Americas, Asia, and EMEA, Government Relations team members, and our Sustainability Director. In addition to risk assessment, this team considers the financial impacts of climate change, supports internal policy development, tracks regulations and legislation, and regularly updates management. COE members communicate risks to potentially impacted businesses to develop strategies and execute plans to address the risks. For example, COE members have worked with governments in North America and Europe to ensure that our business model for producing on-site hydrogen is not disadvantaged from a carbon emissions perspective relative to a refinery customer making the hydrogen.

Some of our operations are within jurisdictions that have or are developing regulatory regimes governing emissions of GHGs. These include the European Union Emission Trading Scheme, California and Ontario Cap and Trade Schemes, Alberta's Specified Gas Emitters Regulation, China's Emission Trading Scheme pilots and national scheme, and South Korea's Emission Trading Scheme. In addition, the U.S. Environmental Protection Agency (EPA) requires mandatory reporting of GHG emissions for certain operations, and is regulating GHG emissions for new construction and major modifications to existing facilities. Some jurisdictions have developed



WSP Environment & Energy (WSP) conducted a limited assurance review of our 2017 Scope 1, Scope 2 and Scope 3 greenhouse gas inventory in accordance with ISO 14064-3. WSP issued an Assurance Statement, attesting to Air Products' adherence to the Greenhouse Gas Protocol and the absence of any material inaccuracy in the representation of the inventory data.

mechanisms to target the power sector to achieve emission reductions, which often result in higher power costs.

Developments related to the Paris Agreement and increased public concern may result in more requirements to reduce or mitigate the effects of GHGs. These developments could increase our costs related to energy or GHG emissions. We believe we will be able to address some of the increased costs through contractual terms, but the lack of definitive requirements prevents an accurate estimate of the long-term impact these measures may have on our operations. As noted in our [2017 Annual Report](#), any legislation that limits or taxes GHG emissions could negatively impact our growth, increase our operating costs, or reduce demand for certain of our products. These are some of the reasons why we are striving to reduce our environmental impact while working with regulators to ensure economic and environmental solutions to GHG emissions.

As previously noted, in 2016 Air Products established a goal to reduce GHG intensity by 2% by 2020 from a 2015 baseline. This goal is based on past performance, operational changes, and industry benchmarks.

We have also evaluated techniques for establishing a science-based target; however, due to the nature of our business and heavy reliance on energy, thus far, we have been unable to develop

a credible, economically viable, and achievable target.

Performance against our goal is calculated by totaling Scope 1 and 2 emissions normalized to production for the reporting year, and then dividing by this same ratio for the baseline year. This results in a dimensionless value that shows year-on-year changes, but does not provide insight into production levels, which are company confidential.

Due to changes in our approach to GHG reporting in 2018, Air Products has restated its GHG emissions for the past two years. Under these revised guidelines, which are more in line with industry peers' reporting, we have reduced our GHG emissions intensity by 1.4% since 2015 and are on track to meet our 2020 goal.

We have also completed an assessment of our Scope 3 reporting, and are no longer reporting on several categories due to concerns about data quality and alignment with industrial gas peers. Under this new approach, our Scope 3 emissions, which include fuel and energy related activities, business travel, and investments, were 4.9 million metric tonnes for 2017.

We use the WRI/WBCSD Greenhouse Gas Protocol standard to define organizational and operational boundaries, emission calculation methodologies, and inventory quality aspects to ensure an accurate and representative inventory. We apply the

financial control method and use publicly available global warming potentials and emissions factors, primarily from the Intergovernmental Panel on Climate Change, International Energy Agency, and U.S. Energy Information Administration. GHG emissions reporting is mandatory in many of the jurisdictions where we operate, and we incorporate these reports into our inventory. Scope 2 emissions are calculated using the location-based method.

An Inventory Management Plan defines the work processes employed in managing our data, documents refinements to the emission estimation methodology, and guides any restatements of historical values based on objective criteria. The Inventory Management Plan and supporting work process reference documents cover our Scope 1, Scope 2 and Scope 3 reporting activities.

The calculations and data are subjected to several levels of quality assurance to ensure completeness and accuracy of the resulting emissions inventory. The entire inventory process is documented and subsequently summarized in our "Annual GHG Inventory Summary and Goal Tracking Form." This form, the Inventory Management Plan, and all the underlying calculations and data compilations are reviewed by an independent, third-party assurance firm, providing a further level of quality assurance.

## Understanding our Carbon Risks through Scenario Analysis

By its very nature, the industrial gas industry is energy intensive. As a result, Air Products has significant carbon emissions, including Scope 1 emissions associated with natural gas use from our HyCO facilities, and Scope 2 emissions associated with the electricity and steam used at our ASUs. To understand the long-term (2050) risks of these emissions, we initiated the analysis of climate scenarios in 2017.

The scenarios are focused on the potential impacts of emerging carbon mitigation and renewable energy technologies, changing socio-economic habits of society, and long-term policy changes, including new and tighter regulations on carbon emissions that could impact our businesses directly or indirectly through energy pricing. Multiple scenarios are under consideration, with the base scenario being consistent with limiting the global temperature increase to 2° Celsius, which,

according to the Intergovernmental Panel on Climate Change, requires limiting the atmospheric concentration of CO<sub>2</sub> to 450 parts per million by 2100. The other scenarios provide insight into how sensitive our businesses are to the different paths climate regulation and carbon mitigation could take.

Results of these analyses are pending and will be reviewed internally with leadership before being released.

## Hydrogen-Cleaner Air Every Day

Hydrogen helps keep the air cleaner.

That's because hydrogen is used to remove sulfur from crude oil and make cleaner burning transportation fuels. These fuels, combined with changes to truck engines and emissions control systems, have enabled significant reductions in emissions from diesel combustion engines. That includes reductions in SOx, which can harm the human respiratory system and make breathing difficult, and contributes to acid rain that impacts our ecosystems.

Using hydrogen to reduce sulfur also enables catalytic converters to work better and decreases other pollutants from transportation fuels such as nitrogen oxides (NOx), particulate matter, and volatile organic compounds (VOCs), which also cause respiratory problems and contribute to pollution. In addition, the largest component of particulate matter, black carbon, has a strong global warming potential that can impact climate change.

The most practical, commercially viable way to produce the volume of hydrogen needed for cleaner transportation fuels is to extract it from natural gas using steam methane reforming (SMR). This process releases CO<sub>2</sub>, a greenhouse gas, but the CO<sub>2</sub> released from SMRs is more than offset by the CO<sub>2</sub> avoided from black carbon emissions.

The use of hydrogen in the oil refining process has additional benefits – it helps conserve a valuable natural resource as it increases the amount of fuel that can be produced from every barrel of crude oil. In fact, by using hydrogen in the refining process, refiners have increased the production of transport fuels by improving yields from 42% in the 1990s, to 82% now.

For over 25 years, Air Products has been the leader in responsibly producing hydrogen. Every day, we make nearly three billion standard cubic feet of hydrogen. We have more than 100 hydrogen production plants worldwide, and the world's largest hydrogen supply pipeline at over 600 miles in length.

Our SMRs maximize energy efficiency and optimize heat integration. This reduces emissions by converting more feedstock into hydrogen. Many SMRs use waste refinery fuel gas as a feedstock, thereby preventing pollution of waste gases and reducing the need for fossil fuels. We use our SMRs to make steam for our customers, producing it in a way that is much more efficient than boilers. Plus, our patented, combined gas turbine SMR cycle enables the co-production of electricity from the process.

With more people and more vehicles around the world, more cleaner fuels will be needed. We will continue to work hard to meet the industrial and societal global demand for more hydrogen; to innovate and make the hydrogen production process more sustainable; and with an eye to the future, look to renewable hydrogen sources for fueling.

## Port Arthur CO<sub>2</sub> Carbon Capture and Sequestration Achieves Milestone

In October 2017, we reached a major milestone at our Port Arthur CO<sub>2</sub> capture plants in Texas. Since start-up in 2013, the plants have successfully used Air Products' proprietary technology to capture and deliver four million tons of CO<sub>2</sub> to customers who use it to increase the amount of crude

oil extracted from their oil fields. Air Products collaborated with the U.S. Department of Energy on this project, which demonstrates the successful use of technology to capture CO<sub>2</sub> emissions from industrial processes and use it for beneficial purposes.





## Looking Ahead to the Hydrogen Economy

The world faces a huge challenge in making the shift toward clean, sustainable energy sources. In many ways, hydrogen is a great solution. It is abundant and non-toxic. When used in a fuel cell, hydrogen is 2.5 times more efficient than gasoline and diesel, and produces no emissions. Hydrogen can also be made from renewable resources, and may be the only alternative fuel that can simultaneously reduce a country's dependence on imported energy and significantly reduce GHGs.

To enable successful commercialization of hydrogen vehicles around the world, Air Products has taken a leadership

position in the development of hydrogen supply and fueling infrastructure. Our plan has been to demonstrate how to build out a hydrogen market holistically. And we have proven through our efforts in California that it is possible to meet transportation fueling needs—production, delivery, and dispensing—safely and competitively.

Our SmartFuel® hydrogen fueling technology has been adopted in the Society of Automotive Engineers (SAE's) hydrogen fueling standard practiced worldwide. This advanced, high-pressure distribution system enables hydrogen-powered fuel cell vehicles to be refilled in



a safe, fast, reliable, and familiar manner. In fact, SmartFuel® technology is used in approximately 1.5 million hydrogen fills per year, and Air Products has been involved in over 200 hydrogen fueling projects in the U.S. and 20 countries worldwide.

## Distribution Efficiency

In 2017, our drivers drove about 150 million miles (240 million km). That's the same number of miles as traveling to the moon and back over 300 times. With that distance being driven, it pays to be more fuel efficient. And it reduces the amount of CO<sub>2</sub> emitted from our trucks.

Every year we execute projects around the world to improve the efficiency of our fleets. Some of our efforts in 2017 included procuring tractors that run on natural gas as well as purchasing additional

tractors that are more fuel-efficient. In the U.S., we continued to convert our trucks to hydraulic systems for auxiliary power, shifting away from auxiliary engine-driven pumps and their associated emissions, and enabling compliance with California Air Resources Board emissions requirements. Driver coaching on more efficient fuel techniques was also extended, and included a focus on real-time performance, such as fuel efficiency, using electronic tools and data.

The results of these activities continue to yield benefits—we have improved our distribution efficiency by 14% since 2015, and reduced our transportation related CO<sub>2</sub> emissions by 28 thousand metric tonnes.

### Air Products France at the Forefront with FRET 21

In 2012, Air Products was one of two companies that approached the Association des Utilisateurs de Transport de Fret (or AUTF, the French loaders association) to develop a voluntary sustainable transport initiative to encourage transporters to reduce emissions. Three years later, the initiative was officially launched as FRET 21.

Air Products was one of the first signatories of FRET 21, and we met our three-year commitment to reduce CO<sub>2</sub> emissions from transportation by 7% by changing how we managed deliveries and logistics, and collaborating extensively through our logistics and sales teams in France. Given

the positive impact achieved, Air Products signed up for Phase 2 of FRET 21 in 2017, renewing our commitment for an additional 7% CO<sub>2</sub> emissions reduction in our product transport in France.



## Water Conservation

As world populations grow, water scarcity is becoming increasingly real. Experts project there will be a 40% shortfall between water demand and fresh water supply by 2030, and by 2050, nearly three billion people will live in water-stressed areas. Water conservation is critical to the health and sustainability of our planet.

Water is vital to Air Products – we cannot operate our facilities without water supplies that are sufficient in quantity and quality. As a result, we strive to be good stewards of water by reducing our water consumption intensity and implementing projects to recycle water and improve water quality.

We use water primarily for cooling, to make hydrogen using the SMR process, and to provide steam and water to our customers. The steam is a co-product of our SMRs, and has a significant efficiency advantage when compared to steam generated from boilers. Because of these uses, our water consumption is tied closely to energy use; therefore, improvements in energy efficiency can also conserve water. Furthermore, we use water for safety systems (i.e., fire suppression) and cleaning.

Air Products' Water COE monitors risks associated with water. Comprised of representatives from our regional environmental teams, the COE tracks developments in water permitting, protection and quality, and engages with stakeholders to identify water use reduction opportunities and sourcing strategies. Key risks related to water include:

- Sufficient amounts of good quality water available for use at our facilities, as well as at the facilities that produce the energy we need to run our plants;
- Sufficient amounts of recycled water for our facilities that use gray water, including several sites in North America; and
- Increasing costs of water tariffs, although these are not expected to have a substantive impact.

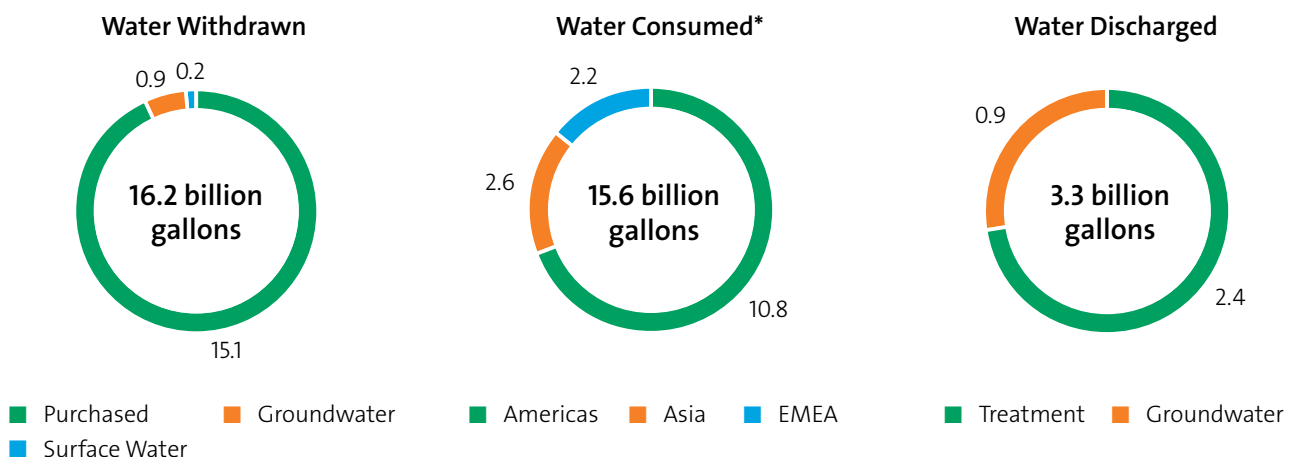
We have also used the WBCSD Global Water Tool to identify our operations that are in water stressed areas so that we can quantify and address the potential risks posed by water scarcity and quality.

At most of Air Products' largest facilities, water is provided to our manufacturing operations by our customers under contractual arrangements. The Company

also recycles water with many customers via steam or water export and condensate return. These approaches help mitigate the risk of water availability to Air Products.

Risk is also mitigated by considering water availability and quality in plant siting, and executing long-term supply contracts. In addition to using recycled water, in some water-scarce areas we have converted to cooling with air rather than water. This reduces the amount of water needed, but increases the amount of energy needed for cooling. An example is our facility in Inner Mongolia, China, that uses a closed cooling water system due to water scarcity and the local climate.

We also see increasing water demands as an opportunity for business. Our strategy is to identify opportunities where our technology and product strengths bring cost-effective solutions for our customers while seeking to improve water quality or treat wastewater for reuse. Our offerings include pure oxygen aeration systems for wastewater treatment and aquaculture, oxygen for ozone generation, carbon dioxide for pH adjustment and drinking water remineralization, and ozone and advanced oxidation systems for wastewater treatment. Increased



demand for these products and services that enable improved water quality and/or increased reuse and recycle can result in increased revenues.

Air Products has established a goal to reduce water consumption by 5% on an indexed basis by 2020 from a 2015 baseline. In 2017, we made good progress against this goal, realizing a 9% decrease and achieving our goal.

Our consumption of water, on an absolute basis, increased to 15.6 million gallons in 2017 due to increased manufacturing production required to meet our customers' needs. Consumption on an intensity, or per volume of product basis decreased, as our energy efficiency and water intensity improved. That means the volume of water we consumed was not commensurate with the growth of our operations.

These water use improvements have been driven by collaborating with our suppliers to evaluate water use, and finding ways to reduce consumption. Specifically, we identified facilities that are consuming more water per unit production than similar facilities, conducted assessments at these facilities to identify conservation opportunities, and made appropriate changes at the plants. We also shared the lessons learned at these facilities across our fleet of global plants.

Much of our water conservation to date has resulted from improving cooling tower operations and converting to recycled gray water in our plants. For many years, Air Products has worked with its suppliers to optimize cooling tower cycles, thus reducing the amount of water used for flushing high mineral content water from the systems ("blowdown") and decreasing the amount of fresh "make-up" water that must be added to replace the flushed water. A recent example of this success is at our plant in Cleveland, Ohio, where cooling tower cycles were increased by 60% (from five to eight cycles). This resulted in annual reductions of 12 million gallons of both blowdown and make-up water, and monetary savings of over \$150K per year.

In water stressed areas, we have looked for opportunities to use recycled water and reduce our consumption of freshwater. Likewise, we have encouraged our industrial neighbors and joint venture partners to consider the use of recycled water. We have made a lot of progress in recycling water, particularly in Southern California. Another example of recycling is in China, where our Quanta ASU plant in Shanghai worked closely with its customer to redirect water that was being discharged. This not only saved water, it

also saved money and time for our facility, as we no longer needed to bring in water to the plant. This type of connection with our customers enables significant water recycling between our operations. Across all our plants, we estimate that 6% of our water was recycled in 2017.

The direct water discharges from most of our ASUs are predominantly cooling tower blowdown streams with low chemical oxygen demand (COD). In fact, most of the water we use for cooling is returned to its source at a higher quality than when it entered our plants. Our HyCO operations typically generate higher COD wastewater streams; however, these are transferred to nearby regulated facilities where COD is effectively treated prior to the water being discharged to the environment. COD released totaled 4.8 metric tonnes in 2017.

Water we use at or discharge from our operating sites does not significantly affect any ecosystems, habitats or water sources. We continue to evaluate our water sources annually using the WBCSD Global Water Tool, and as part of our participation in CDP's annual water survey.

## Potable Water Conservation in Southern California

Water is essential to life—from hydration to irrigation to the manufacture of goods that people use every day. Around the world, communities are facing water supply challenges due to increasing demand, drought, depletion and contamination.

Our three largest manufacturing plants in the regularly drought-stricken area of Southern California have implemented innovative solutions to reduce their potable water consumption. The combined impact of the projects at these three plants is a decrease of over 190 million

gallons per year of potable water use, plus the secondary benefit of the reduced wastewater discharge. That's enough water to provide a half gallon of drinking water per day, for a year, to over one million people.

The successful results of these projects earned a 2017 Air Products Chairman's EH&S Award and recognition by the Compressed Gas Association.



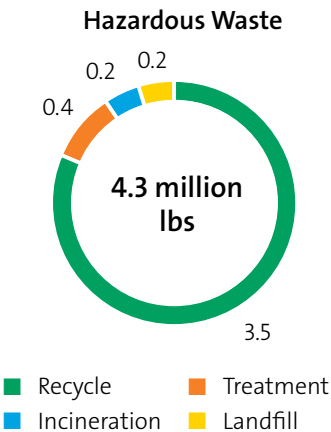
# Waste Management

Although the production of industrial gases does not generate a significant amount of waste, we are continually looking for ways to prevent waste generation and reduce disposal. This is not only good for the environment, but it also reduces our costs.

Definitions of hazardous waste vary by jurisdiction, so we use the local definitions in our reporting. Most of the hazardous waste we generate is from acetylene manufacturing, which results in a byproduct lime slurry. This lime slurry is often beneficially reused in

other processes, such as in neutralizing water, producing bricks, and hardening materials in landfills. Despite these uses, the slurry is classified as a hazardous waste in many jurisdictions and as a result, we include it in our reporting. Other sources of hazardous waste include spent catalysts, waste oils and solvents, waste paint and materials used to clean-up small spills. All waste is managed and treated in accordance with the regulatory requirements of the jurisdiction in which the waste is generated. Waste that cannot be recycled is disposed of in an environmentally sound and regulatory compliant manner.

With respect to non-hazardous waste, Air Products has a complete dataset for North America that is supported by our national waste vendors. In 2017, this waste totaled 8.1 million pounds, which was 5% lower than in 2016. We are continuing to analyze information available for non-hazardous waste on a global scale.



In 2017, we decreased the amount of hazardous waste generated by 16% when compared to 2016. This reduction was due primarily to fewer plant shutdowns and lower maintenance requirements in 2017. Waste volumes are based on invoices and collected on a global basis. All hazardous waste was shipped off-site for handling, and no hazardous waste was shipped internationally.

## Reducing our Largest Source of Hazardous Waste

Acetylene production generates our largest source of hazardous waste, a strongly alkaline lime by-product. Most of this waste is from our Gopeng, Malaysia acetylene facility where, according to regulation, this by-product must be disposed of at an approved waste facility unless a legitimate, beneficial use can be found and approved by authorities.

The plant team looked for opportunities to beneficially reuse the by-product, and found a manufacturing facility that could use it to treat their acidic wastewater. After getting this use approved by the authorities and conducting a thorough waste management assessment, including how the waste could be transported in a safe and environmentally-sound manner, we delivered our first load of by-product in March 2017. The arrangement has continued to be successful, and beneficial for Air Products, the manufacturing facility, and the environment.





## Air Emissions

The production of atmospheric gases emits almost zero pollutants directly to the air. Most of our air emissions are a result of hydrogen manufacturing and utility operations that support our facilities.

We monitor and report these emissions in accordance with applicable regulations. Regulated emissions include nitrous oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), certain toxics, hazardous air pollutants (HAPs) and volatile organic chemicals (VOCs). NO<sub>x</sub> and SO<sub>x</sub> are products of combustion and result primarily from the fuel we use in our boilers and SMRs. The remaining air pollutants result from the loss of chemicals used in our processes, such as methanol in our Rectisol™ units, or solvents used in the maintenance of equipment.

### NO<sub>x</sub> and SO<sub>x</sub>

NO<sub>x</sub> and SO<sub>x</sub> emissions were 1,560 and 69 metric tonnes in 2017, respectively. NO<sub>x</sub> emissions increased 4% year-on-year due to the full-year operation of a new facility, overall production increases, and higher emissions from a facility during start-up. SO<sub>x</sub> emissions decreased by 3% from prior year due to reductions in the concentration of sulfur in a fuel used at one of our plants.

### Toxic Release Inventory (TRI) and VOCs

TRI is a U.S. EPA program for tracking toxic chemicals that may pose a threat to human health and the environment. Each year, U.S. facilities in different industry sectors must report how much of each chemical is released to the environment and/or managed through recycling, energy recovery and treatment. Air Products has publicly reported TRI data since 1993 when the company issued its first EH&S report.

Toxic releases totaled 0.2 million pounds in 2016 and increased compared to prior year due to production increases. Hazardous air pollutants (HAPs) for 2016 were 0.05 million pounds and decreased compared to prior year. VOCs were also lower, dropping to 0.1 million pounds.

### TRI Releases for 2016\* (millions of pounds)

Air	0.2
HAPs*	0.05
Water	0.00
Land	0.05
<b>Total</b>	<b>0.25</b>

\*TRI data is available in August of the reporting year. HAPs are a subset of TRI air releases.

### Ozone Depleting Substances

Air Products does not manufacture ozone depleting substances such as hydrochlorofluorocarbons (HCFCs), chlorofluorocarbons (CFCs) or methyl bromide. We do sell different gas mixtures that contain small quantities of HCFCs and CFCs in cylinders for calibration of detection instruments, as allowed under the Montreal Protocol.

In eight European countries, we are a refrigerant distributor but also recover, recycle and reclaim the gases for destruction. We phased out the use of ozone depleting substances in plant refrigeration systems at our facilities in advance of legislative requirements.

## First of Its Kind—Turning Theory Into Reality

The biogas-to-hydrogen concept has been studied for a number of years. Until now, the concept has been theoretical—create clean burning hydrogen fuel from renewable sources rather than synthesizing with fossil fuels. Today, Air Products PRISM® PB Membrane technology is making this theory a reality.

Air Products has partnered with a hydrogen farm in Japan to create a supply of raw biogas from anaerobically digested agricultural wastes. This biogas is upgraded to a purified supply of biomethane using

Air Products' PRISM PB Membrane separators. The biomethane is then used as a feedstock to manufacture renewable hydrogen on-site, which generates heat, power and vehicle fuel. This is the first facility in Japan to use agricultural wastes as the source to manufacture hydrogen.

The project demonstrates an integrated hydrogen energy-based supply chain, leveraging local renewable energy sources for hydrogen generation, storage, transportation and use. The hydrogen is returned to local livestock farmers and neighboring facilities as a source of renewable energy and fuel.



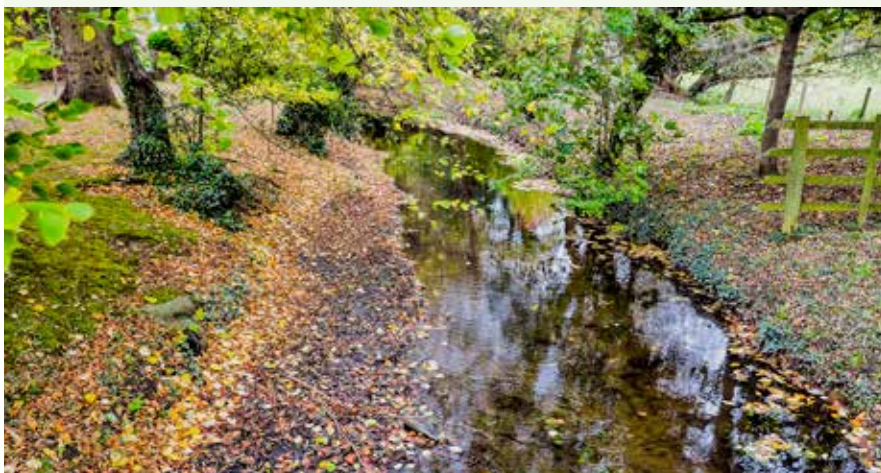
## Biodiversity

Early in the planning stages of any new capital investment, from new plants or expansions to pipelines, we assess safety, human health, socio-economic, cultural and environmental impacts with an aim toward balancing benefits and minimizing impacts. Assessments include consideration for bio-ecology, land use and ecosystem impacts, including impacts on wildlife, vegetation and environmentally important habitats such as wetlands. These assessments can influence decisions to modify a project or develop mitigation strategies to ensure the ecological health of the location and region is maintained or enhanced. Likewise, our construction practices focus on preserving the local environment by reducing the likelihood of spills or negative effects from runoff.

For our existing operations, and based on information from the WBCSD Water Tool, Air Products discharges water into eight Conservation International Biodiversity Hotspots, including: the Atlantic Forest, California Floristic Province, Chilean Winter Rainfall and Valdivian Forests, Indo-Burma, Mediterranean Basin, Sundaland, Tropical Andes and Tumbes-Choco-Magdalena. The water discharged into these hotspots is insignificant, averaging <0.01% of the total volume of water contained in the associated water body.

### Examples of Air Products' sponsorships of local ecosystems include:

- The Pool Wildlands Conservancy in Emmaus, Pennsylvania, a 72-acre wildlife sanctuary bequeathed by Air Products' founder, Leonard Parker Pool, to the Wildlands Conservancy, which today serves as the Lehigh Valley's premier not-for-profit environmental organization
- Ongoing support for the 1,400-acre C. W. Milmore Wildlife Sanctuary in Pensacola, Florida





## Making Renewable Energy Work

Our European Team is leading the way in renewable energy use that is cost-effective and better for the environment. In June 2017, Air Products France switched to renewable energy for producing merchant industrial and medical gases and to power our sales and administrative offices. Not only were we the first industrial gas company to use 100% renewable energy in the country, we also made the commitment to invest purely in French renewable energy sources.

The energy is validated by the purchase of GO (Guarantee of Origin) certificates registered on the National Registry for Guarantees of Origin operated by Pownext. We are building on this success

by working with the French multinational electric utility company ENGIE to apply blockchain technology to trace and certify the green electricity from its source to the point of use at our L'Isle d'Abeau plant. This represents a revolution in customer-supplier relationships, giving us access to our own daily green certification data from ENGIE, and enabling us to associate the relevant certifications to our customers.

Across the Channel, our UK team has converted to renewable energy for its production sites for merchant customers, partnering with Ørsted (formerly DONG Energy), a global leader in offshore wind power. Additional efforts to use renewable energy in Europe were launched in 2017, including a certification program for

our green hydrogen from the Netherlands, installing solar panels at several facilities, and evaluating power purchase agreements for other European countries.

These projects show that renewable energy is becoming more economically feasible in Europe, and demonstrate our commitment to responsible sourcing and reducing our carbon footprint.



Grow • Conserve • Care





# Care for our employees, customers and communities— protecting our license to operate and grow

## Promoting safety, diversity and community support

0

employee  
fatalities

23%

decrease in employee  
recordables

67%

decrease in employee  
lost-time incidents

7

employee resource groups  
for diversity and inclusion

23%

women in  
global workforce

9.5%

turnover  
rate

\$6

million in cash contributions  
to communities

175

STEM programs  
globally

>50,000

people touched  
by STEM programs



“The unique perspectives and experiences our employees bring to their work are essential to meeting our customers’ needs and bringing innovation to the wide range of markets we serve. Regardless of who we are, where we work, or what job we do, Air Products’ colleagues make up one team, and each of us deserves to be treated with respect and dignity.”

— Seifi Ghasemi Chairman, President and CEO

## Safety

Safety. It's central to our company goal of being the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to our customers. We also believe it's a moral obligation. We want our employees to return home to their families as safe as when they arrived for work.

Our beliefs about safety have been instituted since 1975 through our Total Safety Philosophy, which stresses that nothing is more important than safety, and that safety is a condition of employment.

Supporting this philosophy is Air Products' global EH&S Policy, which reinforces our commitment to being an industry leader in safety performance, continual improvement in safety with the goal of zero injuries or incidents, maintaining safe plants and products, managing safety risks, and publicly sharing our safety practices and results. Every employee is required to understand and adhere to our global EH&S policy.



Year-on-year, we strive to improve safety at all our sites to benefit our colleagues, customers, and the communities where we operate. Our 2020 goal to lead the industrial gas industry in safety helps drive our performance. And in 2017 our safety performance was the best in company history.

## Our Total Safety Philosophy

### We believe that:

- **Nothing is more important than safety** ...not production, not sales, not profits;
- **All accidents and injuries are preventable** ...not inevitable;
- **Safety is a management responsibility** ...and safety can be managed;
- **Safety is an individual responsibility** ...and a condition of employment;
- **Safety is a way of life** ...around the clock;
- **Every task must be performed with a concern for safety** ...for ourselves, our fellow employees, our contractors, our visitors, our customers and the communities in which we operate.



Safety <sup>#1</sup>

Our 2020 goal: Lead the industrial gas industry in safety as measured by recordable and lost-time incident rates.

# Safety Management, Risks and Compliance

As noted in the Conserve section of this report, Air Products has a global EH&S Management System that applies to 100% of our locations worldwide. This system integrates corporate policies and governmental regulations, and supports the principles promoted by international standards such as Occupational Health and Safety Assessment Series (OHSAS) 18001. There are over 250 standards in our EH&S Management System, and the majority are related to safety and/or health.

Like environmental risks, we evaluate safety risks at multiple levels, including through our enterprise-wide risk assessment process, the results of which are reported to Air Products’ Board of Directors. Our EH&S Risk Council also reviews risks related to worker safety and health, process safety, product safety and transportation safety, as required. Our Centers of Excellence, comprised of subject matter experts in various areas of safety, identify potential risks to the company, share best practices internally, and communicate any concerns to our regional businesses.

We have prescriptive processes for evaluating safety risks associated with specific jobs, new and existing processes, new projects, new and existing products, and product transportation. These include Operating Plant Hazard Reviews, Project Hazard Reviews, Operational Readiness Inspections, Health Hazard Assessments, Product Risk Assessments, Transportation Risk Assessments, and more. Where we believe a risk may be too high, we take risk reduction measures, or if appropriate, cease operation or supply of a product. In addition to these formal activities, employees are accountable

for controlling risks in their own daily work activities through safety work permits, job safety analyses, task safety observations and other measures.

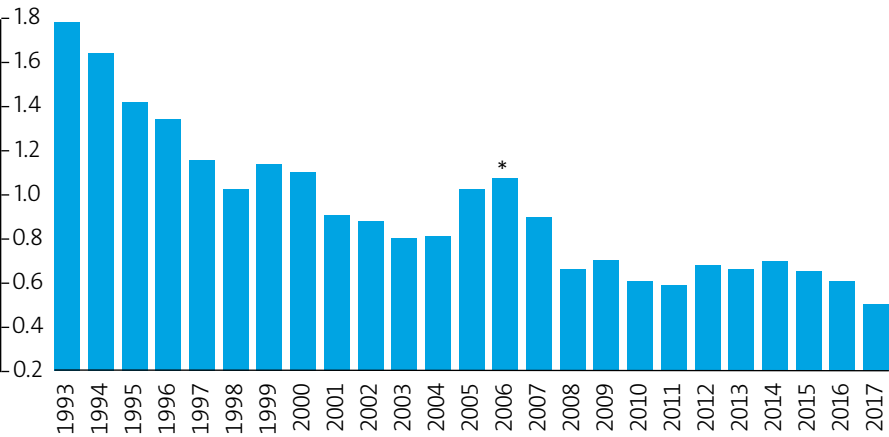
We also set safety and health training requirements for every employee in the company based on job function and risk exposure. Ranging from basic EH&S Management System awareness, to more specific skills such as Confined Space Entry and Respiratory Protection, we build these requirements into each employee’s training profile and track them for compliance in a global database.

## Safety and Health Elements of our EH&S Management System

- Safe Systems of Work
- Occupational Health Protection
- Emergency Preparedness
- Process Safety Management
- Product Stewardship
- EH&S Assurance
- EH&S Training
- Incident Reporting and Investigation
- Product Distribution
- Procurement and Contractor Control

### Improving Safety, Striving for Zero

Air Products has been reporting on its safety performance for 25 years. Here’s how our performance in our recordable rate has improved since our first EH&S report.



\* Increase due to integration of a new business

# Emergency Preparedness and Crisis Management

A critical part of our risk management efforts is preparing for emergencies and crisis events. Every facility is required to have and drill against a site emergency plan. These may be table top exercises or drills with local emergency responders. If a crisis involving one of our facilities or products occurs, we quickly activate our 24/7 Crisis Management System. This system involves employees at all levels of the corporation—from plant workers to executives—and marshals the resources and management skills necessary to effectively respond to and manage a crisis. Our Crisis Management System was tested by the hurricanes in 2017 in the Gulf of Mexico, particularly Hurricane Harvey.

We also prepare for potential business disruptions through Business Continuity Planning (BCP). This includes assessing and planning for the potential risks of business interruptions due to pandemics, loss of utilities, loss of IT systems or connectivity, or catastrophic events. The process includes completing a Business Impact Analysis to identify the short- and long-term effects of an incident or disaster on critical products, services and processes, mitigation measures, recovery time objectives, and gaps in processes or resources. The analysis provides the basis for Business

Recovery Planning that includes responsibilities, contacts, and critical information, and references procedures that should be followed to restore business processes to normal after an interruption.

## Riding out Hurricane Harvey

The U.S. Gulf Coast is home to many of our facilities and customers. When the forecasts for Hurricane Harvey started coming in, we initiated our hurricane plans and activated our Crisis Management System.

The team's first priority was ensuring that all of our employees and their families were accounted for and safe. Our Hurricane Support Team met to assess the impact the storm was having on our people and develop a support plan. Several employees had flooding in their homes, but found alternate shelter. Some had to be rescued.

Roads were impassable near our Pasadena, La Porte, and Baytown, Texas plants due to the torrential rains and flooding. This impacted operations at our terminals, impeding our ability to access our production facilities, as well as customers' facilities in the area. Several employees at each of our sites volunteered to serve on "ride out teams" to safely maintain our plants when their colleagues were unable to travel safely to the sites.



Many of our customers' production facilities were in shut-down or turn-down mode, temporarily reducing demand for our products. Road closures made it impossible for our drivers in the greater Houston area to make liquid/bulk deliveries. As the roadways improved, our Crisis Management Team received road assessment information from the Department of Homeland Security to help determine if drivers could safely make deliveries.

As the waters receded, our plants and customer demand returned to normal. Our employees in the Gulf Coast, who had always demonstrated a bowed-but-not-broken attitude, stuck together and helped each other through a very difficult time.



# Our Safety Programs

Deployed in 2003, our Basic Safety Process (BSP) provides the framework for employee engagement that is critical to our safety performance. BSP is focused on planned inspections, observations, and behavior-based activities. Employees at all levels of the Company, including those under collective bargaining agreements, are engaged in coordinated BSP activities, such as sequential safety meetings. These meetings, held at least quarterly for vice presidents, directors, and managers, and monthly for supervisors and their employees, provide opportunities to increase safety awareness and acceptance of personal accountability for safety. The meetings provide opportunities to monitor the status of safety systems, plan and manage safety activities and improvements, and review the effectiveness of prevention activities. Conversation and feedback is encouraged through these meetings, enabling information, concerns, and decisions to flow up and down the organization. Contractors also participate in BSP activities.

With respect to trade unions, our agreements are made at the local level, and the agreements typically include health and safety considerations, such as personal protective equipment, compliance mechanisms, and the employee right to refuse unsafe work. While not specifically stated in our labor agreements, Air Products requires union personnel to participate in BSP. As a result, union workers are engaged in health and safety committees, inspections, audits, and accident investigations, among other activities. They also participate in required safety training.

BSP is taken one step further through our Master the Basics program. Master the Basics gives employees a mental checklist to use before undertaking any task. That checklist includes being aware of surroundings, knowing physical

limitations, following procedures, using the proper personal protective equipment, and thinking before taking action. This personalizes safety, and makes it actionable on an on-going basis.

Our European Union (EU) Team has built on BSP and Master the Basics to develop a Life Saving Behaviors program. This program reminds employees about our Top 20 Life Saving Standards, which are the most important standards in our EH&S management system because failure to follow them even once creates a higher chance of significant injury. The program recognizes that we need every individual to be actively engaged in identifying hazardous situations and taking appropriate actions to manage safety.

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## BSP Elements

- Demonstrate safety leadership through highly visible activities
  - Clearly defined and measured safety responsibilities that promote accountability
  - Planned activities designed to help us achieve, and then maintain, safe work conditions and safe work behaviors
  - Requirements for contractors to participate in BSP activities
  - Emergency preparedness activities that help us practice and test responses
  - Performance measures that focus on key process indicators so we know that we are applying the right amount of effort at the right place, before incidents occur
- 



# Life Saving Behaviors

The 'Life Saving Behaviors' listed below are derived from and intended as a reminder of our Top 20 Life Saving Standards. To progress on our collective safety journey to reach and then sustain zero accident performance, we need every individual to be actively engaged in recognizing hazardous situations and taking appropriate actions.

**Safe behaviors save lives. At Air Products we believe that each and every one of us must . . .**



**Take responsibility** for our own actions, workplace conditions and decisions, both when **working alone** and with others . . . if ever you feel unsafe you should speak up.



**Drive defensively**, be alert and focused on traffic conditions . . . **avoid distractions** and stop for a break when you feel you need it.



Only work on **electrical systems** if qualified and authorized . . . and confirm that all required precautions are in place.



Use the **safety work permit** process to identify hazards, to anticipate and prevent possible accidents . . . and if you or anyone else does not feel safe, you should discuss it with the permit issuer or supervisor.



Use **Lockout, Tagout (LOTO) & Try** to make sure that **equipment/lines** are **isolated from energy sources** and de-energized before working on them . . . apply your personal lock only when you are satisfied that all precautions are in place.



Recognize and respect the hazards of **confined or enclosed spaces** . . . follow all the steps required for entry and be properly prepared for a rescue. Never enter a confined or enclosed space unless authorized.



Identify hazards of **excavations** . . . and ensure all precautions specified on the excavation and other permits are respected.



Understand that the consequences of a **fall from height** can be life changing . . . and make sure that all specified precautions have been taken and equipment is used correctly.



Ensure that any **lifting task**, whether by cranes or other work equipment, is thoroughly planned, assessed, controlled and executed . . . and stop the operation if any problem or unexpected situation arises.



**Never override or bypass safety equipment** such as relief devices, interlocks, trips, safety instrumented systems, gas detection systems or any other protective safety devices without authorization . . . respect the original intent and importance of such safeguarding devices and make any suggestions for improvement formally.



Recognize the risks of making changes . . . and strictly follow all the steps of the **Management of Change (MOC)** process.



Understand and search for potential **asphyxiation hazards** in enclosed spaces as well as near to equipment containing gases or cryogenic liquids . . . take care and warn others.



Be aware of fire hazards whenever dealing with oxygen . . . never deviate from the procedures and be sure to maintain **cleanliness for oxygen service**.



Understand the effects of substances **hazardous to health**, on themselves and others . . . use prescribed safeguards, including Respiratory Protective Equipment (RPE) and Personal Protective Equipment (PPE) correctly.



Know the correct **Personal Protective Equipment (PPE)**, including high visibility clothing, **Flash Fire Protective Clothing (FFPC)** and **Respiratory Protective Equipment (RPE)**, to use for each task or work area . . . and use it correctly.



Recognize **'at risk'** behaviors, unsafe conditions, near misses and injuries . . . address and report them immediately, so that we can minimize injuries and learn from them.

Graphics reproduced with permission from European Industrial Gases Association (EIGA)

## Process Safety

Staying on top of potential process safety hazards is one of the most important aspects of managing safety. To promote process safety, we apply sound engineering principles to design, construct, operate, and maintain our plants and equipment while minimizing process related hazards. Our program considers regulatory requirements, such as OSHA Process Safety Management and the EU Seveso Directive, and includes procedures, training, hazard assessments, and quantified risk analysis.

We use key performance indicators (KPIs) to measure the effectiveness of our process safety work processes and programs. These include but are not limited to process safety incidents, which are events that result in an

unintentional release of material or energy. Incidents that we include in our KPIs have a high severity rating or meet at least one of three criteria: property damage above a certain threshold, a gas or chemical release above thresholds, or an incident that results in a serious injury. The indicators are based on industry reporting principles set by the American Petroleum Institute and in alignment with the Center for Chemical Process Safety.

These KPIs are considered part of the “lagging indicators” that measure performance of the process safety management program based on the occurrence of undesired events. We also measure “leading” process safety indicators that tell about the health of

our process safety management system and process safety “near misses” that enable us to identify and subsequently prevent potentially unsafe situations.

We routinely communicate our KPIs through our safety meetings to share lessons learned, actions taken, and global improvements. Analyzing this data helps us to review our current work practices and identify opportunities for process safety improvement while maintaining world-class performance throughout the industry. In 2017, our total number of process safety incidents decreased by 34% compared to prior year, and our process safety KPIs decreased by 22%.

## Safety Week Promotes Reflection and Focus

In 2017, our European Team celebrated its 10th anniversary of conducting a “Safety Week.” During Safety Week, employees gather to reflect on safety performance, to share with each other lessons learned and identify areas for improvement, and to sharpen their focus on safety through discussions, presentations and practical activities. The theme for Safety Week 2017 in Europe was “Our Safety Journey to Zero” and included a focus on ladder safety, office safety, personal protective equipment (PPE), and Air Products’ safety journey. It also included many reminders about Air Products’ safety standards and procedures, and the importance of applying them to everyday tasks. Events also included review of the Basic Safety Process, Master the Basics, and the recently introduced Life Saving Behaviors.

Employees throughout Europe participated and each participating facility selected activities and events that were most relevant to their facility and employees. Typical activities included first aid training and practical fire-fighting, and some facilities expanded into safety outside of work, such as home security and ladder safety.

Safety Week has been so successful throughout the years that it has expanded to other regions of the world. Industrial Gases Americas held its Safety Week in spring 2017, featuring presentations and events across the region that were aimed at raising general safety awareness and reinforcing policies and practices. Safety Week at Air Products’ headquarters in Allentown, Pennsylvania included key note speakers from the Federal Chemical Safety Board (CSB) on plant emergency response, the FBI for travel safety, a motivational speaker on safety importance who reflected on his own life-changing industrial accident, and an industry expert on preventing Slips, Trips and Falls. Live demonstrations included a liquid nitrogen (LIN) delivery by one of our professional truck drivers, hands on fire extinguisher training and a walk through of the “Smoke House” fire simulation trailer. At our operational facilities, activities included drills with local emergency responders, site safety reviews, safety quizzes and challenges, and training. Of particular note was Safety Week in South America, where the theme was “The Five Behaviors at All Times,” which referred to Master the Basics,



and focused on emergency preparedness and response. The teams also developed entertaining contests that helped to reinforce safety issues, with the Peru team creating a safety song that was played during the activities.

We estimate that around 12,000 employees and contractors participated in Safety Week worldwide in 2017.

While safety remains our number one priority at all times, the annual Safety Week initiative provides a regularly scheduled opportunity to pause, reflect and refocus our attention on day-to-day activities to ensure that we all don’t become complacent and continue to move towards our company goal of zero accidents and incidents.

## Product Safety

Ensuring our customers and other people handling our products are provided with the safety information they need is a key part of product safety. To collect this information, we have conducted product safety reviews of all our commercial products by characterizing EH&S hazards, examining uses, and taking actions to address concerns. Safety information from these reviews has been used in [safety data sheets \(SDS\)](#), which are a primary vehicle for communicating hazards information. We also share product hazards through labels that are compliant with the Globally Harmonized System (GHS), Safetygrams, and customer training.

[Product safety reviews](#) and our phased process for new technology development support the intent of the Precautionary Principle. These processes use formal programs to identify and address

potential risks. In addition, we have conducted Life Cycle Assessments (LCAs) to quantify the environmental “footprint” of select products and technologies for comparison to new and competitive offerings.

To help manage the security and risks of our highest hazard products, we have instituted customer qualification requirements. Before a customer can receive certain products, that customer company must be evaluated against specific criteria to assess their qualifications for handling the product.

REACH (Registration, Evaluation and Authorization of Chemicals), the EU chemicals legislation in force since 2007, requires the registration of substances manufactured or imported in the EU above a certain volume. Air Products has completed registration for 12 substances related to our industrial gas and welding

consumables products, working on these registrations with many external stakeholders including regulatory authorities, customers, suppliers and co-registrants. Data for the last substance we needed to register was submitted prior to the registration deadline of May 31, 2018. We also have put measurements and processes in place to maintain compliance beyond the 2018 deadline.

In 2017, a constituent of our gas mixes, 1-Bromopropane, was added to the REACH Substances of Very High Concern (SVHC). In light of these concerns, we decided to stop providing gas mixes containing this substance.



### Extending Mixture Shelf-Life For Our Customers

Air Products' specialty gases are used in diverse markets, including the calibration and testing of critical instrument sensors which detect dangerous concentrations of toxic gas in many industrial settings. Our research and development team listened to our customers tell us about the value of extended shelf-life and set out to find a solution.

After conducting exhaustive analytical work, our research team discovered a way to extend the shelf-life of the specialty gas canisters. Many of these gas canisters are sold to OEMs (original equipment manufacturers) and resellers, so it's often several weeks or months after manufacture that a product finally arrives with an end user. This time impacts the

remaining mixture shelf life seen by the end user, so a longer product shelf life reduces the risk of product expiring before it is used. Long mixture shelf lives are also associated with technical excellence and high quality.

Approximately 4,000 individual analyses on more than 200 canisters were carried out over two years. The development work resulted in a new design and upgrade of the canisters. Achieving an increase of shelf life of these mixtures from 12 months to 24 months enables us to achieve a key environmental goal of reducing waste, and at the same time delivers economic advantages and cost savings, both for Air Products, and our customers.



# Transportation Safety

At Air Products, our drivers are "the face of the company" to our customers and the public. Their hard work, unsurpassed safety focus, and professional demeanor uphold our reputation for excellence every day, everywhere. And with a global fleet that travels millions of miles each year, we're focused on making sure our drivers get to their destinations—and back home—safely. This is a key focus of our data enabled coaching programs, which are being implemented throughout our regional businesses. A key measure of our transportation safety is preventable Vehicle Accident Frequency Rate (VAFR), which was up slightly in 2017 at 0.89 (compared to 0.88 in 2016). Accidents are reported and tracked in Event Management, investigated, and communicated across the organization.

When it's time for some of our higher-hazard materials to leave a manufacturing facility, we use our Transportation Risk Assessment (TRA) process to evaluate potential transit risks. This analysis includes a Process Safety review; evaluating package specifications and sizes; shipment frequency, route, carriers, and emergency response capability; and elements of safety in the supply chain.



## Driving Safely, Coaching Along the Way

If improving fleet safety is a journey, our European Fleet Team is creating the roadmap. They began by installing in-truck event recording cameras that are fully integrated with vehicle telematics—technology-based hardware that collects, records and transmits vehicle efficiency and safety performance data. Then the team added a Data Enabled Driving Coaching program so they could use the data collected, including the videos, to give feedback to the drivers to help them improve their driving style and become safer and more efficient. The Team can also use the video for incident investigation, giving an advanced level of understanding of the contributing factors of the incident and highlighting preventative coaching and training opportunities.

The system is driving improvements in safety results and bringing benefits in efficiency. The drivers can see their performance at a glance using a "How was my day" feature based on a traffic light system using green for good, yellow for a few minor points, and red showing areas of concern. The drivers can also see a league table and where their individual results compare amongst their peer driver group. This generates positive discussions in safety meetings, with drivers actively sharing experiences around driving habits and how these can be improved.

The event recording system captures 20-second video clips of events triggered by hard braking, harsh cornering and trailer roll stability braking system activations. The videos are sent automatically over a cellular network to a web-based system. Each driver has an assigned 'coach' that receives an email notification when an event is triggered. Then

the coach will log in, view the video, and plan a coaching session with the driver. By doing this promptly, the event will be fresh in the driver's mind and enable both the coach and the driver to quickly focus on improvement.

Air Products is replicating the use of video and best practices to coach drivers in the other regions of the world. Asia has adopted the same system that is being used in Europe. Similarly, extensive trials in North America have shown that replicating the use of video technology to coach drivers can complement and enhance the existing driver coaching program.

Air Products has proven that this innovative technology, with the combination of cameras, telematics and driver applications, can provide real-time feedback that moves us closer to our ultimate goal of zero accidents and incidents.

# Our Safety Performance

As a result of all of these efforts, we achieved our best safety performance in company history in fiscal 2017. Most importantly, we had no employee or contractor fatalities. Our employee recordable rate was 0.34 and 23% lower than our rate in 2016. The recordable rate for our contractors was similar, down by 22% to 0.38. The most significant progress was in our lost-time incident (LTI) rates. Our employee LTI rate was reduced by 67% to 0.06. Our contractor LTI rate was also 0.06, which was an 88% decrease from 2016.

We continue to focus on more serious incidents by measuring and tracking Serious Injuries and Fatalities (SIFs) and Near Fatal Accidents (NFAs). These serious incidents help us quantify the severity of our work-related injury performance and can be a more meaningful measure of severity compared solely to the lost-time characterization. By actively monitoring SIFs and NFAs, we can engage the appropriate levels of expertise, target the most impactful improvement opportunities, and leverage the right resources to address issues. SIFs and NFAs are tracked on a monthly or quarterly basis and reviewed throughout the organization.

Employee SIFs are measured as a percentage of total recordable injuries. Because of our excellent safety performance in 2017, the percentage of incidents considered to be SIFs, 12%, is higher than the previous year. Industry benchmarks indicate that this is a significantly better than the typical rate of about 20%. By reviewing SIFs monthly, we can use this data real time to respond to trends in accidents causing serious injuries and emphasize specific areas for focus and improvement.

The Company’s Serious Incident Review Board (SIRB) routinely reviews SIFs, NFAs

We achieved our best safety performance in company history in fiscal 2017.

and significant Process Safety Events that had, or could have had, a serious impact. Comprised of the Chief Executive Officer, Senior Vice Presidents, Directors and Managers from Operations and EH&S, the SIRB ensures that safety accountabilities are reinforced through line management, and safety events are reported and investigated in a consistent and thorough manner, with sustainable corrective actions identified and implemented.

## Safety Performance in 2017 vs. Prior Year

Fatalities	0	
Employee Recordable Rate <sup>1</sup>	0.34	↓ 23%
Employee LTI Rate <sup>2</sup>	0.06	↓ 67%
Contractor Recordable Rate <sup>1</sup>	0.38	↓ 22%
Contractor LTI Rate <sup>2</sup>	0.06	↓ 88%

<sup>1</sup> Recordable Incidents  
A recordable incident is a work-related injury that requires medical care beyond basic first aid treatment. Examining recordable incidents and their causes gives us a better look at the severity of all injuries and helps in our prevention efforts. Rates are per 200,000 hours worked.

<sup>2</sup> Lost-time incidents (LTIs)  
Lost-time or restricted work injuries or illnesses are typically the most serious incidents. They also are measured as part of our comprehensive efforts to create a safer workplace. Rates are per 200,000 hours worked.

“This performance highlighted what we can achieve when we provide focused and sustained effort in safety and drive the quality of our safety management activities. We have taken another step forward in our drive to zero injuries and in achieving our commitment that each one of our employees is able to return home in the same condition in which they came to work. Now the challenge is in front of us to perform even better in the coming year and make another step forward in the drive to zero injuries.”

— Ray Bailey, Vice President, Environment, Health, Safety and Quality

## Safety Compliance Systems

We are subject to various safety laws and regulations in the countries in which we have operations. Our EH&S Corporate Assurance Group audited 32 plants located around the world in 2017 for compliance with safety-related governmental requirements and internal standards, using our EH&S functional and operational experts. Audit results are reported to senior management and, as needed, to the Board of Directors. There were no significant controversies related to Air Products and safety in 2017.

Compliance with safety requirements is tracked continually and reported internally every month. Incident reports, which are tracked in a global Event Management tool, are required for near misses, accidents and injuries, and regulatory agency actions. In 2017, we paid \$2,200 in fines related to the transportation of our products. We are not aware of any fines in fiscal 2017 resulting from the use of our products.

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**Safely and responsibly caring for each other, our customers, our communities and the global environment is a core value at Air Products. Our safety programs and performance demonstrate this value, every day.**

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## Security

The security and safety of our employees, customers, and the communities in which we operate have always been a priority. In support of these efforts, and as part of Air Products' Security Plan, we regularly communicate about the importance of security and expectations for employees when it comes to security matters.

Our formal security policies and standards address employee and facility security, product security, pipeline and land transportation security, Security Vulnerability Assessments (SVAs), workplace violence, and security services for which we contract, among other areas.

Our Security Approach includes:

**Security Personnel:** Air Products employs security personnel globally, including a cyber investigation team, with much of our security staff having prior security, audit and law enforcement backgrounds. All third-party contracted security personnel are properly vetted to ensure professional services are provided around the globe.

### **Security Vulnerability Assessments**

**(SVAs):** Air Products has a regimented, global SVA program in place supported by trained personnel and global policies and standards. The SVA process systematically assesses the risks at each facility and determines security measures needed to ensure risks are properly mitigated.

### **Chemical Facility Anti-Terrorism Standard**

**(CFATS):** Our security and process safety teams are actively engaged in the CFATS effort. We have completed the "Top Screens," SVAs and Site Security Plans (SSPs) per the regulation and have implemented changes as necessary.

### **U.S. Customs Trade Partnership Against Terrorism (C-TPAT) Programs:**

Air Products is a certified and validated C-TPAT member, and we remain committed to the program. We consistently look to maintain the highest level of security and integrity across our supply chains.

### **Global Security Incident Reporting**

**System:** We have implemented a global incident reporting system to respond to suspicious behavior and other security-related activity. All incidents are recorded and investigated by appropriate internal resources, and when appropriate, are reported to and investigated by external law enforcement agencies, including the regional Joint Terrorism Task Forces in the U.S.

### **Employee Travel Security Program:**

We use a web-based tracking tool that is available 24/7 to identify, locate and communicate with employees traveling anywhere in the world. Employees can also contact our Security Operations Center at any time.

## Global Health and Wellness

We provide a variety of educational, training, counseling and prevention resources to maintain and improve the mental and physical health of our global workforce.

Our Global Health and Wellness Team works closely with our EH&S organization to ensure our global standards comply with governmental regulations on topics including handling of blood-borne pathogens, medical records management, emergency response, fire brigade, and confined space entry rescue, among others. In the event of a health crisis event, such as a pandemic, Global Health and Wellness supports our Crisis Management Team in addressing the event. They also provide a travel medicine program to help employees and family members traveling abroad, and collaborate with Global Security to have the most current and relevant information available for travelers. Every fall, global influenza awareness campaigns are conducted and employees are provided flu vaccines at work sites.



From a wellness perspective, the Team provides assessments and health coaching for employees in the U.S. and Canada, including a program for our professional Air Products drivers. Global Health and Wellness also coordinates the Virgin Pulse Global Challenge, which in 2017 included over 500 teams and 3,600 employees. This program

increases awareness of the importance of exercise, stress management, proper nutrition, and more through education and motivational challenges. It also teaches employees to master long-term, sustainable health habits that allow them to arrive at work feeling more engaged, productive and equipped for peak performance.

### Proactive Ergonomics

Ergonomics is the science of fitting the work to the worker. The goals of a proactive ergonomics process are task efficiency, operational safety and minimization of risk factors associated with musculoskeletal disorders. Whether our employee's workstation is behind the wheel of a tractor trailer or at a desk, Air Products is committed to their health and safety. We take this responsibility seriously, evident by our Ergonomic Wellness Education (EWE) Program. The EWE Program is a key element of our Injury Management Process, and our EWE providers offer a very quick screening of the situation that can prove invaluable. Employees use self-management strategies to minimize severity and maximize recovery through educational sessions.

This program is available to all employees, including drivers, operators and mechanics. Through 2017, over 2,500 employees have received personalized education and guidance for musculoskeletal aches and pains. The program has consistently had a success rate of over 90% in helping these employees manage their symptoms and speed the recovery—avoiding recordable injuries, lost time, and the associated medical costs. Globally, close to 200 employees each year elect to use the EWE program to proactively address their musculoskeletal issues through multiple educational sessions.





## Talent and Diversity

Behind every success and innovation that has made a difference in the world, there is a team of passionate people who helped make it possible. At Air Products, our talented people help each other and our customers thrive. We are driven to discover, care and accomplish. To our colleagues, we are valued and respected teammates. To our customers, we are partners in creating value. To our communities, we are caring, involved neighbors and committed stewards of the environment. We aim to build the most diverse and inclusive workforce in the industrial gas industry.



## Policies and Goals

Our commitment to a diverse and respectful workplace is embodied in our Employee [Code of Conduct](#), [Human Rights Policy](#), [Equal Employment Policy](#), and [Diversity and Inclusion](#) efforts. In 2016, we elevated our commitment to [Diversity and Inclusion \(D&I\)](#) by explicitly incorporating it into our 2020 Sustainability goals. In 2017, we went further, elevating the commitment to our corporate vision, which is now to be the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to our customers. By incorporating our goal directly into our corporate vision, we

are setting expectations at the top, and explicitly sharing our intention to be a D&I leader to all of our stakeholders.

Many of our policies, as well as our Code of Conduct, are put into action through procedures and training that apply to all employees. Employees are also encouraged to report inappropriate behaviors to their manager, or executive with whom they feel comfortable, Human Resources, the Law Department, Corporate Audit, our ethics and compliance team contacts, or to our [IntegrityLine](#).

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**To be the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to our customers.**

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### Diversity Goals

Reflect the places we do business and fully utilize the diversity of the available talent pool:

1. Increase representation of women in leadership globally.
  2. Increase the representation of U.S. minorities in our pipeline.
- 

### Inclusion Goals

Embed inclusive leadership practices to foster a respectful workplace where we routinely seek out diverse thinking and where people are empowered to confidently express their viewpoints.

# Talent Management

The commitment and motivation of our people is key to our competitive advantage, so we intentionally invest in the attraction and development of a winning global team.

Our “**Everyone. Everyday.**” approach to Talent Management originates from our belief that every job is critical to our company, and that we must enable every employee to do his or her best work every day. Air Products’ Talent Management framework consists of three elements:

- **Performance Development** is a contemporary approach to performance management. Our emphasis is on providing employees with regular, on-going and in-the-moment feedback, recognition and coaching. We evaluated traditional processes and updated our approach to refocus and reinvest time and energy into providing every employee with the feedback she/he needs to continue to develop and grow on-the-job. We foster a growth mindset across our company to fuel the empowerment critical to winning in our local and regional markets.
  - Through **Individual Career Planning**, we provide employees and their managers with highly effective resources to ensure they are focused on the skills they need to excel in their current roles, and the capabilities needed for the future. Using these resources, employees can effectively own their development, while working closely with their managers for the support and coaching needed for longer-term career opportunities.
  - Through our **Talent Reviews & Succession Planning** process, we are identifying and investing in future leaders and creating a capable, diverse leadership pipeline for critical roles across the organization.
  - We believe current leaders have a responsibility and obligation to develop future leaders.
- Critical Talent Issues:** Colleagues with different capabilities, cultures, perspectives, and experiences contribute to our ability to stay competitive in the ever-changing global marketplace. Demand for top talent is increasing, making recruiting, developing and retaining employees truly business critical. Key talent issues we are managing include:
- **Filling Critical Skill & Capability Gaps**— To address this, we are intentionally managing knowledge retention and transfer (KRT); increasing our external hiring, developing our employee base,

realigning our Career Development Program (CDP), and investing in leadership development through our Management Fundamentals Program (MFP) and Experienced Manager Program (EMP).

- **Facilitating Career Development**— There has been a lot of change at Air Products over the last several years, and traditional career paths have given way to new positions with increased responsibility and accountability. We are helping our employees prepare for and consider these options by increasing feedback and coaching, enhancing talent visibility and mobility, and promoting individual career planning.
- **Increasing the Pace of Culture Change**— We are building a 4S culture of safety, simplicity, speed and self-confidence. To enhance these efforts, we have aligned our competency development and recognition programs with the 4S culture. Our efforts around feedback and coaching, as well as external hiring also promote this cultural change.
- **Enhancing Diversity**— We are striving to create a workforce that is reflective of the places we do business. To promote diversity, we have instituted several actions, including Diversity Action Plans, Development Circles, Metrics, and Unconscious Bias Training.

## Through our Human Rights Policy, which is aligned with the UN Global Compact, we commit to:

- Consistently treating employees with respect, fairness, and dignity;
- Providing employees with the opportunity to work without fear of intimidation, reprisal, or harassment;
- Respecting the rights of our employees to collective bargaining and freedom of association;
- Opposing the use of forced labor of any kind, including child labor;
- Fully supporting equal opportunity and striving to reflect the diversity of the communities where we do business; and
- Maintaining a respectful work environment free of any manner of harassment based on race, color, religion, national origin, age, citizenship, gender, marital status, pregnancy, sexual orientation, gender identity and expression, veteran status, or physical or mental disability.



# Diversity in Action

As we work to be the most diverse industrial gas company, we are focused on ensuring our workforce fully reflects the places we do business, that our work environment is respectful, and that employees routinely seek out diverse perspectives and feel empowered to confidently express their viewpoint. Our actions are driven by our operating framework.

## 1. Deploy Innovative Recruiting Strategies:

In the U.S., we have a diverse slate policy that requires every open job to have a diverse candidate slate. This practice is now being extended into Europe and China, as a pilot, to learn how to adapt the concept outside the U.S. As a science and engineering based company, we have forged [partnerships with local and national organizations](#) that are dedicated to developing a diverse engineering workforce, including the Society of Women Engineers (SWE), Women in Science and Engineering (WISE), National Society of Black Engineers (NSBE), Society of Hispanic Engineers (SHE) and the National Action Council on Minorities in Engineering (NACME). We also provide funding for scholarships to support the diversification of the overall pipeline, and actively source talent from each of these organizations.

## 2. Invest in the Unique Development Needs of Diverse Talent:

We recognize it is imperative to address the unique development needs of women and minorities within our organization. One example of how we are accomplishing this is through our eight-month Leadership Development Program for Diverse Talent. The program consists of small learning circles of high performing and high potential talent nominated by their management. The circles are facilitated by a male and female senior leader, using [LeanIn.org](#) educational materials.

## 3. Cultivate Leadership Engagement and Accountability:

Every business and function is required to have a [Diversity Action Plan](#) that is developed and refreshed as part of the annual Talent Review process. Each quarter, business and functional leaders, along with their senior HR partners, meet with head of [Diversity and Inclusion](#)/Talent Management to discuss progress on the Diversity Action Plans review and diversity data. Additionally, we are focused on training our leaders on inclusive leadership behaviors and unconscious bias. We are actively engaging leaders as champions and advocates by providing them access to toolkits that allow them to facilitate conversations with their teams on D&I topics.

## 4. Foster an Inclusive Culture

The secret to turning our diversity into a competitive advantage is continuing to cultivate an inclusive environment where everyone is treated with respect, diverse perspectives are shared and colleagues are empowered to confidently express their viewpoints. Work in this area takes many forms, including leadership and employee training, workshops, mentoring, networking and professional development, and vibrant employee resource groups. A few examples:

The [Inclusion Network](#) brings employees from across our company together to work collaboratively to foster an inclusive environment where everyone can thrive and reach their full potential. Comprised of leaders from our [Employee Resource Groups \(ERGs\)](#) Diversity and Inclusion, Human Resources, and executive leadership, the Inclusion Network aims to help attract and retain talent, raise cultural awareness and competence, develop critical skills and competencies, build supportive networks and contribute to the company's D&I objectives.

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## Filling Critical Skill & Capability Gaps

Actions: Knowledge Retention & Transfer • External Hiring • Upskilling • Career Development Program Realignment • Management Fundamentals Program/Experienced Manager Program Refresh

## Facilitating Career Development

Actions: Feedback & Coaching • Talent Visibility & Cross Organizational • Mobility • Individual Career Planning

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## Increasing Pace of Culture Change

Actions: Competency Development • Recognition • Feedback & Coaching • External Hiring

## Enhancing Diversity

Actions: Diversity Action Plans • Development Circles • External Hiring • Unconscious Bias Training

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**Employee Resource Groups** work collaboratively with the Inclusion Network and in partnership with the company to attract and retain diverse talent. The focus for these groups is to create a supportive and inclusive environment, while enhancing professional and personal development. Our current ERG groups include:

- 4AP (All Asian Americans at Air Products)
- ABCD (AnyBody Concerned about Disabilities)
- BERG (Black Employee Resource Group)
- EDGE (Ethnically Diverse Gulf Employees)
- HOLA (Hispanic Organization of Latinos and Amigos)
- Spectrum—an LGBT resource group
- WSN (Women's Success Network)

Through the Inclusion Network and our ERGs, activities to foster inclusion in FY17 included, “Managers as D&I Champions” workshops, LGBT+ Ally training, and professional development seminars on topics ranging from Building Financial Acumen to Quieting Your Inner Critic.

**Global Recognition Program** allows for free-flowing recognition that is tightly aligned to our [4S culture](#). Employees and managers can recognize outstanding work in one of five categories: Safety, Speed, Simplicity, Self-Confidence and Inclusion, including the opportunity for managers to provide impactful feedback, create visible examples of role modeling behavior, and to build teamwork and inclusion by showing appreciation for a job well done. In Fiscal 2017, 17,538 monetary and non-monetary awards were issued through this program, reaching 50% of our eligible employee base around the world.

## Air Products Joins CEO Action for Diversity & Inclusion™

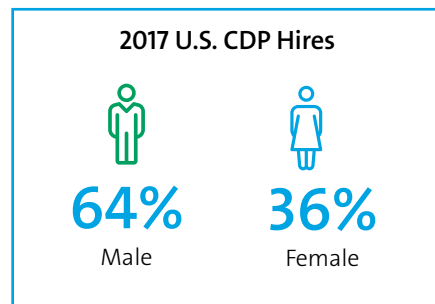
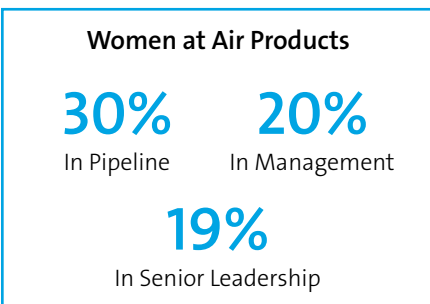
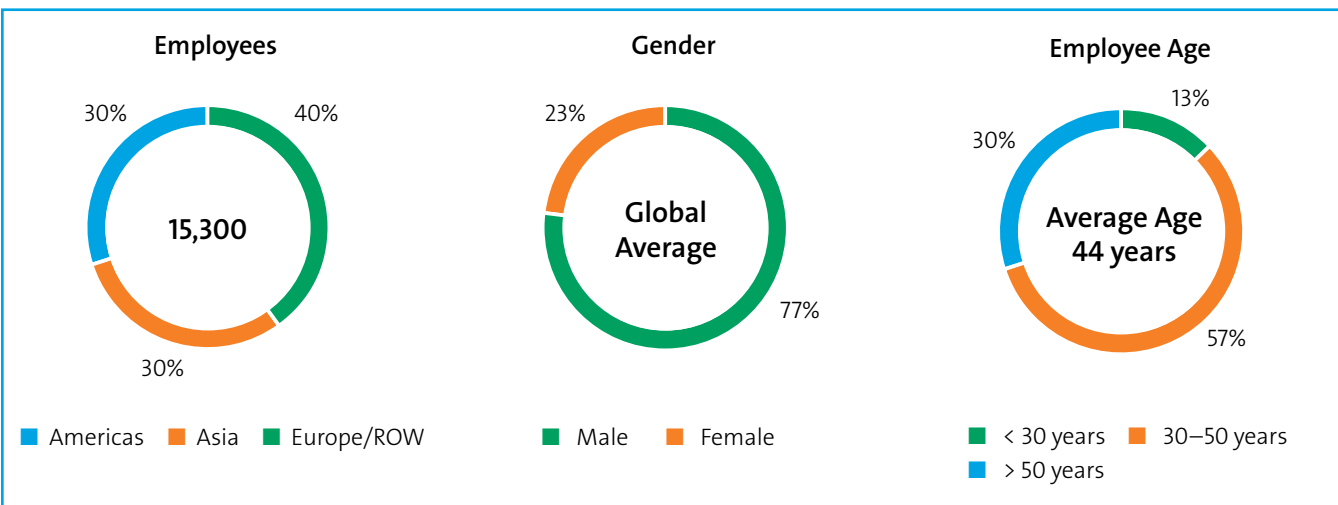
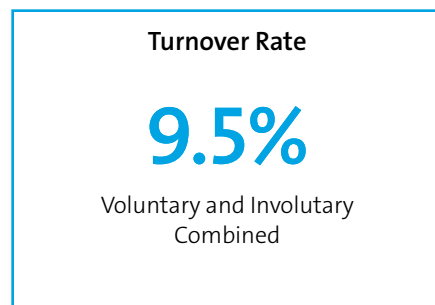
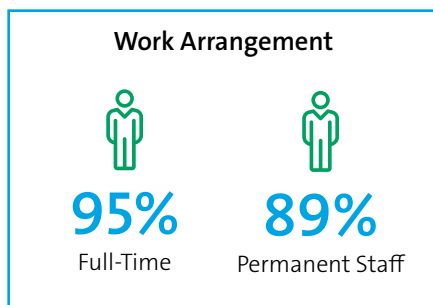
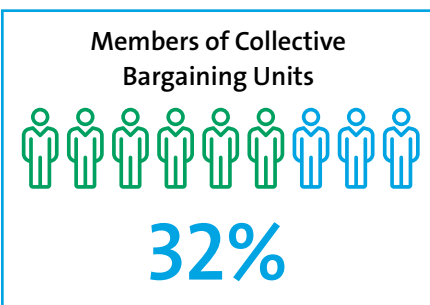
In July 2017, Air Products signed on to the CEO Action for Diversity & Inclusion™, a growing coalition pledging to advance diversity and inclusion in the workplace. By signing on to this commitment, Air Products joined more than 270 companies pledging to take action to cultivate workplaces where diverse perspectives and experiences are welcomed and respected, employees feel

encouraged to discuss diversity and inclusion, and where learnings can be shared across organizations via a unified hub (CEOAction.com) to advance diversity and inclusion in the workplace.

The CEO Action for Diversity & Inclusion represents more than 70 industries, all 50 U.S. states and millions of employees globally.

**CEO ACT!ON FOR  
DIVERSITY & INCLUSION**





# Investing in our People Leaders

People leaders are key to developing talent and fostering our culture. They create the positive, engaging work environment for our colleagues. There are nine competencies everyone must master and three additional competencies for those in leadership positions. All competencies are aligned with our [4S culture](#).

In 2017, we intentionally invested in developing our leadership skills through our ‘Lead and Inspire’ program, which provided:

- Feedback & Coaching Workshops: People leaders across the company and at all experience levels participated in

hands-on workshops to enhance their ability to provide high-impact feedback and coaching. Co-facilitated by Human Resources (HR) and business leaders, these have been highly impactful at accelerating our shift to Performance Development.

- Refreshed Leadership Development Training: Both of Air Products’ flagship leadership development programs—one designed for first time managers, and one for experienced managers—were recently revamped to focus on mastering our leadership competencies and enhancing skills related to unleashing high performance, with an emphasis on inclusive leadership. Programs were run in Asia, Europe, India and North America.

- 360 Feedback & Coaching: To further enable leaders to master our new competencies, we also introduced a new multi-rater feedback instrument, and certified HR professionals across the globe as development coaches to work one-one-one with our managerial talent to accelerate their personal and professional growth.

**9 Core Competencies:**  
All Employees

- Integrity
- Deliver Safety
- Passion to be the Best in the Industry
- Positive Attitude
- External Focus
- Drive Results
- Innovation
- Demonstrate Courage
- Develop Self & Others

**Safety**  
Safety is a moral responsibility. The only acceptable goal is zero accidents.

**Simplicity**  
We will simplify our organization, work processes and decision-making.

**Speed**  
We will act with urgency and respond quickly to our customers’ needs.

**Self-confidence**  
We are a team working together to win. We will be the best in the industry.

**3 Leadership Competencies:**  
Additional for Managers

- Lead and Inspire
- Manage Execution
- Strategic Mindset

# Employee Education and Training

Employee roles and responsibilities, as well as current and future business needs, determine training and learning requirements and opportunities. Air Products has a globally consistent learning and development strategy to enable the talent we need and provide career development for our people. This is deployed through a Global Learning Management System and our Human Resources organization. As noted in the Grow section of this report, all employees

must be trained and certify against our [Code of Conduct](#), which includes references to our [Human Rights Policy](#).

We provide a significant amount of web-based course offerings with development tracks to ensure our employees are trained to comply with safety and job requirements, innovate new customer solutions, and grow professionally. On average, Air Products’ employees completed at least 22 hours of training in 2017.

In addition to formal training and education, we also measure the time invested in learning through other events, such as hands-on training, teaching communities, action teams and knowledge transfer processes, which are available to all employees.

## Human Rights Risk Assessment

Air Products has completed human rights assessments for its operations and supply chains. We reviewed the potential for human rights issues, including child and forced labor, in the highest risk countries in which we operate and did not identify any significant risks. From a supply chain perspective, we examined human rights risks relative to procurement spend and supplier location using country-specific

risk information from third-parties. While there were no significant risks identified, we updated our third-party due diligence process to include questions about human rights. We are not aware of any allegations of violations of human rights in our supply chain in 2017.

## Listening and Addressing Employee Concerns

Employee concerns are important to our company, and Air Products wants to understand what is important to them. The primary way this happens is through one-on-one and team-based discussions between employees and their managers. Through Performance Development, we encourage this kind of open dialogue.

Additionally, we engage in structured and regular, two-way communications with our employees through leadership dialogue sessions, quarterly executive town hall meetings, feedback surveys, “Ask Leadership” channels on our company intranet, and our CorpNEWS online newsletter. Additionally, some leaders deploy employee surveys to seek employee feedback and input.

### Air Products Earns Top Marks for 2017 and 2018 Corporate Equality Indexes

Air Products earned a perfect score of 100 percent on the 2017 and 2018 Corporate Equality Index (CEI), a national benchmarking survey and report on corporate policies and practices related to lesbian, gay, bisexual and transgender (LGBT) workplace equality, administered by the Human Rights Campaign (HRC) Foundation.

The 2018 CEI rated 947 businesses in the report, which evaluates LGBTQ equality within related policies and practices including non-discrimination workplace protections, domestic partner benefits,

transgender-inclusive health care benefits, competency programs and public engagement with the LGBTQ community. Air Products' efforts in satisfying all the CEI's criteria results in a 100 percent ranking and the designation as a Best Place to Work for LGBTQ Equality.

At Air Products, we want to be the most diverse industrial gas company. We want to attract and retain the best people and harness the benefits of everyone's talents. And we understand that to achieve this goal we must create an inclusive environment where everyone feels respected, valued, wants to come to work



every day, and feels empowered to be his or her best self. The Company continues to drive progress through the diversity actions noted in this report.

## Compensation and Benefits

We want to attract talented employees. And once they're here, we want to keep them. That's why we provide competitive wages and benefits. And while the benefits vary around the globe and across positions, below are examples of some of the basic benefits for full-time employees:

- Health plans
- Paid vacation and holidays
- Leaves of absence: personal, family, military, educational
- Life insurance
- Accident insurance
- Training and development
- Education assistance
- Employee Recognition Programs: company service, safety, diversity and inclusion, continuous improvement
- Employee Assistance Programs



- Employee Referral Program

Other benefits may be available to employees such as a retirement savings plan, car/transportation allowance and more, depending on their location.

We also understand that everyone has commitments outside of work. Recognizing this, we offer programs

that provide flexible work arrangements to help employees manage their commitments. Depending on the job or location, these options may apply: flexible work schedules and/or compressed workweeks, reduced hours, including part-time or job sharing, or telecommuting. In the U.S., we introduced paid parental leave in 2017 to enable new mothers and fathers to spend time with new additions to their families.

### Air Products Makes Corporate Responsibility Magazine's 100 Best Corporate Citizens List

Air Products' sustainability and corporate citizenship efforts have been recognized once again in being named to Corporate Responsibility Magazine's (CR Magazine) 100 Best Corporate Citizens™ List for 2017 and 2018. Air Products has been named to CR Magazine's list, which has recognized public companies with outstanding corporate responsibility performance, for the past seven consecutive years.

The 19th annual list of the 100 Best Corporate Citizens considered 260 data points of disclosure and performance measurement for the entire large-cap

Russell 1000®. The data for the Top 100 list was pulled from publicly available information, and each company making the list was evaluated in seven categories: environment, climate change, employee relations, human rights, corporate governance, financial performance, and philanthropy and community support.

Congratulating the companies named to the 2018 100 Best Corporate Citizens List, Corporate Responsibility Magazine's website stated that: "Being a good corporate citizen is a goal of most leading organizations, but achieving this can be a challenge in today's business climate. So, when a company

succeeds at being transparent, responsible, and accountable—with all aspects backed up by data—they end up earning a coveted spot on Corporate Responsibility Magazine's 100 Best Corporate Citizens List. They delivered on their commitments to transparency and accountability in highly competitive industries."



## Air Products Corporate Citizenship

Caring for the communities where our employees and neighbors live and work is a long-term commitment for Air Products, and one that we take seriously. We believe in healthy and

stable communities for our employees, friends and neighbors, and we are committed to doing good work that improves the lives of people through innovative programs and partnerships.

### Working here. Living here. Giving here.

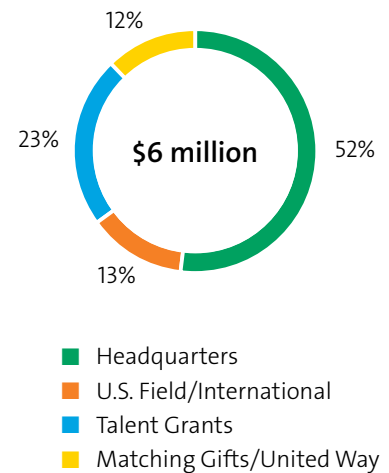
The theme for Air Products' community outreach efforts, "Working here. Living here. Giving here." embraces three important roles that the company and its employees have played in our communities worldwide for more than 75 years.

**Working here:** With operations in 50 countries around the globe, we provide over 15,000 jobs to support families and communities worldwide while maintaining a commitment to be the world's safest industrial gas company. Air Products is an integral part of local, regional, national and international economies. Our employees work and live close to our facilities, providing not only economic benefit to the community, but also a deep commitment to contribute to the health and vitality of that community.

**Living here:** We embrace our responsibility to be a good neighbor. We uphold the highest environmental and sustainability standards and provide resources to strengthen educational, environmental and welfare institutions.

**Giving here:** Many not-for-profit institutions around the world receive grants from our Foundation to support their important missions. And our employees donate significant hours toward making these organizations stronger and more vibrant.

FY17 Contributions



# The Air Products Foundation

The Air Products Foundation’s mission is to build meaningful relationships with charitable organizations around the country and around the world that share the values inherent in Air Products’ higher purpose and enhance the Company’s positive relations with employees, communities, customers, and shareholders.

Air Products’ higher purpose is rooted in:

- Attracting and engaging talented and motivated employees;
- Strengthening the quality of life in our host communities;
- Promoting collaboration among people of different cultures and backgrounds.

The Air Products Foundation Trustees oversee the Foundation budget and strategy, which it revised in 2017. The Trustees in 2017 included: the Executive Vice President and Chief Financial Officer; Executive Vice President and Chief Human Resources Officer; Executive Vice President, General Counsel and Secretary; Executive Vice President, Industrial Gases; and the Vice President and Corporate Treasurer.

The Air Products Talent Grants Program targets eligible institutions and organizations through strategic partnerships that better enable us to attract, develop and retain diverse talent. While the program priorities are aligned with the Foundation’s Mission Statement, there is a focus on:

Higher Educational Support—Universities and Colleges, Technical Schools

National Organizations—Society of Women Engineers (SWE), National Society of Black Engineers (NSBE), Society of Hispanic Professional Engineers (SHPE), National Action Council on Minorities in Engineering (NACME), National Black MBA Association (NBMBA), SkillsUSA

General Scholarship Support—Students studying trades such as Welding and Instrumentation Technology

The Air Products Foundation proudly supports programs and partnerships internationally and nationally with a strong focus on our host communities.

In 2017, the Foundation updated its Matching Gifts Program to make it more flexible and provide a greater opportunity for employee matching. As a result, the charities that mean the most to Air Products’ colleagues can now receive double the donations.

## Strategic Diversity Partners Supported by the Air Products Foundation

Air Products is taking action to attract and develop the best talent and bring our vision of being the most diverse industrial gases company in the world to fruition. Key to our efforts is engaging with external diversity partners, such as the NACME (National Action Committee for Minorities in Engineering), NSBE (National Society of Black Engineers), SHPE (Society of Hispanic Professional Engineers) and SWE (Society of Women Engineers).

These partnerships, which are made possible through strategic donations from the Air Products Foundation, enable us to help these premier organizations strengthen the pipeline of diverse engineering talent in the U.S. through programs that include pre-college outreach, scholarships, mentorships, and professional development. These partnerships also complement our other existing donations designed to support diversity in Science, Technology, Engineering and Mathematics

(STEM). Additionally, through our support of SWE’s international programs, we are partnering to promote women in Engineering in Asia, Europe and India. Air Products has participated in international SWE events in Pune, India; Penang, Malaysia; Shanghai, China; and Madrid, Spain.

## Air Products and STEM

As part of our company strategy, supporting the communities where we operate is vital to our success. Many of our employees are involved with educational facilities, schools, colleges, universities and community groups to support STEM—(Science, Technology, Engineering and Mathematics)—related activities. The overarching goal of what we do is to attract young people to STEM subjects to ultimately increase the talent pool for the future, to build our brand, and to protect our license to operate in our local communities.

Our STEM efforts are arranged using a framework based on the groups we are trying to reach, and include SPARK Interest (starting school to pre-college), BUILD Capabilities (college/university students), SHARPEN Skills (individuals in the workforce), and ENGAGE Communities (employees and community). In 2017, our STEM efforts included approximately 175 programs delivered in the communities around the world where we have significant operations.

### **SPARK Interest (starting school to pre-college)**

Started in the 1970's to bring an understanding of the company's products to our local communities, the Science and Liquid Nitrogen (LIN) Ambassadors programs demonstrate the magic of science and engineering to school children. The program is a favorite of students in the U.S. and Europe, and was expanded to China in 2016. At least 5,000 students learn about science through this program each year.

### **BUILD Capabilities (college/university)**

We partner with organizations that support diverse talent to inspire future scientists, engineers and skilled technical workers to build a diverse pipeline today, and for the future. Organizations include, but are not limited to, World Skills, SkillsUSA, SkillWeld UK, Women in Science and Engineering, Society of Women Engineers, National Action Council on Minorities in Engineering, National Society of Black Engineers, and the Society of Hispanic Professional Engineers. The Company specifies its engagement with many of these organizations in its Career Center.

### **SHARPEN Skills (workforce)**

Life-long learning is essential, and for this reason, Air Products sponsors educational programs for those in the workforce. Of note are the many welding training and certifications that the company sponsors, including programs in Belgium, Poland, Slovakia, Taiwan, and the U.S. We also have significant employee development programs, as noted in the Talent & Diversity section of this report.

### **ENGAGE Communities (employees/community)**

Working within the communities where we operate helps to increase awareness in our host communities and enables us to link to charities and STEM education through local outreach activities. As we expand our Ambassador network, we share our expertise and inspire the next generation of scientists and engineers, and foster employee engagement with the goal of helping to address the skills shortages in the different regions. Our Matching Gift Program provides opportunities for employees to make contributions to the charities that have high impact in their local communities.

## Ambassadors Lead and Learn

Air Products is proud of the many Ambassadors who undertake outreach activities. Our diverse slate of Ambassadors represents many STEM disciplines, including Engineering, IT, and Supply Chain. These volunteers inspire future generations of engineers/scientists as they build awareness of our Company.

Air Products Ambassadors understand that nothing creates a more positive buzz on a crowded exhibit floor in a classroom than watching employees enthusiastically talking about the company for which they work.

This excitement is also demonstrated when an Ambassador presents at a seminar or a professional development workshop aimed at building technical and leadership skills. These Ambassador activities provide opportunities to stretch and learn, while strengthening several Company competencies such as: demonstrate courage, develop self and others, drive results, and lead and inspire.

At Air Products, Ambassadors volunteer their time because they have a passion for what they do and enjoy sharing their excitement with others of the same interest. Air Products United Kingdom and Ireland (UKI) has

developed a dedicated LIN demonstration training program which involves an entire day of theory and practical training, including mentoring from an experienced Ambassador. This program prepares the Ambassadors to safely represent Air Products at public events with confidence.

## Working, Living, and Giving Around the World

For our largest sites around the world, we develop stakeholder outreach plans aimed at addressing high-priority community needs and maintaining positive relationships. These plans often include personal outreach, meetings with public and government and community leaders, facility tours, annual meetings, and support for education and philanthropy.

Our employees are also very engaged in their local communities. In 2017, Air Products employees and retirees from approximately 25% of our manned facilities participated in a community engagement program, although we are aware that many more may be engaged with community services, such as emergency response. Following are some examples of employee engagement and community outreach across different regions of the world.

### Americas

In our Lehigh Valley, PA, headquarters community, there are many opportunities to get involved through local activities. One example is our Days of Caring program, through which employee volunteers can work on specific projects, such as stocking food donations, painting buildings, and cleaning waterways. Throughout the Americas, we support other volunteer and philanthropy programs, including:

- Supporting local fire departments, such as the donation of \$5,000 for the Community Emergency Response Team (CERT) program in Santa Clara, California, which is designed to help local citizens to be self-sufficient after a major disaster.
- Hosting members of the Johnson City Fire Department and Washington County Emergency Medical Services at our distribution terminal at Gray, Tennessee, including a discussion of emergency contacts, vehicle recovery plans, community impacts and various rescue scenarios.
- Providing ongoing support to help attract and retain business in Midlothian, Texas, through hosting a Midlothian Economic Development meeting and providing \$5,000 checks to both the Midlothian Fire and Police departments.

- Offering the Air Products facility in Saint Charles, Missouri, U.S. for K-9 police training session, where dogs and trainers from eight local municipalities conducted various intruder and drug sniffing drills.
- Being a long-time supporter of youth programs in many of our host communities, such as the Boys and Girls Club of the Los Angeles Harbor where contributions by the Air Products Foundation help serve nearly 9,000 youth, between the ages of 5-19, at 12 locations in southern California.

### Europe, Middle East and Africa

Our outreach programs in this region are as diverse as our people. They include supporting charitable organizations and education.

In 2015, employees in our UKI Region implemented a new Program—Charities for Safety Excellence (CHASE). This Program ties together our goal to lead the gas industry in safety with our desire to support local communities. Through CHASE, charities chosen by employees are rewarded based on the safety performance of Air Products employees at sites in UKI. Since the program was initiated, our improved safety performance has resulted in a total of £66,000 going to local and national

## Setting a Record for United Way Giving

For more than 75 years, Air Products has been a strong supporter of the United Way, celebrating the important work they do for communities in the U.S. and around the world. In 2017, employees were engaged with over 150 charitable organizations, including the United Way, which again recognized the Company as one of only 131 Global Corporate Leaders for the United Way Worldwide. In 2017, we matched each employee and retiree donation dollar-for-dollar, and our

record-setting United Way campaign was \$2.8 million, which was nearly three times the amount raised in 2016. All United Way contributions stay in the communities where our employees and retirees live and work, and those dollars are designated to community programs and agencies in need. Through the United Way, our employees and our retirees can become champions of social causes that really ignite their passions, and Air Products is honored to support that.





charities. Due to the success and positive feedback of the CHASE Program, it has also been implemented in our Northern Continent region.

Our Science Ambassador program is alive and well in Europe. Every year, over 50,000 people participate in our STEM activities throughout our communities. Air Products UKI conducted a Science Ambassador recruitment drive and has increased the number of Ambassadors from 30 to 72. The commitment to this program is evident in the purchase of five additional liquid nitrogen (LIN) demonstration kits to support the growth of the program in this region. Our Ambassadors have supported large STEM events including The Big Bang Fair where 9,000 visitors attended the one-day event. The students watched a LIN demonstration, performed analysis on gases in food packaging and learned about welding by experiencing a welding simulator. Since this program was implemented in Europe, our

Ambassadors have touched many people through their efforts, including:

- Number of visitors to events: 52,894
- Press coverage, estimated reach: 172 million
- Social media campaign total reach: 1.2 million

Also in 2017, our employees in France launched the “Care” program, which encourages employees at our facilities to suggest ideas that will improve sustainability where they work. Employees’ ideas have included, improving recycling, adding solar panels, and installing bee hives to support pollination. The ideas are being evaluated and implemented based on feasibility and impact. The program has been so successful that it is expanding to other countries in Europe.



## Bringing Hope to Hospitalized Children

Hope and enthusiasm are a great source of energy. A happy environment can help us to feel better and overcome difficult situations, including recovery from an illness. And that is exactly the belief of our employees at Carbueros Metálicos in Spain, who volunteered to bring hope to hospitalized children who are battling serious illnesses.

For over 70 years, Carbueros Metálicos’ Hospital brand, Carbueros Médica, has been a gas supplier and technology partner with hospitals throughout Spain. In 2013, the Company collaborated with foundations who share our values and hope to better the quality of life of hospitalized children, and together started ‘Nos Mueve La Ilusión’. By working with the Hospital General

Universitario de Alicante’s hospital staff, medical team, and families, the volunteers decorated the recovery rooms with bright and cheerful murals—bringing many smiles to the children.

Medical teams have confirmed that hope brings a positive state of mind and has beneficial effects during a patient’s recovery when undergoing long-term treatment. Hope is a transforming strength that can help children overcome adversity by invoking enthusiasm. For this reason, more and more doctors and health professionals promote granting of wishes and stimulating hope as part of the treatment. We believe we have encouraged a sense of hope through this local initiative.



## Asia

Our employees in Asia are also very engaged with their communities. Air Products in Singapore believes in promoting education and skills development through nonprofit organizations, such as the REACH Community Services Society (RCSS) Bursary cum Mentoring Program. In 2017, our team in Singapore chose to sponsor this established charitable organization, which provides financial and moral support to over 100 local students from low-income families. Through the Air Products Foundation, Air Products Singapore has supported education in the community by donating \$25,000 USD to the charity. Donations go into the Bursary, which enables students to afford an education and receive mentoring. The Bursary is awarded in two stages: the first payout is given before school starts to help the students purchase learning materials, while the second payout is made after the students complete a year-long tuition program with RCSS, which monitors their academic progress.

### LIN Ambassador Program Expands in China

“LIN Ambassador” has become a well-recognized “brand” of Air Products in China. Since the program was implemented in 2014, our LIN Ambassadors have conducted more than 40 demonstrations to over 2,800 people, generating interest in science and providing networking opportunities with government, community, potential customers, suppliers, collaborators, and partners.

With the mission to share knowledge of science and technology through fun experiments, the program aims to inspire future scientists and engineers. Over 200 employees volunteer across China to support the LIN Ambassador Program, promoting education and skills development as they develop their professional competencies and improve communication and team building. And in 2017, the Program was successfully expanded to Beijing, Guangzhou, Dongguan, Tangshan, Tianjin, Nanjing, Shenyang, Zhangjiagang and Shanghai Baoshan, with plans to increase the number of Ambassadors.

The China LIN Ambassador Program has helped to increase community engagement, while demonstrating the Company’s commitment to responsible business. The Program has been awarded appraisal letters from Shanghai Pudong Education and Medals from several schools, and won “Best Brand Image Award” for the third consecutive year, the “Best Social Responsibility Brand Award” for the second consecutive year, the “2017 Overall Community Care Award” for corporate citizenship and continued contributions to the community, and was named “The Best Community Programs of 2017” at the China Charity Festival.

### Air Products Korea Team Helps “Whole Village” in Pyeongtaek Thrive

Our Korea team has a truly big heart for future generations. In 2017, in Pyeongtaek City, Air Products South Korea signed the 'Pyeongtaek District School Development Fund Agreement' to pledge support for local students' growth. In parallel, Air Products Korea employees collaborated with the local volunteer Social Service Club "Heemangkong" (meaning "bean with hope") to share love and joy during the holidays at an orphanage.

But to Air Products employees, caring for the young ones alone is not quite enough. As it takes a whole village to raise a child, helping the surrounding society thrive is equally important. In light of this, the team recently donated \$100,000 USD (equivalent to KRW 100 million) via the Air Products Foundation to the Pyeongtaek Council Social Welfare (PTCSW), who will leverage our support to promote the culture of sharing to local community organizations. The donation will be re-directed by PTCSW to six social welfare organizations that provide various community services, including counseling services for children and the elderly, services for the physically disabled, community events, and transportation services.

Being a responsible corporate citizen, the Korea team is committed to building a brighter future for everyone in the country regardless of race, age, physical condition, sexual orientation, gender, family status, religious belief, or cultural background. The team’s effort has been successful in Pyeongtaek and it does not stop there. Moving forward, the team will launch a more diverse regional program to drive benefits for more people in the local communities.

## Supplier Sustainability

The thousands of suppliers with whom Air Products does business are essential to the Company's success. We want to continue working with suppliers who can help Air Products deliver value to our customers, and who share in our commitment to ethical business practices. This is why our suppliers are expected to abide by and conform to our [Code of Conduct](#) in their business dealings with us, and to support sustainability through the principles outlined in our [Sustainability Expectations of Suppliers](#). To that end, we have strengthened our terms and conditions, adding clauses that cover anti-bribery and corruption, [conflict minerals](#), and referencing our Code of Conduct. Through our [Human Rights Policy](#), which is also referenced by our Code of Conduct, we reserve the right to require our suppliers to certify or contractually agree to abide by all laws, rules and regulations in the jurisdictions in which they do business, including those related to human rights.

In total, Air Products spent almost \$6 billion in power, equipment, materials, and services with over 37,000 suppliers and service providers in 2017. Energy is the primary raw material purchased to manufacture industrial gases, particularly electricity and steam for our ASUs, and natural gas for our HyCO plants. Steel, aluminum, and capital equipment subcomponents are the primary materials procured for our equipment business. There were no significant changes in our supply chain year-on-year.

Because our businesses are organized regionally, we have procurement teams around the world who work with regional and local suppliers. We also have a Capital Sourcing Team, which is part of Global Engineering, who works with a breadth of suppliers to design and construct large facilities around the world. While we do not specifically track spending with local suppliers, at least 40% of our purchases are related to energy, which is used at the local level.

Another 10% is spent with engineering and construction firms who also work primarily at the local level.

Our procurement teams have processes in place, such as supplier qualification, to ensure we receive the supplies and services we need. Prequalification is at the center of risk management and includes data gathering, commercial risk assessments, completion of qualification questionnaires, supplier approval or disqualification, and storing of decisions and records in a global supplier database. Service providers are screened for safety via their policies and performance. Where permissible by law, we conduct background checks on suppliers. In addition, a sustainability check list is available to evaluate the environmental and social aspects of suppliers. We do not track the percentage of suppliers that are screened using this check list.

In 2017, we upgraded our prequalification process for engineering suppliers to be more specific to the equipment we procure, and to ensure that the proper cross-functional team is engaged. We also visited over 60 new suppliers as part of the qualification process, including many suppliers in Asia where our business is growing most rapidly. Likewise, we strengthened our efforts to evaluate the energy efficiency of supplied equipment to reduce power needs and minimize the total cost of ownership. Additional risk management efforts included reviewing business continuity programs to ensure each critical supplier had multiple manufacturing locations, and restricting purchases from suppliers with business continuity concerns.

We work with our suppliers on an ongoing basis, monitoring their performance and the quality of their products. If a noncompliance is identified, we will work with the supplier to address the issue.

From a sustainability perspective, we focused on the major suppliers that comprised 80% of our procurement spend in 2017. Of these suppliers, over 40% have sustainability programs and communicate their progress on sustainability. Moreover, almost 60% of our energy suppliers have demonstrated their commitment to sustainability through sound programs and transparency. We continue to monitor suppliers to identify any sustainability issues that may impact Air Products.

We have also assessed the [human rights](#) risks of our supply chains and have not identified any significant risks. Most of our suppliers are in heavy industries that are not as susceptible to human rights violations as other industries. In case we find an issue, and to promote human rights in our supply chains, we are adding human rights clauses to our standard terms and conditions for procurement. We also identify if our third-party intermediaries have human rights policies in place during due diligence. These efforts support our compliance with the UK Modern Slavery Act of 2015 and the California Transparency in Supply Chains Act of 2010.

It is our policy and practice to provide maximum practical opportunities to diverse suppliers. These include, but are not limited to, small, socially and economically disadvantaged and other minority-owned and women-owned U.S. businesses that can provide competitive sources of materials and services. We offer advice and guidance to assist minority business firms in building relationships and becoming successful suppliers to us. In 2017, 13.6 % of our procurement in the U.S. was from diverse suppliers.

## Conflict Minerals

A significant program in the U.S. to address human rights atrocities in the Democratic Republic of the Congo (DRC) is the [Conflict Minerals Rule](#) under the U.S. Dodd Frank Act. While the U.S. government is considering a repeal of the Rule, we are continuing our efforts to evaluate the possible presence of conflict minerals in our supply chains. These four minerals – tungsten, tantalum, tin and gold (also called 3TG) – are used in a variety of applications, from hearing aids and pacemakers, to laptop computers and GPS devices. About 10% of the world’s 3TG comes from “conflict regions,” countries in and around the DRC where the mining industry has been used to fund armed conflict and human rights abuses. The remaining 90% is sourced from conflict-free regions, such as Peru and China.

Each year we report on our progress in identifying Conflict Minerals in the supply chain and post a Conflict Minerals report on our website. In 2017, we identified over 5,000 components of our equipment products that potentially contained 3TGs. We contacted 379 suppliers to determine the presence and origin of any Conflict Minerals. Response from suppliers was lower than in prior years at 45%, which we think may be due to the status of the Conflict Minerals Rule. We were unable to determine if our supply chain was conflict-free given the lack of supplier response, but have added conflict minerals clauses to our standard terms and conditions.

## About Our Report

Air Products has reported on our sustainability performance each year for the past 14 years, building on a previous decade of environmental, health and safety disclosures and reporting. In fact, 25 years ago, Air Products issued its first report on the Company’s environmental and safety efforts, acknowledging our commitment to be an industry leader in environmental, health and safety performance.

## Stakeholder Engagement

Recognizing that our customers, employees, investors, and others are vital to the ongoing success of our business, we routinely engage with key stakeholders to understand what is important to them, and what may have a significant impact on the Company.

## Our Key Stakeholders

Customers	Customers come to Air Products for innovative thinking and solutions to their most pressing operational challenges. Key sustainability concerns of our customers vary by business, but typically focus on how our products can help them improve energy efficiency and reduce their environmental impact.
Employees	Air Products is committed to providing a work environment where our employees can grow and thrive. We engage in regular, two-way communications with our employees through leadership dialogue sessions, executive town hall meetings, feedback surveys, “Ask Leadership” channels on our company Intranet, and our employee online newsletter.
Communities	The stronger the local community, the stronger and more stable platform from which we can run our business. Our employees communicate with members of their communities on a regular basis and solicit feedback about our operations and key issues.
Investors	The only way to serve our customers with excellence, develop and reward our employees, and support our communities is to have a profitable company with satisfied shareholders. We routinely engage with investors through quarterly calls, sell-side conferences, and one-on-one meetings to ensure the investment community’s perspectives are heard and understood.
Suppliers	Air Products’ suppliers play crucial roles in our ability to deliver to our customers each and every day. Our ongoing monitoring, assessment, and engagement with suppliers provide opportunities to review sustainability-related and other concerns.
Governments and Regulators	Public policy decisions and regulations have a direct impact on our businesses and operations. Air Products supports fair, balanced and realistic policy decisions, and maintains open channels of dialogue with the local, regional and national government entities where we operate.



Air Products has been conducting stakeholder assessments since it began reporting in accordance with Global Reporting Initiative (GRI) guidelines in 2010. Stakeholder engagement has included:

- Evaluating sustainability issues identified in various frameworks, standards, questionnaires, customer reports and stakeholder questions;
- Interviewing internal and external parties on sustainability issues, including members of our Key Stakeholders;
- Reaching out to community members in person and via surveys to identify and understand concerns;
- Engaging our Sustainability Leadership Council in discussions about sustainability priorities; and
- Surveying sustainability subject matter experts who support company efforts.

## Our Sustainability Priorities

For our 2018 report, we reaffirmed with select stakeholders the sustainability issues that were most important to them and the Company. Our stakeholders continued to express support for sustainability, and as expected, were concerned about varying aspects of this broad initiative. Based on their feedback, we modified our sustainability priorities (or materiality matrix) for this year as follows:

- Combined customer-related sustainability concerns into one element under Grow due to the positive impact our customer solutions have on our revenue and our customers' sustainability;
- Moved Ethic & Integrity under our Grow platform in recognition of the effect this area can have on our reputation and license to operate;
- Moved Compliance into Grow due to the breadth of internal and external requirements across the Company;
- Removed waste management from the Conserve platform because of the nature and low volume of the waste we generate, though we will continue reporting our waste information; and
- Reframed Talent Management to Talent & Diversity in recognition of the 2017 update to our Company goal to be the safest, most diverse, and most profitable industrial gas company in the world, providing excellent service to our customers.

### Our 2017 priorities for Sustainability:

#### Grow

- Economic Performance
- Customer Sustainability
- Ethics & Integrity
- Compliance

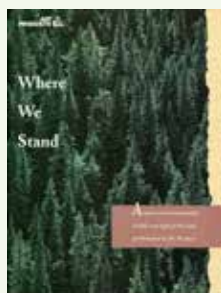
#### Conserve

- Energy Savings
- Distribution Efficiency
- GHG Reductions
- Water Conservation

#### Care

- Safety
- Talent & Diversity
- Community Support
- Supplier Sustainability

## 25 Years of Transparency



In 1993, Air Products issued its first report on its environmental and safety efforts. The report opened with a commitment to be an industry leader in environmental, health and safety

performance. On the pages that followed, we described our approach to environmental management and how we were striving to reduce emissions.

Then, we shared our total safety philosophy that said, and still says, “Nothing is more important than safety . . .” We discussed our safety performance, noting that we were consistently within the top three performers in the chemical industry, though we were not satisfied with those results. And we shared how our products helped our customers reduce their impact on the environment and improve efficiencies.

The end of the report focused on the challenges we faced. We noted that “Meeting new legislative and regulatory demands, plus achieving continual improvement in our environmental, health

and safety performance, places greater and greater demands on our creativity, our technology, and our resources.” That continues to be true. We also committed to doing a better job communicating our goals and performance to our employees and the public, and we have issued an annual EH&S, Corporate Responsibility or Sustainability report every year since. Finally, we noted that, “Perhaps most important, we must continue to foster environmental, health, and safety concerns as a Air Products’ culture.” We have progressed far on that journey.

## Our Report Content

Air Products used GRI's Principles for Defining Report Content to develop our 2018 Sustainability Report. These principles included: stakeholder inclusiveness, sustainability context, and coverage of aspects that reflect our significant economic, environmental and social impacts. Our Sustainability Priorities, aspect boundaries, and related content within this report are provided below:

	Aspect Boundaries							Report pages
	Product Development	Sourcing	Production	Sales & Marketing	Distribution	Use/End of Life	Communities	
Grow								
Economic Performance	●	●	●	●	●		●	18
Customer Sustainability	●			●		●		20
Ethics & Integrity			●	●	●		●	26–27
Compliance		●	●	●	●	●		27
Conserve								
Energy Savings	●	●	●	●		●		35
Distribution Efficiency		●	●		●		●	39
GHG Reductions	●	●	●	●		●		36–38
Water Conservation	●	●	●			●	●	40–41
Care								
Safety	●	●	●	●	●	●	●	48–57
Talent & Diversity	●	●	●	●	●		●	59–63
Community Support			●				●	67–72
Supplier Sustainability	●	●						73–74

Our 2018 report has been prepared in accordance with GRI standards “core” option, and is aimed at providing stakeholders with data and perspectives to understand and evaluate our performance, impacts and opportunities. The report also contains supplemental information not specified by GRI that illustrates additional aspects of our sustainability efforts.

Our 2018 report covers the period of January 1, 2017 to December 31, 2017, except where noted that fiscal year (October 1, 2016 to September 30, 2017) data is provided. Our prior year report was issued in July 2017. Please see pages 82–84 of this report for the complete GRI Index.

The scope of this report for continuing operations is global, including assets over which financial control is exercised, as reported in our consolidated audited financial statement. We exclude less than controlling interests in joint ventures or equity affiliates.

The Company has majority or wholly owned foreign subsidiaries that operate in Canada; 17 European countries (including the United Kingdom, the Netherlands, and Spain); 11 Asian countries (including China, South Korea, and Taiwan); eight Latin American countries (including Chile and Brazil); three African countries; and two Middle Eastern countries. The Company also owns less-than-controlling interests in entities operating in Europe, Asia, Africa, the Middle East, and Latin America (including Italy, Germany, China, India, Saudi Arabia, Thailand, Oman, South Africa, and Mexico).

We have guided readers to additional information, including our Sustainability site on [airproducts.com](https://airproducts.com) as well as other reports, such as our annual financial reports on Form 10-K and Report of unscheduled material events or corporate events on Form 8-K. We are committed to transparency in our reporting and continuous improvement in our sustainability management and performance.

Due to changes in our approach to GHG reporting in 2018, Air Products has restated its GHG emissions for the past two years as indicated on page 37. We have also completed an assessment of our Scope 3 reporting, and are no longer reporting on several categories due to concerns about data quality and alignment with industrial gas peers.

Our Corporate Sustainability Director was accountable for overseeing the preparation of this report, with significant data contributions provided

by business and functional teams throughout the Company, as well as our Greenhouse Gases Center of Excellence, Environmental Measures and other sustainability-related teams. No GRI sector standard exists for our industry (industrial gases/materials); however, we have attempted to provide best possible disclosures based on the nature of our business and the related risks and opportunities. Questions about this report can be directed to Julie O'Brien, Air Products' Corporate Sustainability Director, at [obrienjk@airproducts.com](mailto:obrienjk@airproducts.com).

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## Organizations We Engage

Our management believes that our business, and thus our stakeholders, benefit from our participation in organizations that represent our industry and customers. For that reason, Air Products was active in numerous associations and organizations in 2017, including the following:

### Americas

- Compressed Gas Association (CGA)
- American Institute of Chemical Engineers (AIChE)
- AIChE Center for Chemical Process Safety (CCPS)
- American Welding Society (AWS)
- Catalyst
- Fuel Cell and Hydrogen Energy Association (FCHEA)
- Gases and Welding Distributors Association (GAWDA)
- Manufacturers Alliance for Productivity and Innovation (MAPI) Sustainability Council

- National Action Council for Minorities in Engineering (NACME)
- National Association of Manufacturers (NAM)
- National Society of Black Engineers (NSBE)
- Society of Women Engineers (SWE)
- Society of Hispanic Professional Engineers (SHPE)
- Out and Equal
- U.S. Chamber of Commerce (COCUSA)
- Veterans Job Mission

### Asia

- Asia Industrial Gases Association (AIGA)
- China Industrial Gases Industry Association (CIGIA)
- China Petroleum and Chemical Industry Federation (CPCIF)
- Malaysian Iron and Steel Industry Federation (MISIF)

### EMEA

- European Industrial Gases Association (EIGA)
  - British Industrial Gases Association (BCGA)
  - Dutch Chemical Manufacturers' Association (VNCI)
  - European Association of Energy-Intensive Industries (IFIEC)
  - German Industrial Gases Association (IGV)
  - RECS International
  - Spanish Energy-Intensive Industry Group (AEGE)
  - The Spanish Federation of the Chemical Industry (FEIQUE)
  - Spanish Industrial Gases Association (AFGIM)
  - UK Energy-Intensive Industries Group (EIUG)
  - The Welding Institute (TWI)
-

## Recognition for Our Efforts

Air Products has been recognized around the world for aspects of sustainability performance. Following are the major recognitions received in 2017:

Dow Jones Sustainability Index	Member, North America Index
Ethibel	Member EXCELLENCE Global Sustainability Index and Ethibel PIONEER and Ethibel EXCELLENCE Investment Registers.
FTSE4Good	Constituent in the FTSE4Good index.
CR's 100 Best Corporate Citizens	Included in Corporate Responsibility Magazine's 100 Best Corporate Citizens list in 2017 and 2018.
Most Attractive Employers in China	Named one of the Top 3 Most Attractive Employers in the chemical industry, Top 100 Most Attractive Employers overall, and Corporate Social Responsibility (CSR) Role Model
FEIQUE Special Safety Award	Carbueros Metálicos was recognized by FEIQUE, the Spanish Federation of the Chemical Industry, as the only gas company with more than 300 employees, who achieved zero accidents throughout the whole calendar year.
China Industrial Gases Industry Association	Received the "Special Support Award" from the China Industrial Gases Industry Association (CIGIA) in recognition of our long-term contribution to the country's industrial gas industry.
European Industrial Gases Association	Carbueros Metálicos received a prestigious award for achieving the lowest employee recordable incident rate, and our Czech Republic and Slovak Republic distribution team received an award for achieving the best performance in Road Safety in the category of cylinder vehicles.
Compressed Gas Association	Received the Fleet Safety Award for having the lowest accident rate for bulk transportation (more than 20 million miles per year) and the Environmental Award for significant water reduction usage at our Wilmington, California HyCO plant.
Best Places to Work for LGBTQ	Earned a perfect score of 100 percent on the 2017 and 2018 Corporate Equality Index (CEI), a national benchmarking survey and report on corporate policies and practices related to lesbian, gay, bisexual and transgender (LGBT) workplace equality, administered by the Human Rights Campaign Foundation.



## Performance Data

### Grow

Economic performance (millions of dollars, except per share)	2017	2016	2015
GAAP			
Sales	\$8,188	\$7,504	\$7,824
Operating income	\$1,428	\$1,530	\$1,233
Operating margin	17.4%	20.4%	15.8%
Net income from continuing operations attributable to Air Products	\$1,134	\$1,100	\$933
Net income attributable to Air Products	\$3,000	\$631	\$1,278
Capital expenditures	\$1,056	\$908	\$1,201
Return on capital employed (ROCE)	10.1%	11.2%	
Return on average shareholders' equity	13.2%	15.4%	12.7%
NON-GAAP			
Adjusted operating income <sup>(A)</sup>	\$1,720	\$1,620	\$1,389
Adjusted operating margin <sup>(A)</sup>	21.6%	21.6%	17.7%
Adjusted net income attributable to Air Products <sup>(A)</sup>	\$1,386	\$1,230	\$924
Adjusted EBITDA <sup>(A)(B)</sup>	\$2,795	\$2,622	\$2,399
Adjusted EBITDA margin <sup>(A)(B)</sup>	34.1%	34.9%	30.7%
Adjusted capital expenditures <sup>(A)</sup>	\$1,066	\$935	\$1,575
Adjusted ROCE <sup>(B)</sup>	12.1%	12.4%	10.5%
Adjusted return on average Air Products shareholders' equity <sup>(B)</sup>	16.1%	17.3%	
PER SHARE			
GAAP diluted earnings per share (EPS)	\$5.16	\$5.04	
Adjusted diluted EPS <sup>(A)</sup>	\$6.31	\$6.64	\$4.29
Dividends declared	\$3.71	\$3.39	\$3.20
Book value	\$46.19	\$32.57	\$33.66
AT YEAR END			
Air Products shareholders' equity	\$10,086	\$7,080	\$7,249
Shares outstanding (in millions)	218	216	217
Shareholders	5,700	6,000	6,400
R&D spending	\$58	\$72	\$76
Patent families granted	36	28	39

### Conserve

Energy Consumption (MWh) <sup>(C)</sup>			
Total	54,600,000	51,300,000	52,700,000
Fuels	29,300,000	28,700,000	30,600,000
Electricity	14,500,000	13,700,000	15,200,000
Steam	10,800,000	8,900,000	6,900,000
Energy Intensity Improvement			
Air separation units	1.6%	0.65%	
Hydrogen/carbon monoxide units	0.6%	0.31%	
Greenhouse Gas Emissions (MT CO <sub>2</sub> e emitted) <sup>(C)</sup>			
Scope 1	17,200,000	15,000,000	14,300,000
Scope 2	11,500,000	10,700,000	10,900,000

	2017	2016	2015
Scope 3	4,900,000	5,700,000	6,600,000
GHG Intensity Improvement	1.4%	0.58%	
Distribution efficiency and CO <sub>2</sub> intensity improvement	14%	9%	
Waste (millions of pounds)			
Hazardous waste generated	4.3	5.1	5.9
Hazardous waste disposal	0.8	1.5	2.5
Non-hazardous waste disposal	8.1	8.5	9.0
Water (billions of gallons)			
Water withdrawal	16.2	15.1	15.2
Gross water consumption	15.6	15.2	15.3
Water conservation intensity improvement	9%	4%	
Other Air Emissions (metric tonnes)			
Nitrogen oxides (NOx)	1,565	1,501	1,571
Sulfur oxides (SOx)	69	71	74
TRI releases		114	77
Environmental fines	\$20,400	\$7,300	\$14,100
<b>Care</b>			
Total employees at year end <sup>(D)</sup>	15,300	18,600	
Female share of total workforce	23%	23%	23%
Global employee turnover rate	9.5%	11.8%	15.9%
Average formal training hours per employee per year	22	32	30
Employees in collective bargaining units	32%	32%	19%
Cash and product donations (millions of dollars)	6.0	6.1	6.5
United Way contributions (millions of dollars)	2.8	1	1.5
Safety performance <sup>(E)</sup>			
Employee recordables	59	86	113
Employee recordable injury rate (per 200,000 hours worked)	0.34	0.44	0.49
Employee lost-time incidents	10	34	45
Employee lost-time incident rate (per 200,000 hours worked)	0.06	0.18	0.20
Employee fatalities	0	0	0
Contractor recordables	59	64	89
Contractor recordable injury rate (per 200,000 hours worked)	0.38	0.49	0.64
Contractor lost-time incidents	10	42	41
Contractor lost-time incident rate (per 200,000 hours worked)	0.06	0.32	0.34
Contractor fatalities	0	0	1
Vehicle accident frequency rate (preventable accidents per one million kilometers)	0.89	0.88	0.8
Board of Directors			
Executive directors	1	1	1
Independent directors	7	7	7
Total board size	8	8	8
Board diversity (percent women or minority)	37.5%	37.5%	37.5%
Average board meeting attendance	98%	97%	97%
Allegations of Code of Conduct violations	293	312	333
Percent employees trained in Code of Conduct	91%	>99%	96%

<sup>(A)</sup> Amounts are non-GAAP measures. See reconciliation to GAAP results within Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations, of the Company's 2017 [Form 10-K](#).

<sup>(B)</sup> Amounts are non-GAAP measures. See pages III-V of the Company's 2017 Form 10-K for reconciliation to GAAP results. Fiscal years 2015 through 2017 are presented on a continuing operations basis.

<sup>(C)</sup> Restated 2015 and 2016 values.

<sup>(D)</sup> Includes full- and part-time employees from continuing and discontinued operations.

<sup>(E)</sup> Reported on fiscal year basis.

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