

ACCELERATING CHANGE

for a Sustainable Future

**Chevron
Phillips
CHEMICAL**

Performance by design.
Caring by choice.™



2021 SUSTAINABILITY REPORT



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Letter from the CEO

Overcoming challenges and leveraging strategic opportunities presented during 2021, Chevron Phillips Chemical (CPChem) accomplished a year of record-breaking performance. In 2021, we once again confirmed our position as a premier chemical company by operating safely and reliably, remaining agile, and adding value to our communities.

Through an exceptionally dynamic year, we continued our pursuit of best-in-class performance, enhanced our focus on diversity, equity and inclusion, and strengthened several initiatives to accelerate CPChem's Environmental, Social and Governance (ESG) journey.

Safe and Reliable

CPChem's vision, and the mission, strategy and values that support it are the inspiration for our tagline: Performance by design. Caring by choice.™ Safe, reliable operation is the anchor point of our business and sustains the hard-earned trust of our workforce, customers, suppliers, communities and owners. I am proud that CPChem finished 2021 with one of the lowest recordable incidence rates in company history, an achievement attributable to every employee and contractor working at our sites.

Transforming our Business

With an eye on the horizon, we are transforming our business for the future. Leveraging and celebrating the innovation of employees, CPChem's

Performance by Design (PBD) program has generated tremendous value for the company since it was launched, logging upwards of 1,000 ideas for improvements and increased efficiencies in 2021 alone. It is important to me that programs like PBD continue to prioritize collaborative trust throughout the company and foster a culture in which every employee has opportunities to thrive professionally and personally.

Advancing Sustainably

At CPChem, sustainability means improving quality of life and protecting our planet. We are committed to producing life-enriching products in a sustainable manner, minimizing our footprint, and encouraging others to do so as well. In 2021, we experienced substantial growth in our sustainability strategy's impact and influence across the enterprise by amplifying CPChem's three sustainability focus areas: Climate Change, Product Sustainability and Circularity, and Social Responsibility.



Sustainability Focus Areas

Climate Change

We recognize the gravity of the potential impacts of climate change. Our company and industry have the opportunity to demonstrate support for a balanced, constructive approach that advances a lower carbon future. Addressing emissions is critical for our business and the health of our planet. We are dedicated to developing strategies with tangible actions to further optimize our use of resources and enhance the climate risk resilience of CPChem's facilities.

Product Sustainability and Circularity

CPChem is a leader in product innovation, helping to enable a circular economy for plastics. I am thrilled with the tremendous progress of CPChem's advanced recycling program in 2021, which has exhibited our expertise in this field and reinforced our ability to deliver certified, sustainable products like Marlex® Anew™ Circular Polyethylene now, and in the future. As we have for years, we stand firm in our belief that plastic waste does not belong in the environment and the company continues its active work with, and strong support of organizations like the Alliance to End Plastic Waste and Operation Clean Sweep®.

Social Responsibility

We invest considerable time and resources to enrich the lives of our employees and all people associated with our business. Over the past year, action plans to enhance diversity, equity and inclusion at CPChem have been developed and deployed, turning aspirations into accomplishments. We aim to elevate global communities through philanthropy and hard work, using the experiences and compassion of our employees to improve lives, protect the planet and make the world a better place.

I am immensely proud of CPChem's workforce and work products in 2021 and I hope you enjoy reading about both in our 2021 sustainability report, *Accelerating Change for a Sustainable Future*.



Bruce Chinn

Chief Executive Officer

ABOUT THIS REPORT

Accelerating Change for a Sustainable Future is Chevron Phillips Chemical's (CPCChem) 11th sustainability report. This report includes new disclosures and a narrative summary of CPCChem's economic, environmental and social performance in 2021.

About this Report

Reporting Standards & Data Collection

Data used in this report was collected through multiple processes, including, but not limited to, information management systems, direct monitoring and sampling, engineering estimates, and material balances.

Data, disclosures and statements published in *Accelerating Change for a Sustainable Future* have received Limited Assurance from **KERAMIDA**, an independent Environmental, Health and Safety, and Sustainability consulting firm.

 [View KERAMIDA's Independent Limited Assurance Report of *Accelerating Change for a Sustainable Future*](#)

Global Reporting Initiative

This report has been prepared in accordance with the GRI Standards: Core option. A comprehensive 2021 GRI Content Index is available on our website and includes disclosures that may not be listed in this report.

 [2021 GRI Content Index](#)

United Nations (UN) – Sustainable Development Goals (SDGs)

As a global company, we believe the UNSDGs play an important role in advancing peace and prosperity for people and the planet. The specific UNSDGs and related topics deemed material to our business in 2021 are included within this report and labeled using UNSDG iconography.



 [United Nations Sustainable Development Goals](#)

Performance Data Tables

Performance Data Tables detailing CPChem's economic, environmental, and social performance over the last six years are located at the end of this report. Any restatements of data from prior years have been detailed in the [GRI Content Index](#). Unless stated otherwise, data reported on an equity basis represents the equity stake for wholly owned operations and facilities where CPChem has only partial equity ownership. Data reported on an operated basis represents 100% stake for wholly owned or joint venture operations which are operated by CPChem.

 [Performance Data Tables](#)



Looking for specific stats?

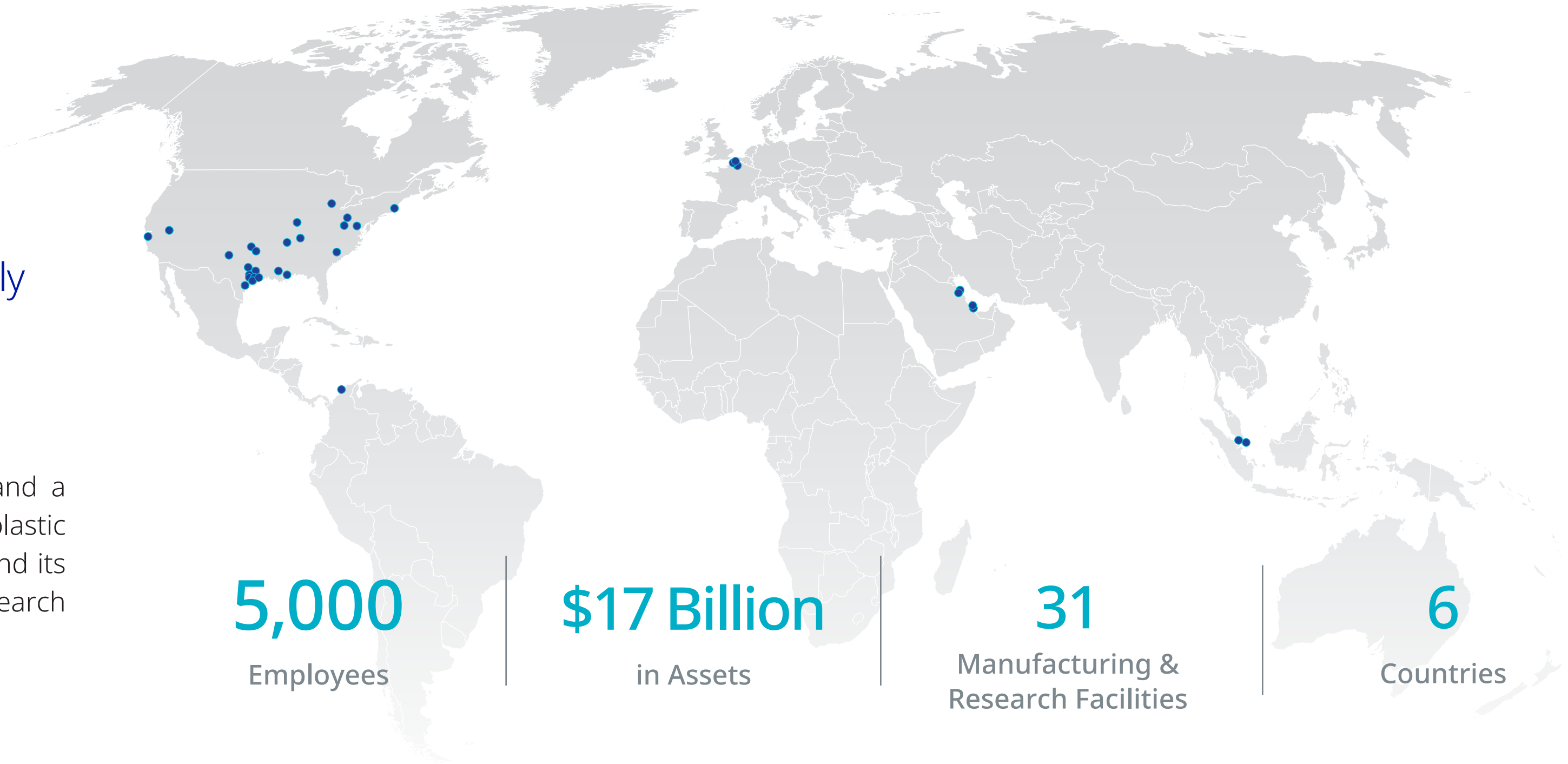
Use our new chart generator data tool.

 [Environmental, Financial and Social Data Tool](#)

CPChem at a Glance

Founded in 2000 and headquartered in The Woodlands, Texas, CPChem is a joint venture, equally owned indirectly by Chevron U.S.A. and Phillips 66 Company.

CPChem is one of the world's top producers of olefins and polyolefins and a leading supplier of aromatics, alpha olefins, styrenics, specialty chemicals, plastic piping and polymer resins. With approximately 5,000 employees, CPChem and its affiliates own nearly \$17 billion in assets, including 31 manufacturing and research facilities in six countries.



NORTH AMERICA

Global Headquarters
The Woodlands, Texas

Drilling Specialties Company Headquarters
The Woodlands, Texas

Performance Pipe Headquarters
Plano, Texas

Research and Technology
Bartlesville, Oklahoma
Kingwood, Texas

Manufacturing Facilities
Baytown, Texas
Borger, Texas
Brazoria County, Texas
Orange, Texas
Pasadena, Texas
Pascagoula, Mississippi*
Port Arthur, Texas

Drilling Specialties
Conroe, Texas

Performance Pipe
Bloomfield, Iowa
Brownwood, Texas
Hagerstown, Maryland
Knoxville, Tennessee
Pryor, Oklahoma
Reno, Nevada
Startex, South Carolina

Americas Styrenics*
Allyn's Point, Connecticut
Hanging Rock, Ohio
Joliet, Illinois
Marietta, Ohio
St. James, Louisiana
Torrance, California

SOUTH AMERICA

Americas Styrenics *
Cartagena, Colombia

THE MIDDLE EAST

Manufacturing Facilities*
Al Jubail, Saudi Arabia (S-Chem)
Al Jubail, Saudi Arabia (SPCo)
Mesaieed, Qatar
Ras Laffan, Qatar

EUROPE

Europe Region Headquarters
Diegem, Belgium

Manufacturing Facilities
Beringen, Belgium
Tessenderlo, Belgium

ASIA

Asia Region Headquarters
Singapore

Manufacturing Facilities*
Jurong Island, Singapore

* Indicates joint venture facilities with partial ownership.

Industries We Serve

CPChem is positioned to deliver industry-leading performance and make life better for each other, our customers and our communities. Our products support access to clean water, food supplies, medical care and provide many significant and sustainable benefits to society.

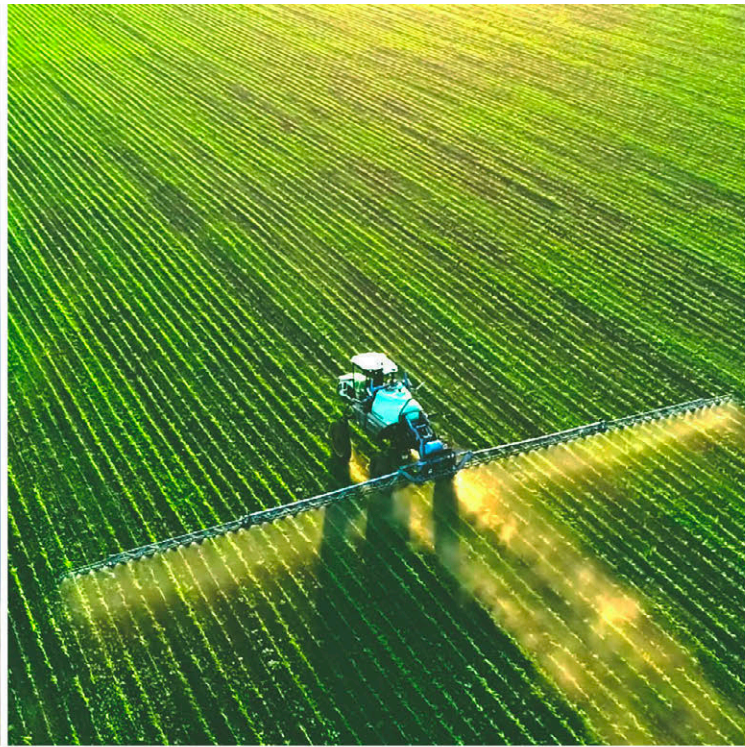
Automotive



Energy & Chemical



Food & Agriculture



Home & Electronics



Industrial



Medical & Pharmaceutical



Personal Care



Recreation

An Award-Winning Employer for All

(Forbes Awards for 2021)

America's Best Employers by State (#24 in Texas)

America's Best Employers (#32)

Best Employers for Diversity (#195)

World's Top Female-Friendly Companies (#223)

World's Best Employers (#357)



For more information about our company and products, visit www.cpchem.com.



Our Approach to Sustainability

Using science and innovation, CPChem is taking action to advance sustainability programs across the company. The initiatives we have set in motion are enhancing our products, enriching our people, and helping to protect the planet.

We are not alone in our work to deliver sustainable change, and our industry has repeatedly demonstrated its fervor and ability to overcome shared challenges. Through public engagement and collaboration, CPChem will continue to develop sustainable solutions that are designed to use resources responsibly, minimize our impact on the environment and respond to the needs of society.

Our company and product portfolio will remain important contributors to reaching a low carbon future. Endorsing and fulfilling a balanced approach to decarbonize the global energy supply will require industry-wide buy-in, and I am encouraged to see many climate-focused programs emerging throughout our value chain.

After substantial planning and evaluation, we have created a new strategy within the organization for evaluating and engaging issues related to climate change. CPChem intends to leverage this internal methodology to better-inform business decisions and guide the company toward sustainable progress, such as lowering our emissions intensity.

We believe that activating a circular economy is paramount in reducing both greenhouse gas emissions and plastic waste. The environment is no place for plastic waste and CPChem is working to bolster a number of complementary

technologies dedicated to recycling plastics. Specifically, we have made several investments into companies that specialize in plastics recycling to promote innovation and further advance this field. Our certified, circular advanced recycling program is able to repeatedly transform difficult-to-recycle waste plastics into pristine new products, and we aim to change the perception of plastic waste from "refuse" to "resource."

CPChem products, like Marlex® Anew™ Circular Polyethylene, serve as sustainable solutions that meet the demands of our modern world and we embrace the social responsibility that follows their production. Our company understands that protecting people and generating positive change within our global communities cannot be achieved through one-time transactions, but long-term commitments. At CPChem, we value the United Nations Sustainable Development Goals and believe that our company should work to incorporate these important objectives. Across the enterprise, my colleagues and I are proudly propelling CPChem's sustainability initiatives to enhance our products, enrich people's lives, protect the planet, and build a more equitable future for all.

Benny Mermans

Vice President, Sustainability

Sustainability Focus Areas

Sustainability is integral to CPChem and we are building fluency in ESG issues that have the potential to impact our business while also uncovering opportunities where our strengths can be leveraged to generate the greatest positive effect.

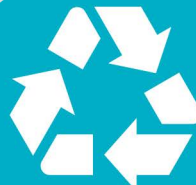
Our sustainability strategy prioritizes three critical focus areas to propel the organization toward a more sustainable future: addressing climate change, providing sustainable, circular products, and fulfilling our social responsibility.

 [Learn more about CPChem's sustainability strategy](#)





Climate Change



Product Sustainability & Circularity



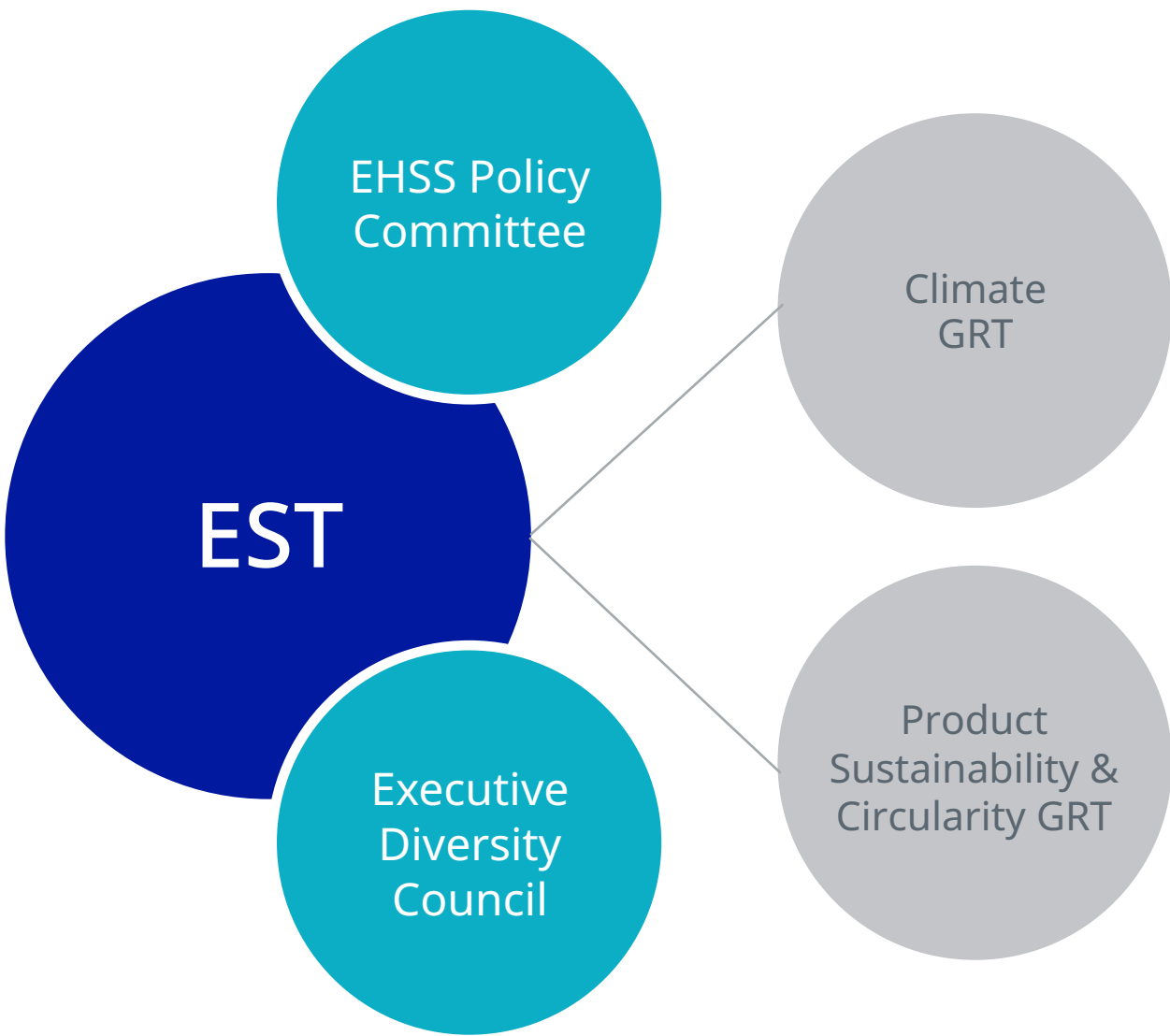
Social Responsibility

Governance and Leadership

CPChem is governed by a Board of Directors, composed of eight representatives, under the terms of a limited liability company agreement. Representatives from the Board serve on committees, providing strategic direction and input on Enterprise Risk Management (ERM), Compensation, Environmental, Health, Safety and Security (EHSS) and other matters. Additionally, the Board has oversight into the implementation and stewardship of CPChem’s sustainability strategy.

Our Executive Leadership Team is comprised of accomplished individuals with extensive experience and proven talents, working together to guide the company toward a successful and sustainable future. The Leadership Team directs company strategies, risk management and CPChem’s response to critical sustainability topics.

In 2021, CPChem established its first Vice President role devoted to sustainability and assembled an Executive Steering Team (EST) to oversee and shepherd CPChem’s sustainability objectives throughout the organization. With decades of collective industry expertise, the EST is an informed and practical council, well-equipped to address sustainability issues identified as material to our business.



Governance Structure

Executive Steering Team

Decision Executive

Justine Smith
Senior Vice President, Petrochemicals

Advisors

Benny Mermans
Vice President, Sustainability

Venki Chandrashekar
Vice President, Research & Technology

Members

Mitch Eichelberger
Executive Vice President, Polymers & Specialties

Elliott Johnson
Senior Vice President, EHSS

Bryan Canfield
Senior Vice President, Manufacturing

Tim Hill
Senior Vice President, Legal and Public Affairs

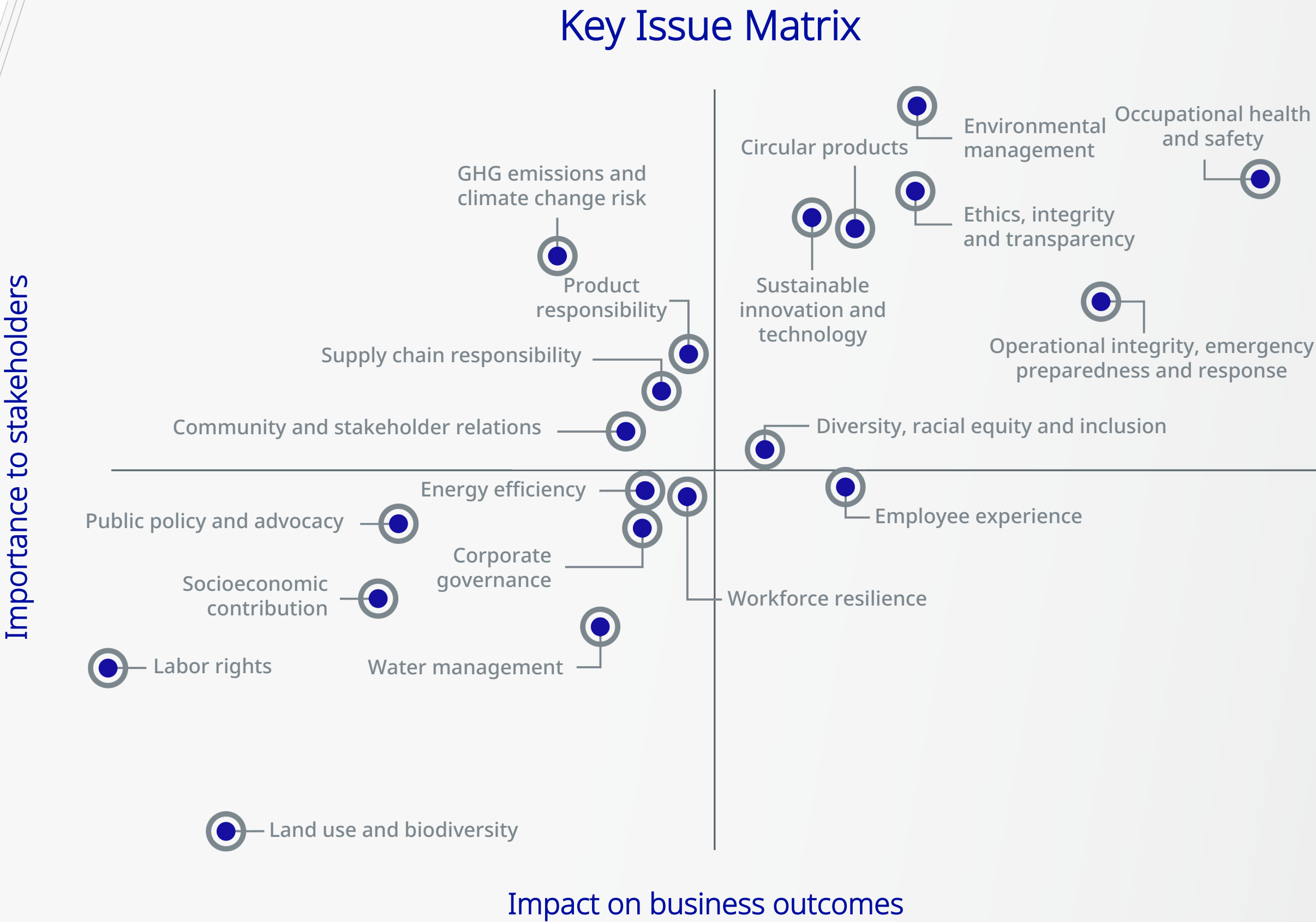
Steve Prusak
Senior Vice President, Corporate Planning & Technology

Reporting to the EST, two executive-led Guidance Review Teams (GRTs) provide direction and recommendations on a variety of strategically important sustainability issues, specifically climate change and enhancing product sustainability and circularity. CPChem’s EHSS Policy Committee, consisting of core Leadership Team members, provides oversight and governance for CPChem’s EHSS activities and Operational Excellence (OE) Management System, which is our management system for many key sustainability issues. Additionally, our Executive Diversity Council guides the organization’s approach to diversity, equity and inclusion.

Key Issues and Stakeholder Engagement

Key issues are identified through a rigorous materiality assessment process that includes benchmarking and incorporating feedback from transparent discussions with stakeholders. Insight from stakeholder groups on environmental, social and governance issues relevant to the business is leveraged to determine how resources are allocated, ensuring CPChem programs continue to address the needs and concerns of its stakeholders. Key Issue Assessments improve the quality of our reports, as these evaluations uncover risks and opportunities, while also measuring each issue’s significance to our strategy and business processes.

 [Learn more about our Key Issue Assessment Process and how we engage with stakeholders](#)



The Key Issue Matrix reflects only those topics deemed most significant to our stakeholders and our business. Key issues identified through this assessment span our impacts on people, the planet, our products, and company performance, and these key issues serve as the structure of the 2021 sustainability report.

EMPOWERING PEOPLE

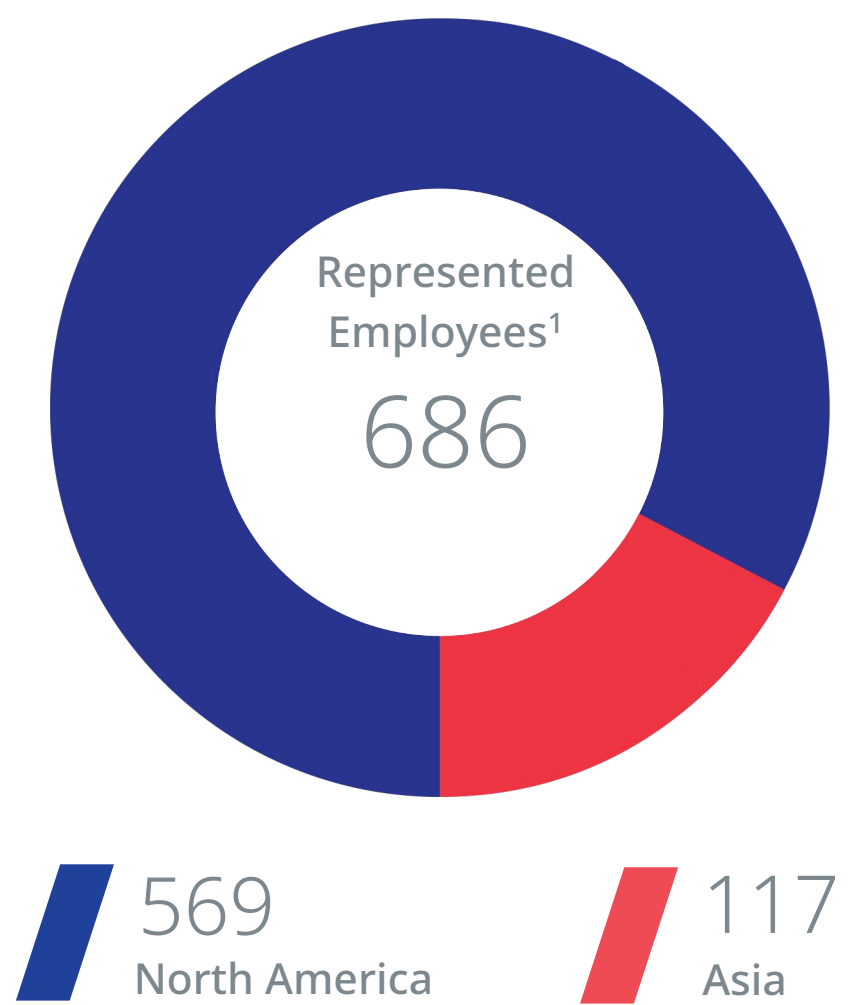
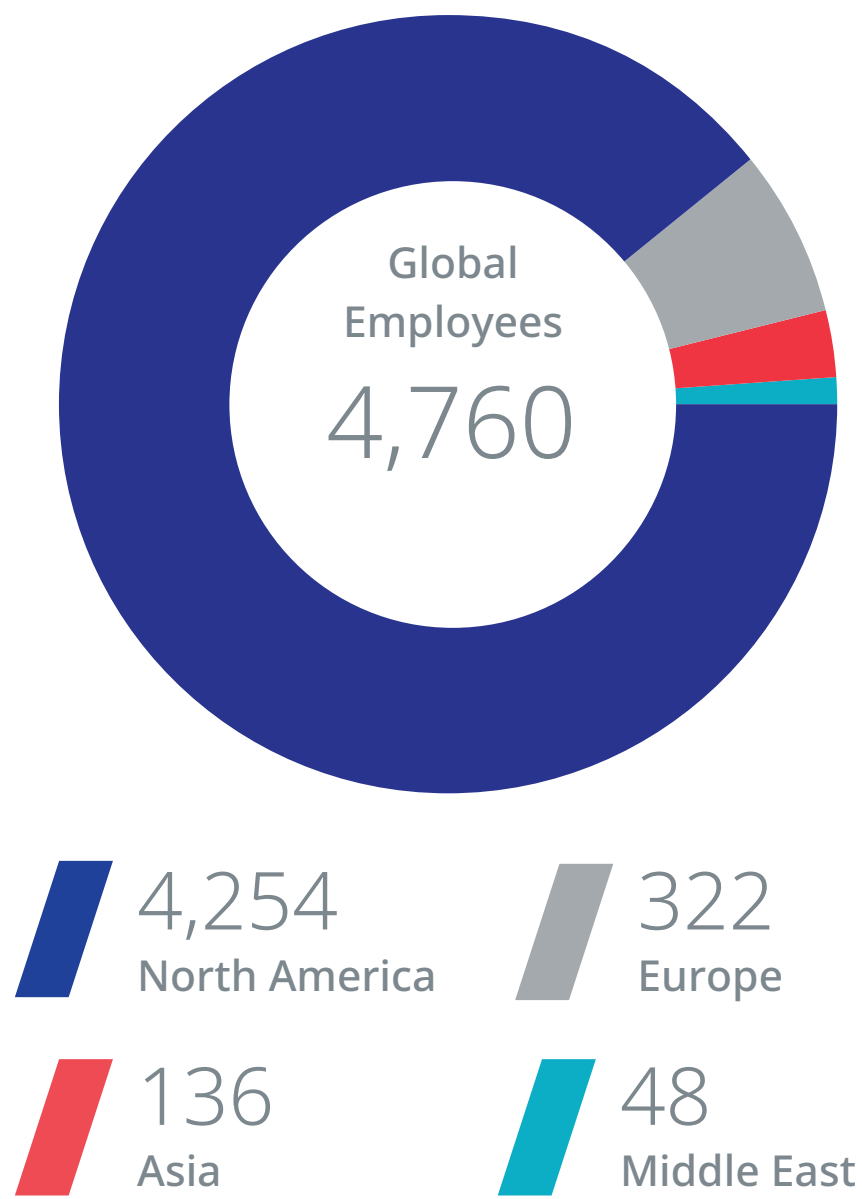
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Our Employees

Our Global Workforce

CPChem positions our people first. To be the world's premier chemical company, we believe our people and culture matter. Through inclusion-enhancing initiatives, we leverage the diversity of our employees to foster an environment of open dialogue to get more employees involved and willing to voice their contributions. We trust that by empowering and educating our employees, we can continue to enhance our culture and have a positive impact on society.

CPCHEM'S GLOBAL EMPLOYEES



1. Represented employees in Europe are not included due to privacy laws.



"CPChem aspires to empower and energize the individuals and communities in which we live and work. We are shaping a more sustainable future by prioritizing health and well-being, increasing economic prosperity, and connecting people to CPChem's ever-expanding sustainability programs."

Maricela Caballero
Senior Vice President, Human Resources

Workforce Demographics

CPChem has 4,760 employees working in 21 countries. Our organization also relies on many contractors who bring unique experiences and expertise to our operations and help achieve our safety and performance goals.

Talent Management

Building organizational capability involves bridging both employee and company collective skills and leadership abilities. We embody a culture that focuses on professional development, fosters innovation and allows employees to spark change. Recruitment, on-boarding, performance recognition, learning and development, and career planning are all examples of how our Talent Management strategy supports employees throughout their career journeys. CPChem has a comprehensive Talent Management Governance structure in place to ensure the right people are in the right positions, with the skills they need to succeed.



Performance Data Tables



Parental Leave

CPChem is proud of its parental leave policy and the high number of employees who return to work the following year.

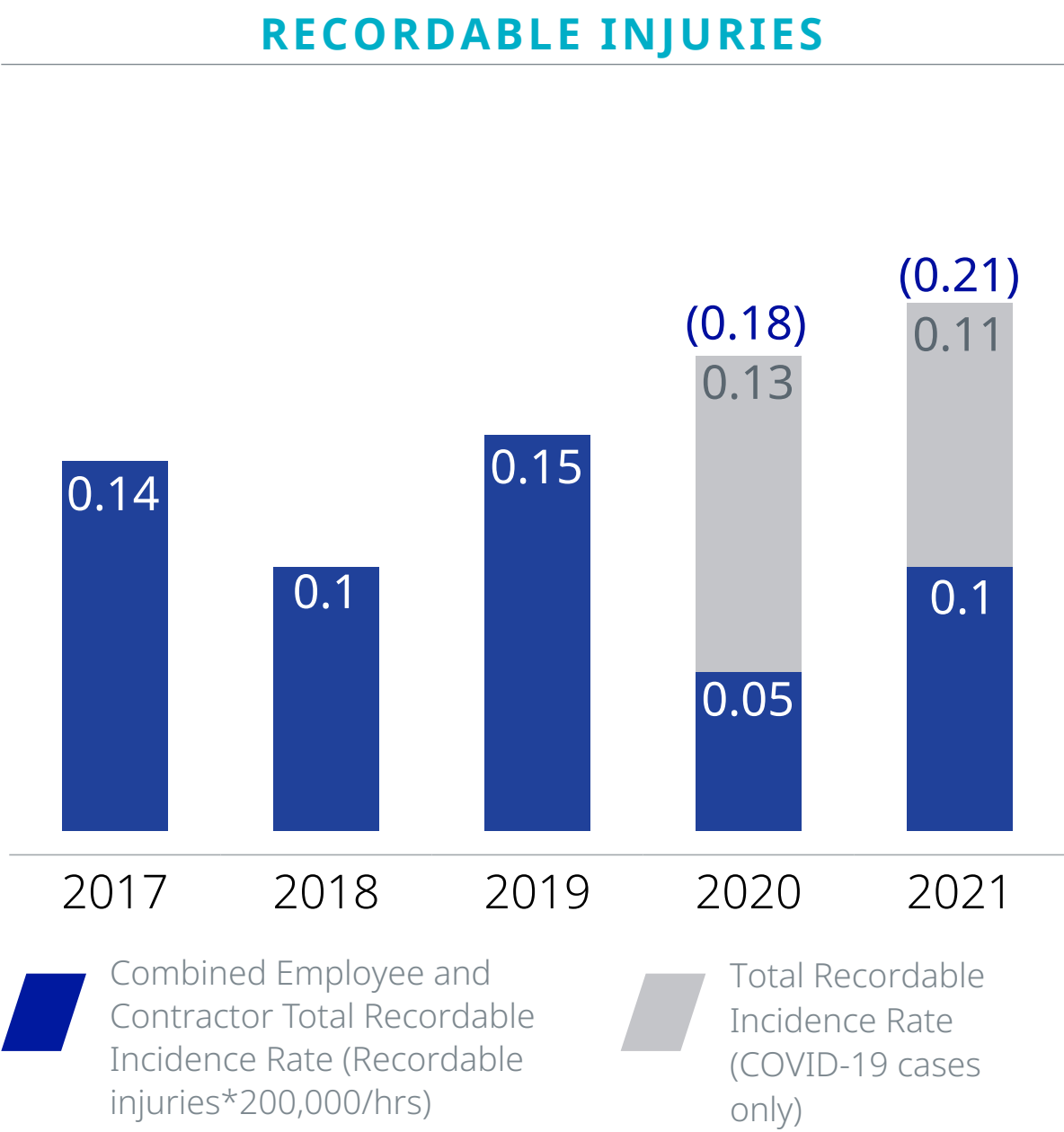
	Parental Leave Utilization	Return to Work Rate in 2021
 Total	179	96%
 Females	36	100%
 Males	142	95%
 Undisclosed Gender	1	100%

Health and Safety

At CPChem, safety is a core value. *Our Journey to Zero*, the company's multi-year EHSS strategy, gives us a clear blueprint for eliminating high potential/high consequence personnel and process safety events. Successful safety performance is earned by holding each other accountable, supporting one another and performing our work the right way, every time.

Our Operational Excellence (OE) Management System applies a reporting and investigation methodology to determine the cause of incidents and develop action plans to prevent their recurrence. Slips, trips, and falls were responsible for more than one-third of the company's recordable injuries in 2021. This fact is a simple reminder that even everyday tasks like walking should be given our full attention. Placing an increased emphasis on this issue, we are committed to the health and safety of all personnel. Last year, CPChem achieved its second-best combined employee and contractor Recordable Incidence Rates (RIR) in company history.

 **Performance Data Tables**





CPChem Earns Top Industry Awards

VPPPA Safety Awards

The Voluntary Protection Program Participants' Association (VPPPA) safety awards recognize facilities and industry professionals for their accomplishments and contributions to maintaining safe operations. In 2021, CPChem received eight company awards and three individual awards that were presented to employees in recognition of their specific contributions to OSHA's VPP mission. Participation in VPPPA is a key element to *Our Journey to Zero*. We are regularly recognized by VPPPA for our continued focus on improving safety leadership, personal safety programs and processes in the workplace.

ACC Safety Awards

The American Chemistry Council (ACC) presented six CPChem facilities with manufacturing facility safety awards in 2021, recognizing achievements in employee health and safety. We are proud of the employees at Bartlesville, Borger, Cedar Bayou, Conroe, Kingwood, and Orange for going above and beyond to demonstrate dedication and commitment to the safety of their coworkers and the community.

TCC Safety Awards

CPChem received 16 safety awards from Texas Chemical Council (TCC) for excellence in safety performance. This accomplishment reaffirms the company's longstanding commitment to safe and reliable operations, built upon operational excellence as part of our core business strategy. TCC's annual award program honors member companies for their commitment and continuous improvement in safety, environmental performance and community relations. Applications are anonymous and judged by a group of industry peers and community members.

AFPM Awards

American Fuel and Petrochemical Manufacturers (AFPM) awarded CPChem with eight safety awards for 2021 performance, recognizing six facilities with safety achievement awards for their overall safety record. Our dedicated employees and contractors across the company continue to focus their efforts on operational excellence and advancing our culture of Performance by Design. Caring by Choice.™ Receipt of these awards underscores how critical it is for us all to embrace *Our Journey to Zero* as the cornerstone of our safety and operating culture, focused on continuous improvement.



Emergency Response and Preparedness

CPChem takes pride in its local communities and has established systems to protect them through its emergency preparedness. All production facilities have Emergency Action and Accountability Plans which are governed by our Operational Excellence (OE) Systems Manual. Emergency response teams participate in extensive hands-on training and skill-building in industrial fire suppression, confined space extrication, hazardous materials management, medical emergencies and more.

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HOUSTON FIRE WEEK, PASADENA

CPChem's Pasadena Plastics Complex surprised Kruse Elementary students in Pasadena, Texas with a special campus visit during Fire Prevention Week. 270 young students received a special lesson in fire safety and how to respond in an emergency thanks to volunteers from Pasadena's emergency response team.



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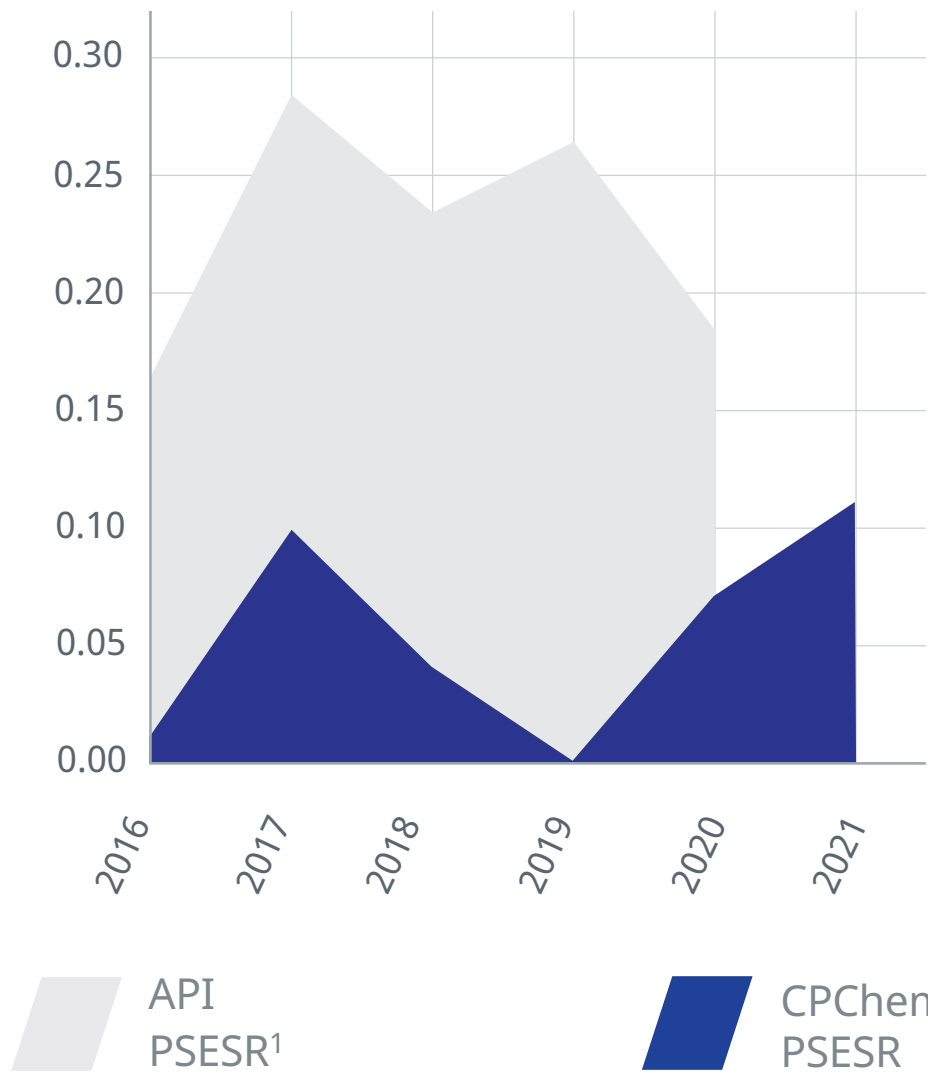
COMMUNITY GEAR DONATIONS, SWEENEY, CLEMENS, OLD OCEAN FACILITIES

CPChem's Sweeny, Old Ocean, and Clemens facilities in Texas donated 213 SCBA full face respirator masks to fire departments in Brazoria and Matagorda counties. Additional donations to Brazoria Fire Department and Jones Creek Fire Department increased firefighting supplies and were used to purchase battery-operated extraction tools to better-assist these communities.

Occupational Health and Safety

CPChem completed its first three-year cycle of facilitated risk workshops at its locations throughout the world. This included 83 workshops conducted across 13 facilities and involved more than 700 employees. The workshops were designed for front-line workers to identify their everyday risks that might not surface in other systems. Moving forward, we are making it a priority to focus on soft risk categories to take a deeper dive into human and organizational performance factors that impact our systems and how we operate. To continue *Our Journey to Zero*, we are focusing efforts to eliminate or mitigate factors that contribute to our high severity actual and potential incidents.

PROCESS SAFETY EVENT SEVERITY RATE (PSESR)



1. 2021 industry data for the API PSESR was not available at the time this report was published.

83 Workshops

13 Facilities

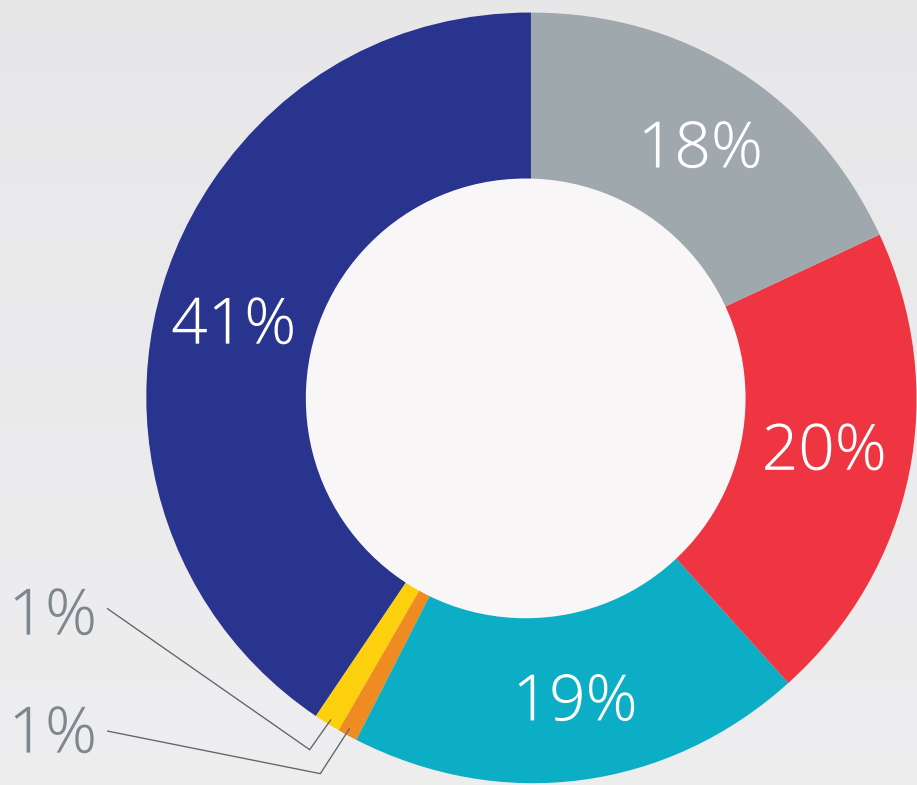
700 Employees

CPChem continues to be a top performer in the industry for safety. In February of 2021, the North American Winter Storm brought uncharacteristic freezing that had widespread impacts throughout the United States. All of CPChem's facilities on the Gulf Coast temporarily halted operations for the safety of employees and to perform repairs as a result of the storm. Excluding incidents that occurred as a result of the storm, CPChem's process safety event rate was as strong as 2020's performance. We have taken lessons learned from the winter event and have implemented significant steps to reduce potential weather-related risks. Furthermore, we continue to evaluate the potential severity of incidents, using five severity categories to assess and mitigate safety risks before an actual severe or catastrophic consequence occurs.

[Learn more about Our Journey to Zero](#)

[Performance Data Tables](#)

2021 INCIDENTS BY POTENTIAL SEVERITY



Severity Rating	
0	Excluded from screening, minor with no consequence
1	No injury, release and/or distribution incident
2	First aid, Tier 3 non-LOPC, delay of customer shipments
3	Recordable injury/illness, Tier 3 LOPC, and/or product loss of containment with Environmental/Community Impact
4	Tier 2 PSE and/or Life-Altering Injury or Multiple Recordable Injuries from a Single Initiating Event and/or property damage or environmental restoration costs exceeding \$150,000; product loss exceeding \$250,000; and/or community impact resulting in Shelter-in-Place.
5	Tier 1 PSE and/or Fatality or Multiple Life Altering Injuries from a Single Initiating Event and/or Incident that results in a Fatality or Life-Altering Injury/Illness to a third party and/or community evacuation.

Diversity, Equity and Inclusion (DE&I)

ICARE 2.0

Over the past decade, CPChem's ICARE principles (Inclusion, Cooperation, Accountability and Respect Every day) have shaped the company's diverse and welcoming culture. We want to provide an equitable environment for all employees. We are driven to make our tagline, Performance by design. Caring by choice.™ visible throughout our workplace and operations. An inclusive atmosphere allows employees to share their authentic selves.

Here & Heard

Last year, we elevated our collaboration with nationally recognized DE&I consultant, Denise Hamilton, founder and CEO of Watch Her Work, to publish Here & Heard, a seven-part series designed to assist and encourage employee conversations about racism and social injustice. Launched in 2021 with a strategy for long-term impact throughout 2022 and beyond, Here & Heard represents our dedication to maintaining a diverse and inclusive workplace.

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RUN AGAINST RACISM

CPChem participated in, and supported global law firm, Norton Rose Fulbright, in its Run Against Racism in Houston in September 2021. The event benefited efforts to end systemic racism and champion social justice worldwide.

// FEATURE

FUTURE OF STEM SCHOLARS INITIATIVE (FOSSI)

CPChem is proud to sponsor the Future of STEM Scholars Initiative (FOSSI), a collaborative program aimed at creating pathways for students from underrepresented communities to enter and succeed in the chemical industry. The initiative provides opportunities for manufacturers, supply chain partners and other stakeholders to fund scholarships, provide internship opportunities and facilitate mentoring and leadership training for students majoring in science, technology, engineering and math (STEM) at Historically Black Colleges and Universities (HBCUs).



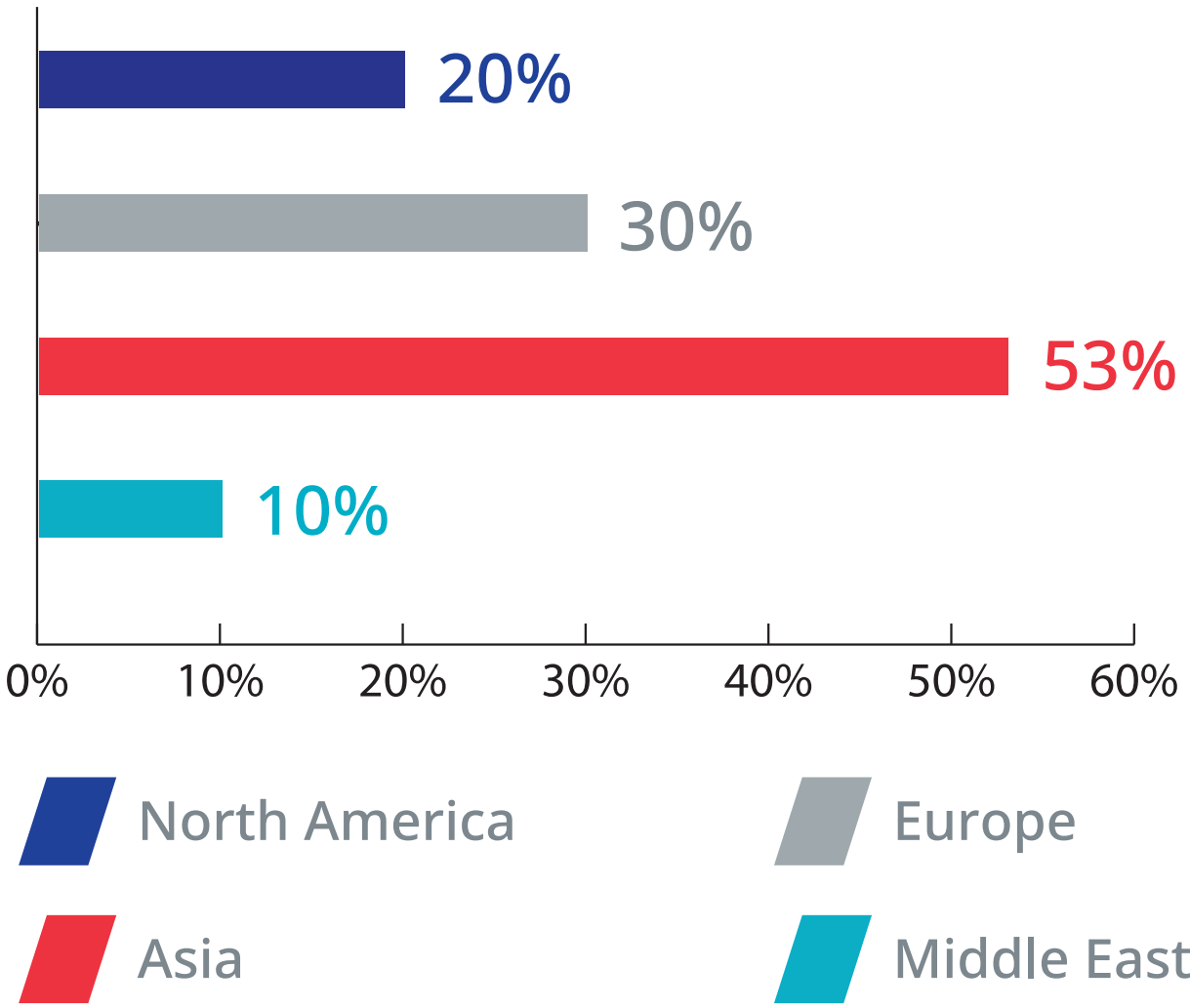
Our DE&I Blueprint

CPChem reinforced its DE&I efforts by creating a DE&I Blueprint in 2021 to serve as a tool for mobilizing existing culture initiatives at U.S. locations that increase awareness in its talented workforce. The focus of the Blueprint is to communicate and provide visibility into what CPChem has done, what the company is working on now, and what is coming next. Maintaining an equitable place to work is a critical priority, and the new DE&I Blueprint helped to calibrate our strategy and formally incorporate equity into our companywide diversity program. To us, equity is an ongoing commitment to ensure all employees have access to the same career advancement and development opportunities. Maintaining a level playing field requires recognizing advantages and barriers that may exist and adjusting practices and processes to eliminate factors that could inhibit professional success.

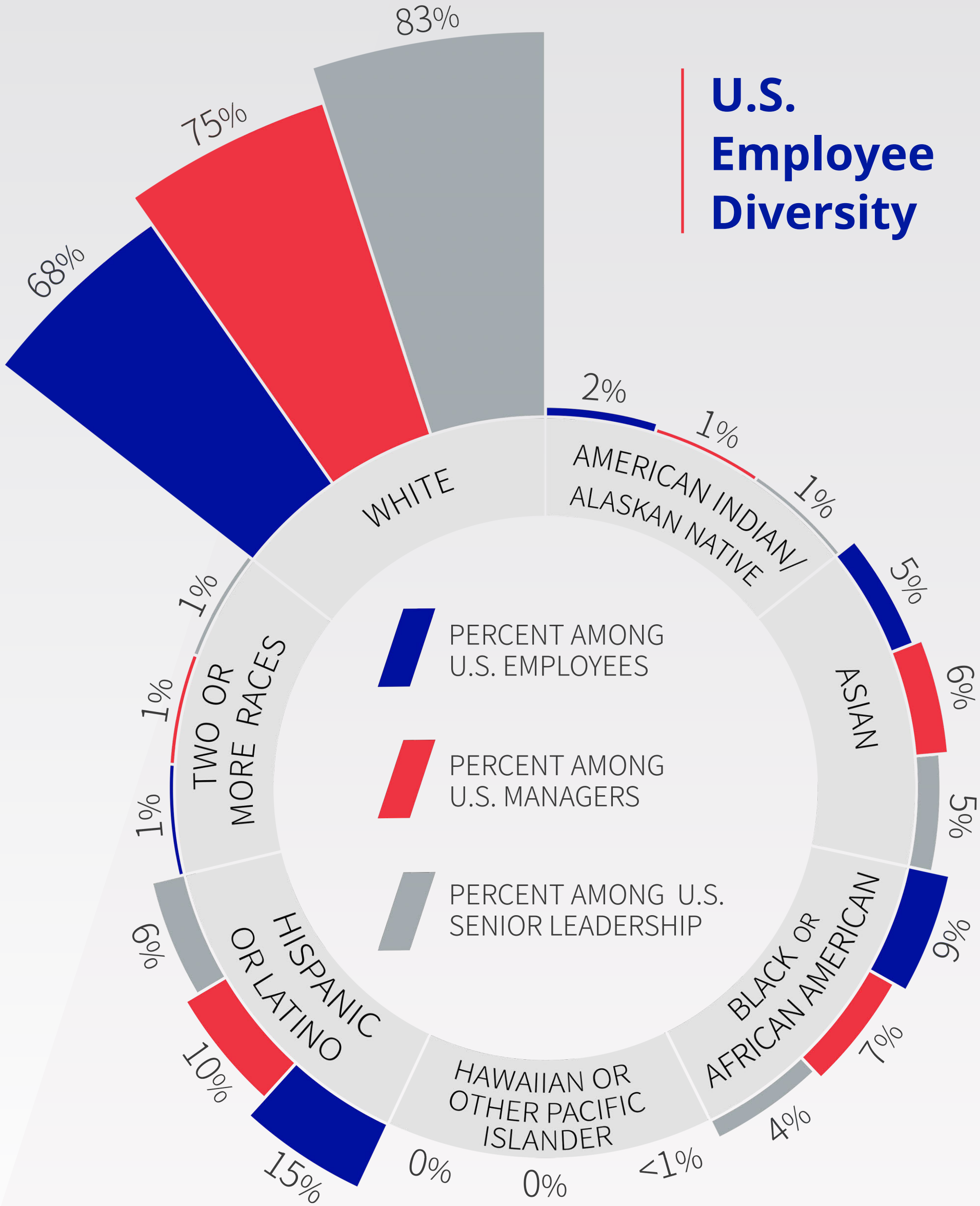


Performance Data Tables

Global Women at CPChem
22%



U.S. Employee Diversity



Employee Resource Groups

In 2021, CPCChem bolstered its DE&I program by welcoming new Employee Resource Groups (ERGs). ERGs are voluntary, employee-led groups that provide support in personal and career development. Our first ERG, STRIVE, was introduced in 2020 and focuses on the unique challenges women face in the workplace. PRIDE (supporting LGBTQ+ employees) and BELIEVE (supporting Black employees) are two new additions from 2021 with high employee engagement. ERG members and their allies collaborate and build high-trust relationships that educate and add value to the company. These approachable groups bring awareness to our workforce on social topics, advance our diversity strategy and encourage important conversations about DE&I at work and at home.



Life at CPChem

CPChem's esteemed culture is a dynamic representation of employee experiences across the global enterprise. Working together, our employees make CPChem an even more preferred partner for customers, a more solid investment for our owners, and a more enjoyable and fulfilling place to work.

Culture Evolution

The company's Culture Evolution program rolled out in 2021 and has reinforced positive behaviors that drive open and trusting relationships. Our culture starts with making safety and reliability a priority both at work and at home. Our diverse workforce strives to challenge each other and bring new ideas to the table. Our culture encourages honesty and transparency, offering meaningful feedback and setting clear expectations. Employees are accountable to themselves and to each other. The seven elements of the Culture Evolution program equip our people with tools to flourish in their roles and champion the behaviors on which the foundation of CPChem's culture was built.

// FEATURE

CREATING SUSTAINABILITY AMBASSADORS

In 2021, CPChem added to its library of sustainability education materials for employees with the introduction of CPChem Unscripted and the Sustainability Academy. CPChem Unscripted employs a podcast format to explore sustainability through engaging discussions and interviews. The Sustainability Academy is a growing series of casual lessons aimed at making complex sustainability topics approachable and easy to understand.

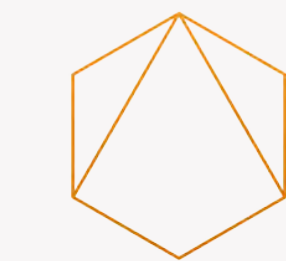
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IDEA LAB

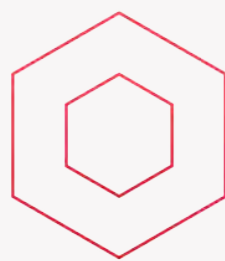
Launched last year, Idea Lab is an easily accessible internal tool for employees to submit innovative ideas for improvements throughout the company. Every idea is evaluated via a formal process that routes submissions through our Performance by Design team and site Innovation & Improvement leads for consideration and implementation.

Seven Elements of Culture Evolution

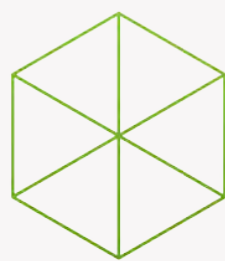
STRENGTHS



Execute With Excellence
safety & reliability

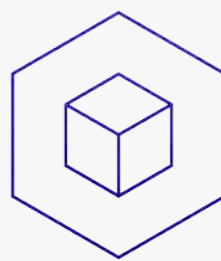


Honor Our Purpose
our shared vision & values



Cultivate Connection
open & trusting relationships

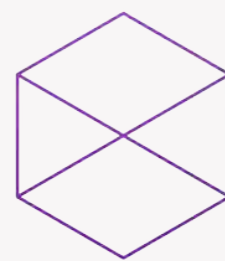
FOCUS AREAS



Do What Matters
performance transparency



Unlock Possibility
innovation & improvement



Maximize Potential
talent development & career opportunities



Take Initiative
personal & leader accountability



CPChem in the Community

The enduring global pandemic in 2021 exacerbated many of the challenges faced by our neighbors and colleagues. Modified in 2020, CPChem's refreshed charitable giving strategy has enabled our time, expertise and resources to continue supporting those shouldering burdens caused by COVID-19 and create lasting positive impacts in our communities around the world. We are grateful to collaborate with worthy causes that improve lives.

56%

56% of all CPChem's 2021 charitable contributions benefited programs meant to **inspire our future workforce**, enhance awareness of STEM and offer skills-based training to students

\$960,000

Over \$960,000 from employees was contributed across our communities to **nine United Way chapters** including employee donations, various special events and company matched dollars

\$720,000

CPChem committed \$720,000 to the Future of STEM Scholars Program, expanding opportunities for **15 Historically Black College and University (HBCU) students in STEM careers**

\$60,000

CPChem **donated two firetrucks** from our Cedar Bayou and Pasadena Facilities worth nearly \$60,000 to local volunteer fire departments in **Pearland, Texas and Hardin County, Texas**

135 HOURS

\$21,000

\$10,000

Supporting **food security** for our neighbors, CPChem employees volunteered more than 135 hours at the **Montgomery County Food Bank**. CPChem also supplied the organization with \$21,000 in product donations and \$10,000 in additional funds that were offered as a community match campaign to invite broad support of the food bank.

// FEATURE

AIDING THE SICK IN THAILAND

When a sudden increase in Thailand's COVID-19 infection rate caused a shortage of available hospital beds in 2021, Chevron Phillips Singapore Chemicals (CPSC) offered its support. CPSC sponsored the production of more than 500 field hospital beds through a donation of 17 metric tonnes of plastic resin, used to produce sturdy and lightweight beds desperately needed at field hospitals throughout the country. In Singapore, employees spent time helping a local organization, Food from the Heart. Through Food from the Heart's Community Food Pack program, CPChem volunteers delivered fresh food and meals to individuals and families in need.

// FEATURE

SUPPORTING TOMORROW'S WORKFORCE IN HOUSTON

We engage students and support programs that build awareness and excitement for science, technology, engineering and math (STEM), as these are drivers for our workforce and our communities. In 2021, CPChem volunteers shared their insights and support for students at the St. Elmo Brady STEM Academy program. The Academy brings together underrepresented fifth graders to build awareness, engage and empower them to become the next generation of scientists, technologists, engineers and mathematicians through hands-on experience and inquiry-based learning.

// FEATURE

DISASTER RELIEF IN BELGIUM

In the summer of 2021, CPChem donated \$60,000 to the Belgium Red Cross to support recovery efforts after several European countries experienced unprecedented rainfall, flash flooding and landslides. This contribution furthered the Belgium Red Cross' ability to offer emotional support services, shelter, food and clothing to those affected, and help to locate missing individuals.



Social Responsibility

The company's ESG evolution has helped to guide its sustainability strategy and establish three areas of focus: Climate Change, Product Sustainability and Circularity, and Social Responsibility. Acknowledging CPChem's social responsibility and developing actionable plans that protect human rights, increase economic prosperity and improve quality of life are some of the progressive measures moving the company forward.

To us, social responsibility is a calling that drives us to conduct ourselves and our business as role models and advocates of a better future. We are applying our time, expertise and resources to make positive, enduring change within communities around the world. Our investments and growth projects bring job opportunities and help to stimulate local economies. Within these communities, we engage with Community Advisor Panels and support local development programs. Putting people first has always been a priority, easily observed in our charitable donations, volunteer programs and vibrant employee culture.

Throughout our supply chain, we aim to deepen professional relationships and share best practices that promote safe and reliable operations. We are also concentrating on bolstering diversity within our supply chain, and CPChem's Supplier Diversity Program was established to ensure the inclusion of underrepresented groups and identities. Maintaining a diverse supply chain that celebrates all perspectives can stimulate local economic development, spark innovation, and sustain long-term business and operational performance. Harnessing our responsible procurement approach has set high standards for current and future suppliers and business partners throughout the value chain.

We view social responsibility as a trajectory, not a destination. We persist in our work to meet the ever-changing needs of society, employing inclusion, cooperation, accountability, and respect today to build a better tomorrow.



// FEATURE

ECOVADIS GOLD METAL FOR OPERATIONS IN EUROPE

In 2021, CPChem completed EcoVadis' annual Corporate Social Responsibility assessment. This assessment model measures seven management indicators across 21 sustainability criteria, categorized into four themes: Environment, Ethics, Labor and Human Rights, and Sustainable Procurement. CPChem's European operations in 2021 were awarded EcoVadis' Gold Medal Sustainability Rating.

// FEATURE

Code of Conduct: Our Code of Conduct highlights CPChem's ethical standards, informs employees of relevant policies, procedures, and reporting, empowering employees to take pride and ownership in their actions and job responsibilities. This program is managed by the Ethics and Compliance Office, which provides guidance on compliance, training, risk mitigation actions, as well as reviews compliance provisions in contracts. All employees are required to complete training, review and certify compliance to our Code of Conduct annually. We believe our Code of Conduct reinforces the high standards to which we hold ourselves and those doing business on our behalf.

Responsible Care®: CPChem is a proud member of the Responsible Care® program as part of our commitment to the health and safety of our employees, the communities where we operate and to protecting the environment.

Supplier Principles of Conduct: CPChem works with over 7,000 suppliers and service providers to manufacture and distribute our products to more than 140 countries around the world. Our [Supplier Principles of Conduct](#) (SPOC) ensures our suppliers and service providers are aligned with the company's values. These principles apply to all suppliers and business partners, and we encourage these groups to share in our commitment to sustainable operations and social responsibility. The SPOC summarizes CPChem's expectations in the areas of Labor and Human Rights; Diversity; Environment, Health and Safety; Ethics and Compliance; and Management Systems.

PROTECTING OUR PLANET

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Protecting Our Planet

Our products improve lives locally and around the world, as evidenced by medical supplies that safeguard healthcare staff and patients, piping systems that distribute clean drinking water, lubricants that help our vehicles move, and packaging that protects and preserves what we eat and drink. CPChem takes pride in responsibly producing materials that make everyday life possible.

Governance

Reporting to the Executive Steering Team, CPChem's Climate Guidance Review Team is responsible for CPChem's climate strategy. This group provides oversight on climate-related issues for the business and endorses procedures aimed at reducing our carbon footprint. Additionally, as a subset of the CPChem Leadership Team, CPChem's EHSS Policy Committee oversees our Operational Excellence (OE) program operations worldwide. This committee recommends policies, focus areas, global metrics, and sets long-term strategies for improving OE performance.

Managing Environmental Impact and Compliance

We work to improve our environmental performance and minimize environmental impacts through the implementation of our OE system. This system guides and outlines requirements aimed at pollution prevention, minimization of waste, and conservation of energy, water and other critical resources at every stage in the life cycle of our products. CPChem strives to operate in accordance with relevant laws and regulations, including those related to labor and employment; security; environment, health and safety. All CPChem facilities, corporate groups, product lines and administrative offices are required to complete annual self-audits and are subject to regular corporate and third-party audits to ensure compliance with the standards outlined in our OE System.



"As a company, we are enabling change. Using experience, agility, and environmental focus, CPChem is delivering on its commitments to protect the planet. Across the organization, we sustain momentum in our work to address climate change, pursuing practical objectives that champion positive and lasting impacts."

Rick Wagner

Sustainability Policy and Programs Manager





Enabling a Lower Carbon Future

CPCChem is taking steps to reduce its greenhouse gas (GHG) emissions and working within its value chain to deploy solutions that enable a lower carbon future. We believe the chemical industry and policymakers can work cooperatively to help address the potential impacts of climate change by developing a balanced approach that supports emissions reductions, advances increased energy efficiencies and recognizes the critical role chemical products play in achieving global sustainability goals.

We are exceptionally proud to be the first company to announce commercial sales in the U.S. of circular polyethylene, which embodies our theme of accelerating change to help the world find sustainable solutions. Made using waste plastics, **Marlex®Anew™Circular Polyethylene** is CPCChem's first certified, circular product and is an example of the company's drive to incorporate diverse feedstocks and offer sustainable products to our customers. A number of our products help support a lower carbon economy, including lubricants that improve engine performance, light-weight materials that extend fuel efficiencies and durable infrastructure components that stay in service for decades longer than alternatives.



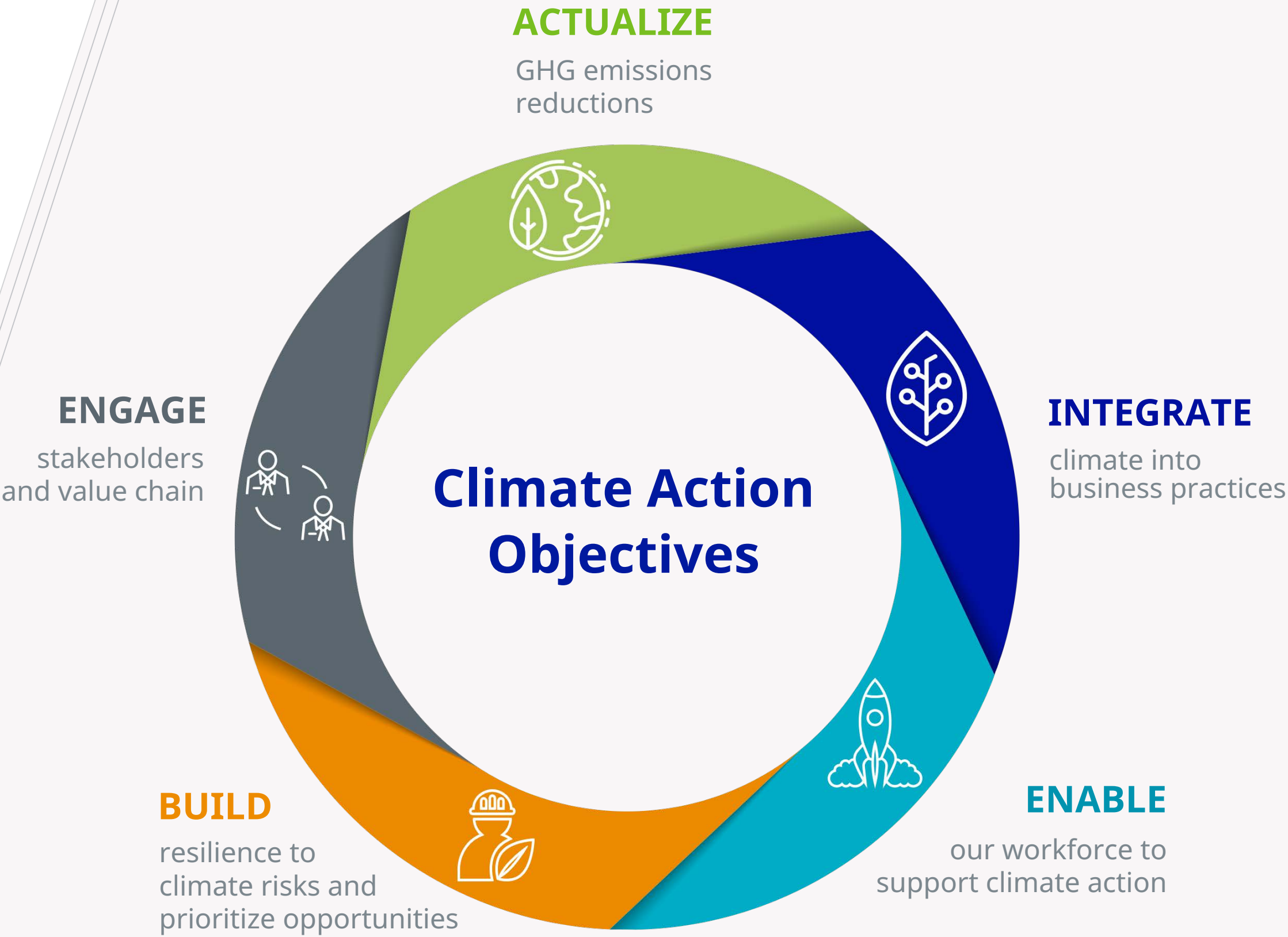
Climate Action

Climate change is a pressing and worldwide concern that we believe requires action from all branches of society. Our products generate many sustainable benefits to individuals and communities, which we aim to enhance through our work lowering the carbon footprint of our operations. CPChem intends to help the world tackle global issues like climate change and enable a lower carbon future.

Climate Change Strategy

In 2021, CPChem consulted internal subject matter experts and third-party specialists to develop a climate change strategy. The company conducted scenario analyses, including a 1.5°C scenario in alignment with the Taskforce on Climate Related Financial Disclosures (TCFD). CPChem also simulated stress tests to its business against potential transition and physical risks associated with climate change.

These efforts helped to inform and validate our planned approach to reduce emissions, as well as offer insight into potential affects of climate change across our business. CPChem plans to enable its workforce to be part of a lower carbon future and anticipates reporting progress made in addressing climate change in subsequent reports.





Physical Risks

We operate in diverse physical environments, including areas susceptible to flooding, extreme temperatures, storms, and droughts. We have robust practices in place to manage risks to our operations with oversight from our Leadership Team and the Board of Directors, including specific risks that are exacerbated by climate change. Last year, we began targeted exercises to simulate stress tests to our assets and examine possible financial impacts of these physical risks under a high global warming scenario (Intergovernmental Panel on Climate Change's Representative Concentration Pathway 7). Potential physical risks assessed include water stress, hurricanes, extreme heat and flooding. These assessments, along with additional ongoing research, are part of CPChem's continuing efforts to improve facility design and operations, and further strengthen the resilience of our assets.

Transition Risks

Transition risks refer to issues that may arise during society's transition to a lower carbon economy. CPChem's risk management system includes risks stemming from potential policy changes, market volatility and technology advancements anticipated to affect the business. We began analyses in 2021 to further examine climate transition risks, like carbon price exposure, feedstock pricing and risks to plastics demand using variables from publicly available scenarios, like those provided by the International Energy Agency (IEA). By diligently studying these risks and applying resolution strategies identified through our risk management system, we can remain agile and competitive through all economic conditions.



[Read about physical and transition risks from the Task Force on Climate-Related Financial Disclosures](#)

Technology and Innovation

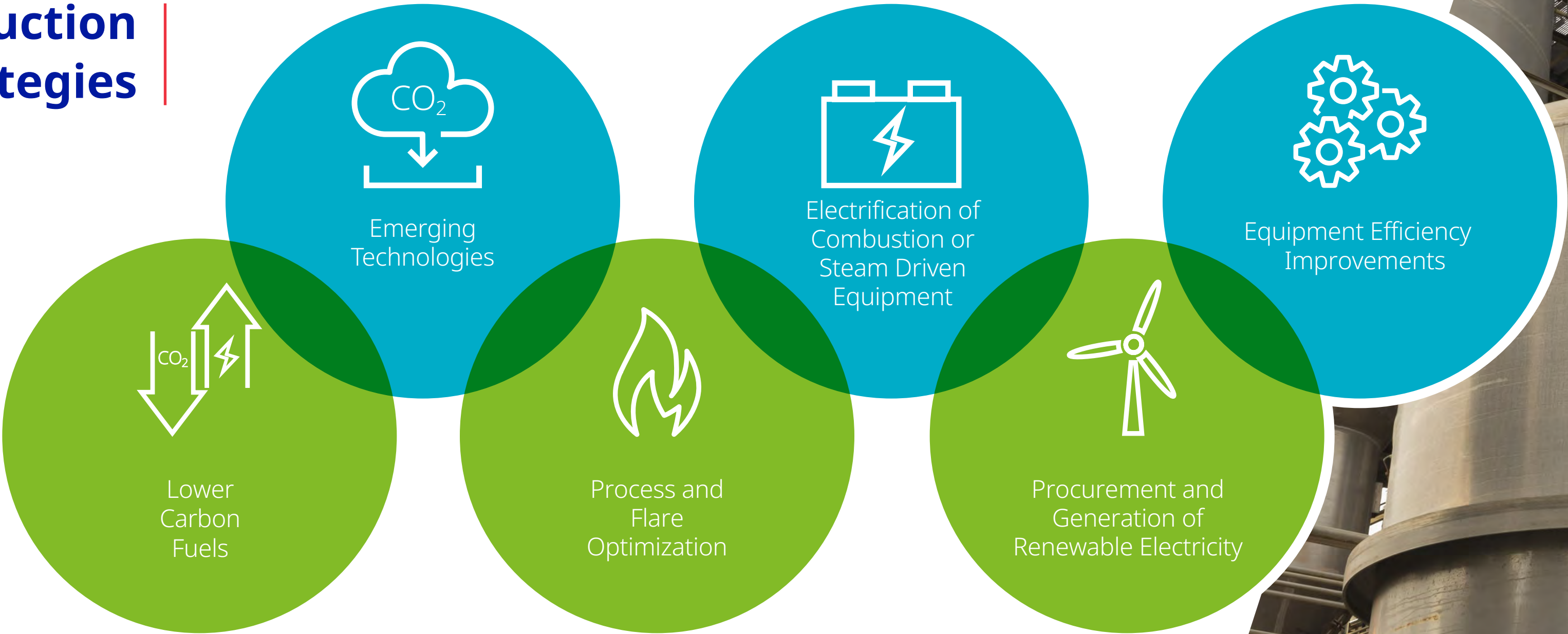
In 2021, CPChem launched a Climate Technology Team to explore and evaluate innovative opportunities that bolster the company's short, mid, and long-term carbon reduction strategies already in place. Collaborating with groups like technology providers, universities, industry consortiums, and co-producers, we seek creative and modern solutions to reduce GHG emissions. We aim to apply new technologies and innovative approaches to make our process operations more sustainable. Procuring electricity from renewable sources, improving energy efficiencies, and examining carbon capture solutions are several examples of CPChem's dedicated pursuit of sustainable advancement through technology and innovation.

Emissions & Energy

Reducing Emissions

CPChem is committed to reducing emissions and finding innovative solutions and process improvements to minimize our emissions intensity. To support our greenhouse gas (GHG) emissions reduction strategy, we developed a process being launched across our facilities to systematically identify and prioritize emissions reduction projects at each site. This process includes assessments designed to uncover both short and long-term opportunities to lower our footprint on existing assets through a diverse array of solutions.

Reduction Strategies



Greenhouse Gas Performance

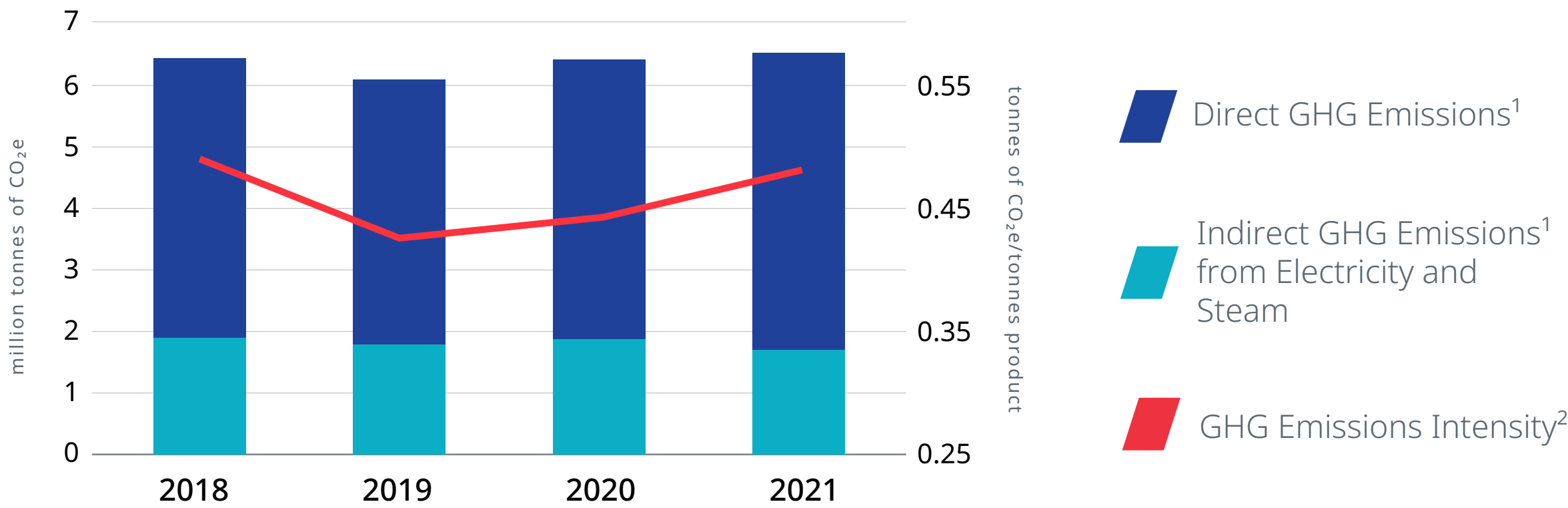
CPChem tracks emissions across its facilities and reports this data in accordance with the GHG Protocol. In 2021, CPChem's operated GHG emissions equaled 6.5 million metric tonnes of CO₂e (carbon dioxide equivalent or CO₂e is the number of metric tonnes of CO₂ emissions with the same global warming potential as one metric tonne of another greenhouse gas), while its equity GHG emissions totaled 9.5 million metric tonnes of CO₂e. In alignment with the GHG Protocol, we report GHG emissions on both an operated and equity basis. Both data sets are included in the Performance Data Tables within this report.

CPChem's GHG emissions intensity was 0.48 tonnes of CO₂e per tonne of product produced in 2021. The majority of CPChem's Scope 1 emissions result from the combustion of fuels in ethylene crackers and steam boilers, and flaring. More than 15% of our total GHG emissions are Scope 2 emissions derived from the purchase of third-party-generated electricity, the leading source of GHG emissions from our polyethylene assets. CPChem's ethylene and polyethylene assets achieve a comparatively low GHG emissions intensity due to its fleet location, cracking of light feedstocks and focus on energy efficiencies. GHG emissions vary with plant production, outages, turnarounds and maintenance. CPChem is identifying opportunities to reduce GHG emissions as a part of its ongoing focus on Operational Excellence.



Performance Data Tables

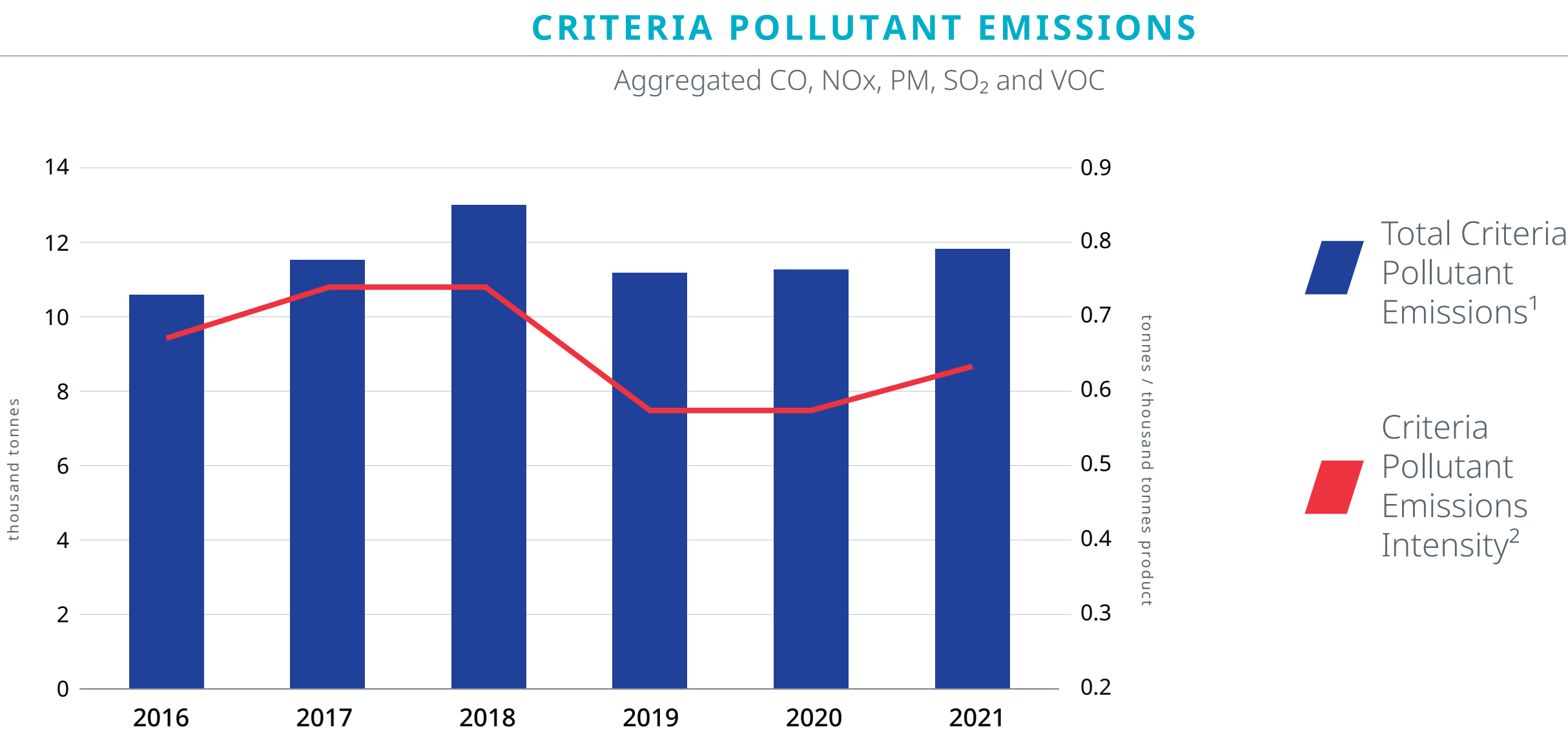
GHG EMISSIONS



1. GHG emissions data is reported on an operated basis and represents 100% stake for wholly owned or joint venture operations which are operated by CPChem.
2. GHG Intensity is the ratio of greenhouse gases emitted (tonnes of CO₂e) divided by products produced (tonnes of product). GHG emissions data is reported on an operated basis and represents 100% stake for wholly owned or joint venture operations which are operated by CPChem.

Criteria Pollutant Emissions

The health of our communities and local environments is critically important and we are passionate in our work to reduce criteria pollutant emissions and intensity. We continue to strengthen the reliability of our operations and equipment. Air emissions vary with plant production, outages, turnarounds and maintenance. Last year, we instituted new tactics to reduce emissions through the installation of additional control devices and flaring reduction initiatives at several locations. We continue to explore opportunities to reduce air emissions as part of our ongoing focus on Operational Excellence.



1. Criteria pollutant emissions data is reported on an equity basis and represents wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of Performance Pipe, AmSty, owner operations in Pascagoula, Mississippi, as well as 100% stake is reported for a CPChem-operated joint venture in Baytown, Texas, and a CPChem-operated, owner-owned facility in Old Ocean, Texas.

2. Criteria pollutant emissions intensity data is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem, with the exception of Performance Pipe.

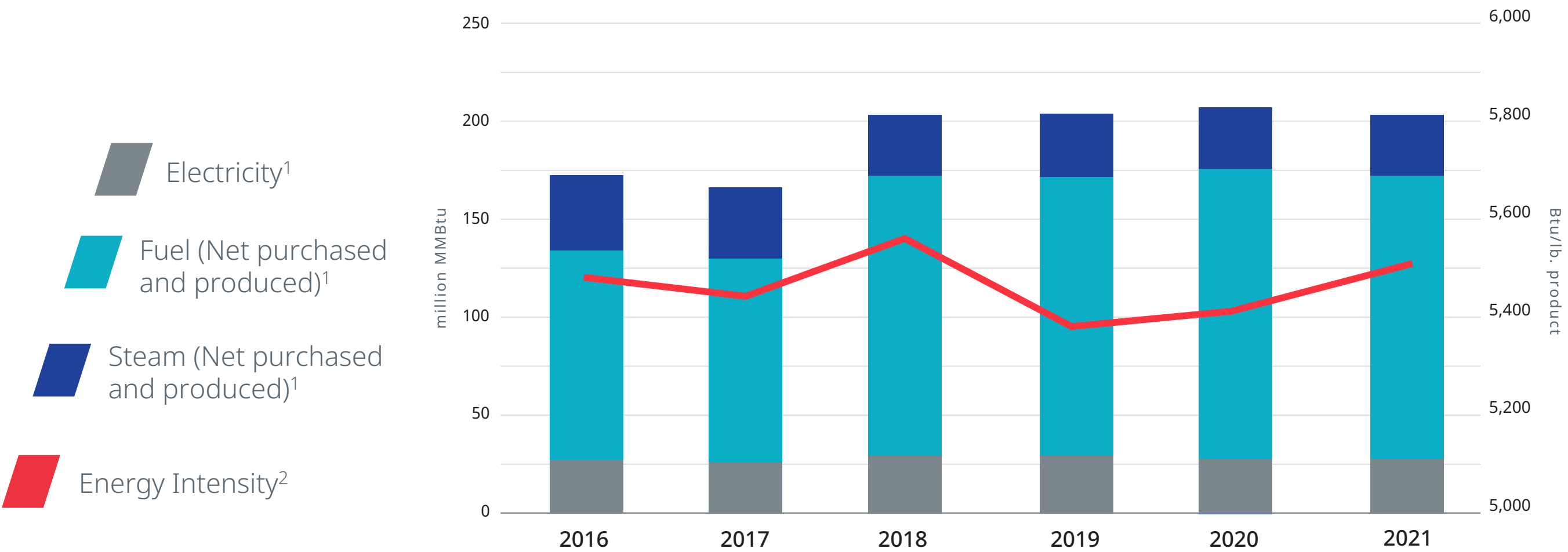


Energy Consumption and Intensity

Whether derived from fuel, electricity or steam, energy use accounts for the majority of CPChem’s GHG emissions. In 2021, CPChem’s energy consumption and energy intensity was 206 million MMBtu and 5,587 Btu/lb. product, respectively. Our energy consumption decreased by 3 million MMBtu compared to 2020’s performance. This result reflects the impacts from the North American Winter Storm and necessary start-up and shut-down processes required for reliability improvements in 2021, which impact energy intensity values. CPChem is working to lower emissions and reduce our carbon footprint through optimizing energy requirements and minimizing energy intensities. Increasing the use of renewable electricity throughout our operations is also an important part of our decarbonization efforts.

 Performance Data Tables

ENERGY CONSUMPTION



1. Energy data reported on an equity basis represents wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of Performance Pipe, AmSty and owner operations in Borger, Texas.
2. Energy intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem, with the exception of Performance Pipe.

Energy Enhancements

CPChem empowers its local Energy Best Practice Teams to improve energy performance and initiate energy reduction projects. Team leaders routinely meet to share best practices, celebrate success, and challenge each other to creatively meet companywide energy goals.

We experienced strong improvements in energy performance in 2021, receiving six awards from the American Chemistry Council for energy performance at our U.S. sites.

// FEATURE



SWEENY
SAVES 549,000 MMBtu

Upgrades to an olefin unit at our Sweeny, Texas site reduced steam and fuel gas usage while significantly improving the unit's ability to exchange heat, resulting in the reduction of 549,000 MMBtu in 2021.



PASCAGOULA
CUTS 395,000 MMBtu

The Pascagoula, Mississippi facility cut 395,000 MMBtu after modifying steam operation used in a distillation column reboiler. This project also helped to rebalance the facility's steam usage, which produced additional energy savings on site.

// FEATURE



TESSENDERLO GENERATES 90% OF ITS ELECTRICITY, REDUCING 26,000 MMBtu

Brought online in 2021, CPChem's cogeneration plant in Tessenderlo, Belgium produces 90% of the electricity needed by the facility. The cost-effective cogeneration plant recycles steam and energy to produce electricity and is responsible for a reduction of 26,000 MMBtu.



PASADENA ATTAINS 14% FUEL GAS USAGE EFFICIENCY, ELIMINATING 129,000 MMBtu

In 2021, our Pasadena facility improved its energy efficiency through a combination of continuous improvement focus areas. The site executed projects to optimize flare fuel gas usage and installed modern desiccant in feedstock treaters to reduce nitrogen and fuel gas consumption. Together, these accounted for 14% fuel gas per pound of product reduction for the site.



S-CHEM OPTIMIZES KEY EQUIPMENT TO LOWER 242,000 MMBtu

In 2021, S-Chem achieved several energy efficiency improvements across its assets. Energy consumption was reduced after one facility performed equipment modifications in order to better control the composition of a feed stream. Another effort focused on decreasing a fractionation tower's pressure, and the optimization of regeneration in process dryers lowered the duty demand for the tower and reduced natural gas consumption.

Conserving Water

The conservation of freshwater is critical to the sustainability of our business, our communities and our future. We are committed to the ongoing development of technology and management practices that conserve and protect freshwater resources and enhancing water efficiency at our facilities. Water is a shared resource, and the increasing scarcity of usable freshwater is a global concern. CPChem's water resources include surface, groundwater or wells, and purchases from third-party districts that supply to industrial consumers. We utilize water for cooling and steam production, as well as consumption in processes and disposal of effluents. We implement best practices such as conserving freshwater through reuse and recycling efforts by using alternatives like desalinated water at facilities in high water stress regions like the Middle East.

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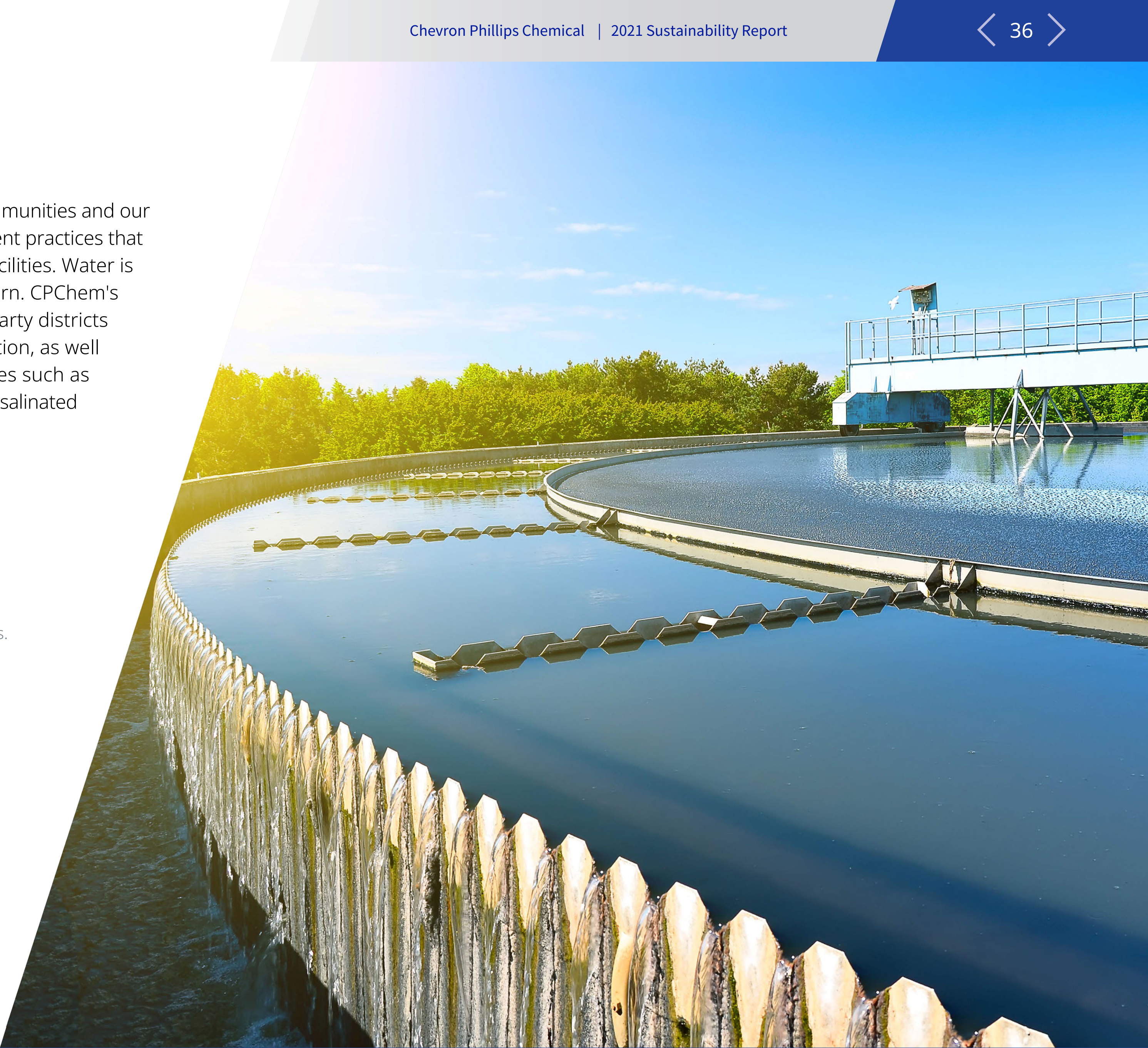
SAVING 28 MILLION GALLONS OF WATER EVERY YEAR

A team at our Borger facility designed an innovative solution that saves water and reduces expenses. By collecting condensation produced through one system process and directing it to cool a second process, the site is expected to reduce its water intake by 28.33 million gallons of water every year.

// FEATURE

COLLABORATION ACROSS SITES WITH OUR UTILITY EXPERTS

Utility experts at our Conroe, Sweeny, Clemens, and Old Ocean facilities collaborated to share knowledge and combine troubleshooting efforts on boiler operation. The team identified changes to sampling locations, testing procedures, and water softener operation and as a result, successfully improved water boiler chemistry for the site.

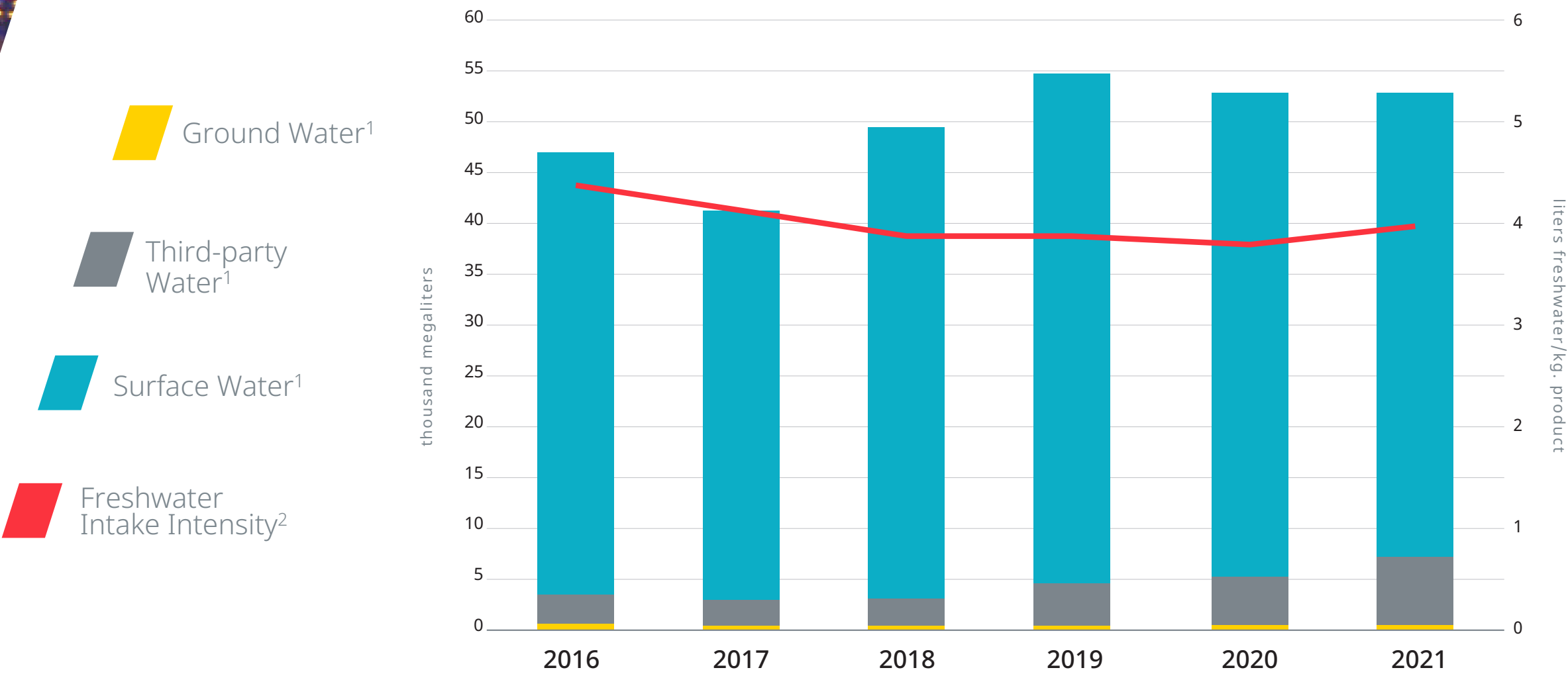


Our freshwater intake totaled 53.1 thousand megaliters compared to 53.2 thousand megaliters in 2020. As part of our OE framework, CPChem facilities are required to maintain programs that promote continued optimization of water consumption. Last year, CPChem's Water Reliability Team created companywide water-related goals with our nested on-site water providers to improve water quality and efficiency. Facilities have already noticed improvements in this area.

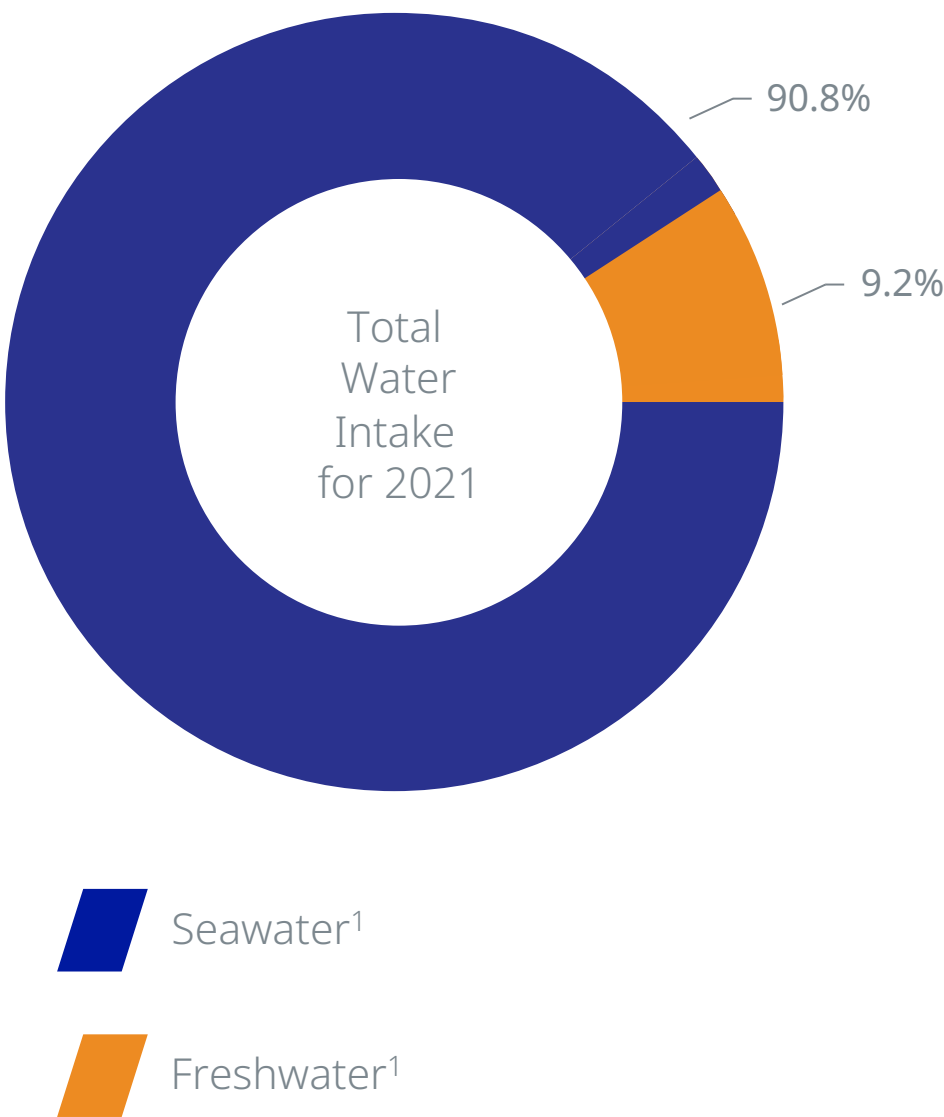
We care deeply about water quality and understand the potential downstream impacts of water discharged from our sites. Prior to release, water is treated to meet state and federal regulations.

 Performance Data Tables

FRESHWATER INTAKE



FRESHWATER vs SEAWATER



1. Water data is reported on an equity basis and represents wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of AmSty and owner operations in Pascagoula, Mississippi, as well as 100% stake is reported for a CPChem-operated joint venture in Baytown, Texas, and a CPChem-operated, owner-owned facility in Old Ocean, Texas. Total Water Consumption represents the difference between water intake and water discharge and includes water lost due to evaporation.

2. Freshwater intake intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem.

Reducing Waste

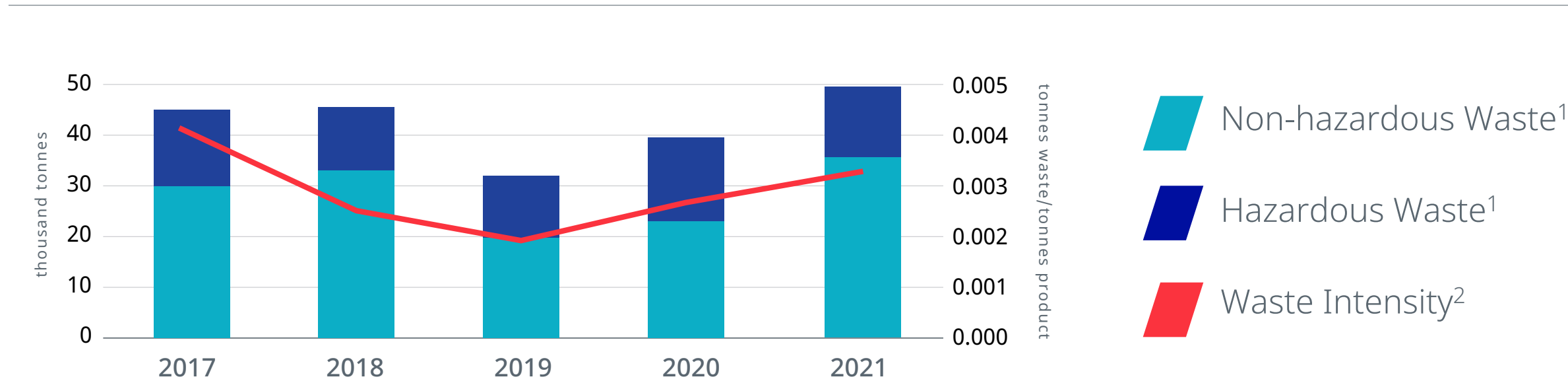
We collaborate with waste specialists at each of our manufacturing sites to reduce, reuse and recycle waste streams. Led by employee advocates and educators, several sites have assembled local teams at our facilities to spread awareness and encourage waste minimization efforts.

Over the course of 2021, CPChem generated 36,900 metric tonnes of non-hazardous waste and 12,400 metric tonnes of hazardous waste (on an equity basis). Waste generation may increase during turnarounds and maintenance. Non-hazardous waste increased in 2021 due to facility outages and maintenance of on-site retention ponds. Clean retention ponds support our wastewater treatment processes and contribute to the proper operation of these important systems. Although our total waste increased in 2021, we are proactively seeking methods to minimize our waste footprint. We reduced our hazardous waste by 18%, and over one-third was recycled through recovery and reclamation processes dedicated to reuse and energy recovery.

We encourage our workforce to practice the principles of "reduce, reuse, recycle" at work, at home and when interacting with the environment. Beyond our work to reduce waste from our operations, we promote opportunities to reduce the consumption of resources by offering hybrid work schedules, promoting carpooling, and encouraging employees to explore how they can lighten their footprint and reduce waste at work and at home.

 Performance Data Tables

WASTE



1. Waste data is reported on an equity basis and represents wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of AmSty and owner operations in Pascagoula, Mississippi and Borger, Texas, as well as 100% stake is reported for a CPChem-operated joint venture in Baytown, Texas, and a CPChem-operated, owner-owned facility in Old Ocean, Texas. Hazardous waste data represents waste deemed hazardous by region-specific definitions.

2. Waste intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem.

// FEATURE

EMPLOYEE SUSTAINABILITY CENTERS

In 2021 the Sweeny, Clemens and Old Ocean local sustainability teams unveiled new and convenient sustainability centers to drive an increase in recycling onsite. Plastics, printer supplies, batteries and electronics can be easily recycled at a dedicated location at each site. Our sustainability teams hope to foster positive behaviors and build a supportive culture of environmental stewards for current and future generations.



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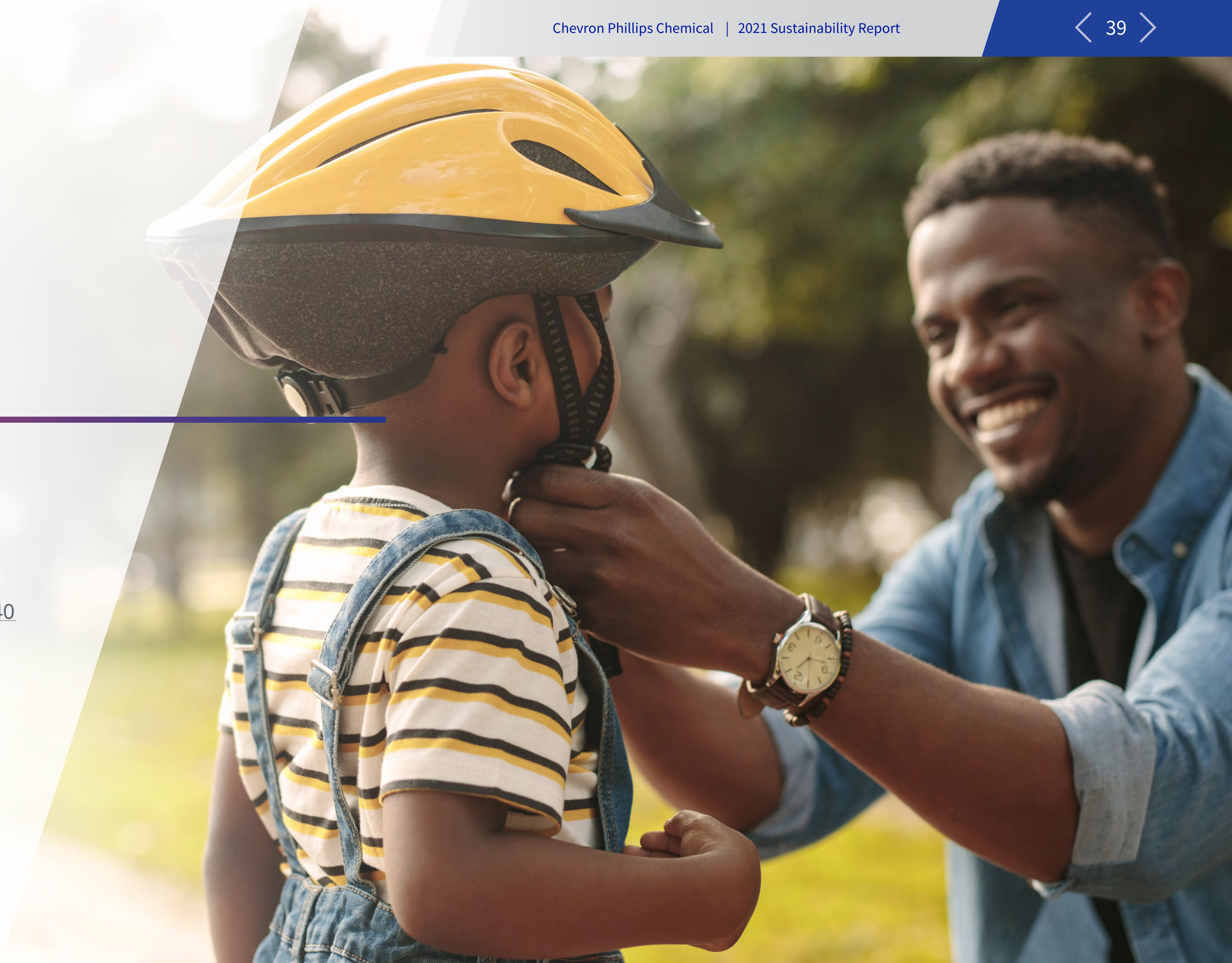


HYDRODESULFURIZATION

CPChem has approved plans to construct a hydrodesulfurization (HDS) unit in Tessenderlo, Belgium. Once completed, the HDS unit will convert process waste generated on-site into reusable raw materials like hydrogen, alkanes and hydrogen sulfide. This project converts waste into valuable products, which aids CPChem in enabling a circular economy while lightening its environmental footprint.

PRODUCTS WITH PURPOSE

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Plastic Business Model Resilience

A lower carbon future will rely on polyethylene to deliver high-efficiency, high-quality products that meet end-market requirements from a growing middle class.

To meet this demand and assist with the marketplace's transition to a lower carbon circular world, CPChem is working to expand its circular product portfolio, enhance safety and environmental performance and curb its emissions. We are also investing in companies with specialized expertise in recycling and we support efforts to end plastic waste. CPChem recognizes the importance of incorporating a lower carbon and circular future into our outlooks. To maintain a path of successful growth, CPChem's business projections and outlook incorporate considerations that drive a lower carbon, circular future.

Outlook Considerations

CPChem uses long-term demand outlooks and commodity pricing forecasts as a part of its investment strategy and business risk practices. CPChem also incorporates external perspectives in the development of projection models to stress-test and assess its competitive position and growth opportunities. We use alternative cases produced by third party sources. Sustainability related scenario analyses for plastic demand is a maturing exercise with limited data sets.

BloombergNEF's polymer circularity analysis was chosen for cases addressing increased regulation of end-markets, substitution of existing markets, increased stakeholder expectations and circular technology investment challenges. BloombergNEF's analysis examined other plastics like polyethylene terephthalate (PET) and polypropylene (PP), where alternatives to plastics, bans on single-use plastics, or consumer preference had greater impact in the most severe scenarios.

BloombergNEF uses three scenarios: 1. Business as Usual Scenario (BAU); 2. Increased Recycling Scenario (IR); and 3. Advanced Circular Economy Scenario (ACE), in its outlook assessment of high-density polyethylene (HDPE) production, and the same three scenarios in a separate outlook assessment that combines linear low-density polyethylene (LLDPE) and low-density polyethylene (LDPE) production. As polyethylene production represents a significant portion of our company's business, we combined HDPE, LLDPE and LDPE scenarios into a single polyethylene outlook for this analysis.

Through multiple technology platforms, CPChem produces polyethylene pellets, which are used in a myriad of applications and products by customers all over the world. Overall, BloombergNEF forecasts demand for polyethylene to grow alongside GDP and the expanding middle class. BloombergNEF notes shrinking demand for polyethylene in single-use applications, expected to be offset by a growing durables market, which features superior cost-to-performance potential and a lower greenhouse gas (GHG) footprint compared to alternatives.¹

 [Read about BloombergNEF](#)

1. American Chemistry Council, Plastics and Sustainability: A Valuation of Environmental Benefits, Costs and Opportunities for Continuous Improvement, 2016





Business as Usual (BAU)

The BAU model is driven by the traditional combination of GDP and middle-class growth as a driver for polyethylene production investment. See [Industries We Serve](#) and [The Value of Plastics](#) for insight into the wide range of polyethylene applications. The model forecasts steady growth of mechanical recycling and depicts growth in advanced recycling after 2030. Overall reactor production, including advanced recycling circular materials, is projected to out-pace the expansion of mechanical recycling. CPChem's polymer-based revenue analyzed through this case projects positive revenue growth from 2020 to 2040.

Increased Recycling (IR)

In the IR case, both the demand for circular plastics by consumer goods companies and the regulatory mandates for recycled content will slow virgin feedstock product demand. Mechanically recycled plastics and advanced recycled plastics both grow at an accelerated pace. Current asset production, including those used to produce virgin and bio-based materials, and advanced recycling circular materials experience continued growth, although less than the BAU case. Overall, in the IR case, production using virgin feedstock-based materials is reduced when compared to the BAU case. CPChem's polymer-based revenue analyzed through this case projects positive revenue growth from 2020 to 2040. When compared to BAU revenue, the IR case showed little change prior to 2030. This case indicates mild growth effects, and that CPChem's business model is resilient in this environment.

Advanced Circular Economy (ACE)

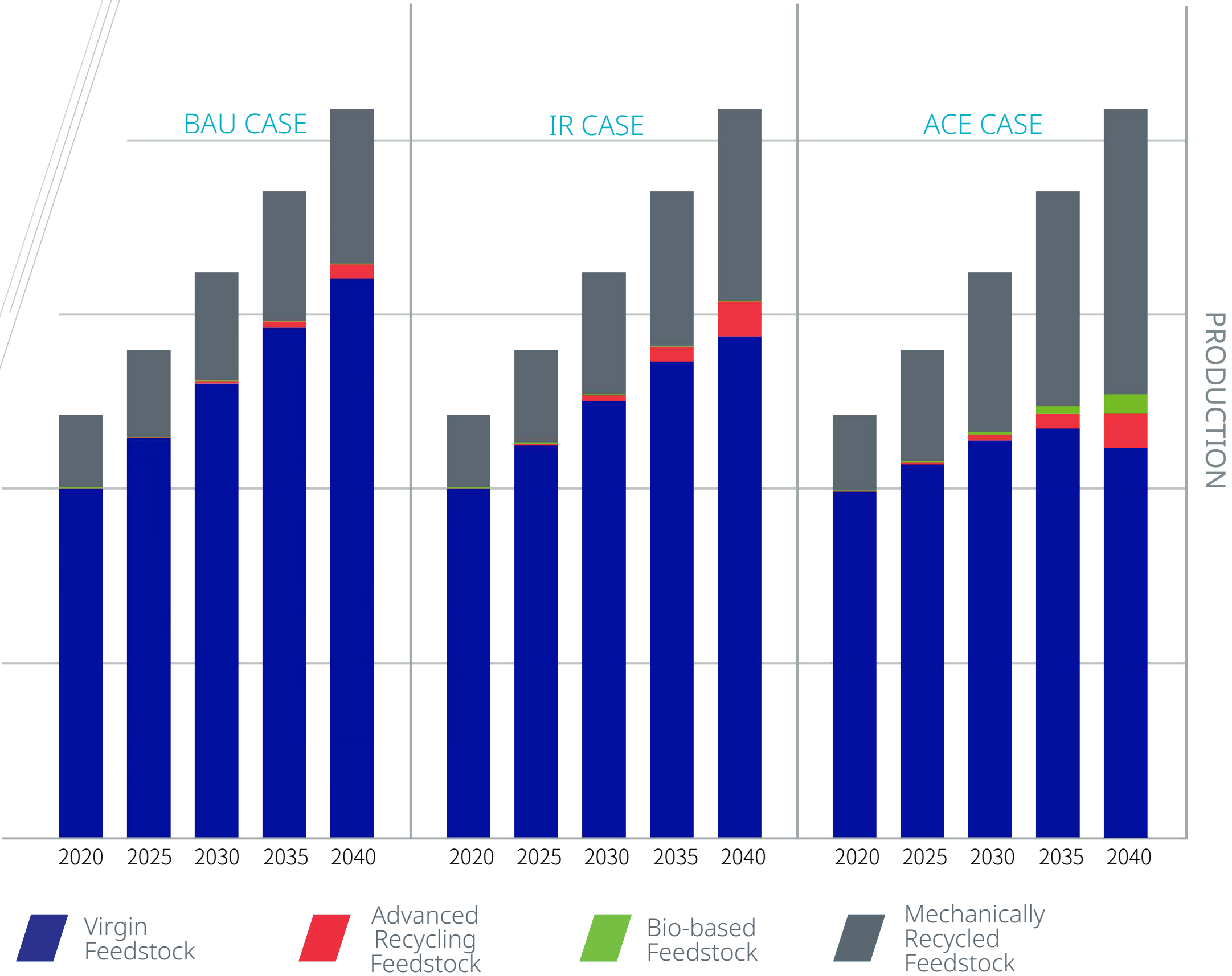
The ACE case has significant pathway differences in the applications of rigid and flexible plastics across the polyethylene marketplace. Increased legislation and carbon emission reductions are two main contributing factors to differences in this model compared to BAU and IR. Brand owners with rigid polyethylene products are expected to experience increasing pressure from consumers for these products to be made using a higher amount of recycled material. As a result, increased investments directed to improving the collection and sorting of recycled material will enable expanded capabilities and more successful integration of recycled content. The ACE case indicates a growth in advanced recycling similar to the BAU case, due to improved quality and availability of mechanically recycled materials. In this case, regional carbon emissions reduction goals demonstrate the benefits of plastic compared to alternatives, but higher adoption rates of flexible plastic solutions are projected to have a negative impact on the position of plastics when considering carbon emissions reductions. [Enabling a Lower Carbon Future](#) offers information on how CPChem's product portfolio utilizes a balanced approach.

In the ACE case, flexible polyethylene applications experience increased pressure to contain recycled content and to use materials with a lower carbon footprint. Due to the limitations of mechanical recycling in processing plastic films, strong and maintained growth is projected for advanced recycling technologies. Carbon abatement pressure to meet 2040 net zero goals from brand owners and converters will lead to increased use of bio-based feedstocks as these companies try to reach their goals.

In ACE, virgin feedstock-based, advanced recycling, and bio-based material production experiences growth significantly less than in the IR case due to aggressive expansion of mechanical recycling. Virgin feedstock-based materials are reduced between 2035 to 2040. This case supports the slowest investment in production expansion of all three cases. Although the ACE case brings the greatest challenges, production and revenue continue to grow.

In this extended business planning analysis, each of these scenarios had increased revenue growth, demonstrating CPChem’s assets long-term resilience under multiple market conditions. CPChem's track record of growing low-cost feedstock investments, safety performance and manufacturing innovation further reduces risks toward a resilient future for CPChem’s assets.

GLOBAL POLYETHYLENE PRODUCTION¹



1. Bloomberg BNEF May 5, 2020, Circular Economy Series, CPChem

Global Polyethylene Outlook

Middle-class development throughout the world will continue to grow at record rates, driving polymer and chemicals growth past 2040. Polyethylene is well-positioned as a significant performing material due to weight and cost advantages that enable lower GHG impacts when compared to alternative materials. Our current assets can be utilized to produce circular and bio-based polymers. Investments, along with research and development in producing circular and lower carbon products will enable current and future assets to supply the demand, transitioning to a more circular world. Collecting and sorting plastic to meet the demand for circular products while addressing the global waste problem remains a challenge. CPChem is committed to working with governments, customers, nonprofits and others to measurably improve the recycling and recovery of post-use plastic packaging.

Voluntary customer and brand owner 2025 goals may only impact the demand for plastics in specific markets and applications. Existing and proposed regulations requiring recycled content are not expected to come into effect before 2025. Near-term impact from customer and brand owner expectations, as well as positioning for regulatory changes is expected to incentivize circular solutions and support demand for polyethylene in the most aggressive cases.

Click to read more about CPChem's investments and practices to address the plastic waste challenge.



Alliance to End Plastic Waste



Circulate Capital Ocean Fund



Infinity Recycling



Operation Clean Sweep®

This growth outlook includes expectations that circular product growth will outpace overall demand growth of materials. Regulations on end-uses of plastic products including plastic taxes, extended producer responsibility schemes and single-use policies, may decrease demand for some of CPChem's core downstream product applications. Regulations in place prior to 2025 are expected to accelerate impact through 2030, making the transition to a more circular economy essential. The drive toward a circular economy for plastic packaging will help conserve natural resources including water, energy and materials, support resource efficiency and optimization, reduce emissions and minimize waste. Through a balanced approach of implementing a circular economy for plastics within an overall sustainable materials management framework, we can enable society to improve and sustain economic growth while improving the environment for future generations.

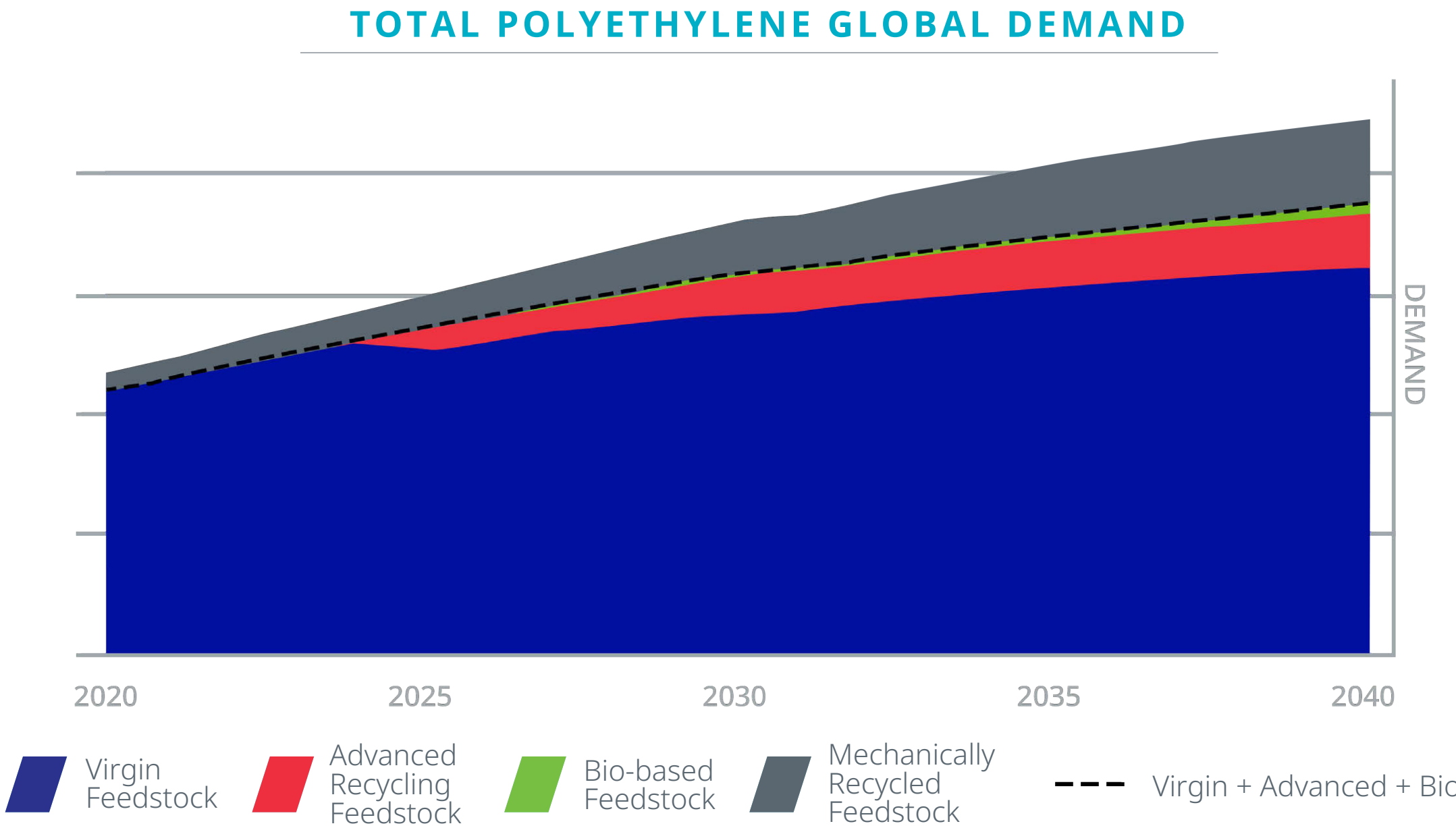
Mechanical recycling is expected to grow significantly, with advanced recycling growth focused to address the more challenging materials and applications where mechanical recycling is less favored. CPChem supports advanced recycling as a complementary approach to mechanical recycling and believes it is necessary to prioritize increasing recycling rates advancing a circular economy. Advanced recycling is expected to see its largest growth during periods where brands and retailers are pressed to meet mid-term 2030 and long-term voluntary and legislative recycled content commitments.

As the world works hard to meet net-zero goals, demand for materials with lower carbon emissions is expected to rise and drive new innovative products and technologies. These solutions, along with increased regulatory pressure, seek to address this transition in the most challenged regions to address waste management in developing nations.

Polyethylene will continue to be considered a well-positioned material to address carbon emission reductions because of its efficient weight-to-performance properties and as the industry progresses toward commitments to reduce emissions. As pressure increases to meet national carbon emissions reduction goals, net-zero transitions are expected to support the growing demand of products made with bio-based and renewable polyethylene due to their lower carbon content.

CPChem is well-positioned for this outlook by its investment in the circular economy and its strong position in durable plastics applications. Strong demand exists beyond single-use plastics, like construction materials, more efficient transportation, outdoor recreation, and playground equipment. These applications benefit from the versatility of plastics. Polyethylene plastics' general capability to be recycled and repurposed make it the sustainable choice for many applications.

CPChem's outlook incorporates elements of both the IR and ACE cases through the lens of its asset base, product application diversity, technology and sustainable growth strategy. Total plastic production (including mechanically recycled) is expected to grow through 2040. Opportunities to support a circular and lower carbon application world are expected to increase. Production (including advanced recycling and bio-based materials) sees continued growth through 2040. This outlook expects robust investment and opportunity in the collection, sorting and recycling of plastics to reach a more circular world along with investment toward lower carbon production, accelerated by the use of bio-based feedstocks.



Value of Plastics



HEALTHCARE

Plastics play an integral role in healthcare. Their lightweight, flexible and durable characteristics make plastics an ideal material for medical applications like implants, IV bags, syringes, and personalized prosthetics.^{1,2} From soft and comfortable contact lenses to strong and rigid child-proof pill bottles, we rely on the versatility of plastic products to maintain our health and wellness.



TRANSPORTATION AND FUEL EFFICIENCY

In cars and aircraft, plastics have safely replaced some steel components and improved efficiency. Plastic can reduce a vehicle's weight by up to 30%, lowering stress placed on the engine and allowing the vehicle to operate with better fuel efficiency.³ A 200 foot length of corrugated polyethylene pipe weighs about 600 pounds. A reinforced concrete pipe of the same diameter weighs over 22,500 pounds, more than 37 times heavier.⁴ Imagine the difference in fuel expenses when transporting these two materials.



ELECTRONICS

Wireless devices like smart watches, cell phones, laptops and headphones are designed with strong plastics that protect sensitive components without weighing you down.

1. N. Paxton, M. Allen by, P. Lewis, M. Woodruff, Biomedical Applications of Polyethylene, European Polymer Journal, 2019
2. S. Kurtz, UHMWPE Biomaterials Handbook: Ultra High Molecular Weight Polyethylene in TotalJoint Replacement and Medical Devices, Elsevier Academic Press, 2015
3. American Chemistry Council, Plastic Resins in the United States, 2013
4. Plastics Pipe Institute, A Greener Infrastructure, 2014

Value of Plastics



OUTDOORS

Plastics let us explore the outdoors like never before. Sleeping bags and tents made with synthetic fibers lighten the load on camping trips. Plastic coolers that keep food safe are sturdy and easy to transport. On the water, plastic makes kayaks impact-resistant, waterproof and buoyant.

CONSTRUCTION

A one-year study found that the use of plastic building and construction materials saved 467.2 trillion Btu of energy over alternative construction materials. Over the course of a year, that's enough energy to meet the average energy needs of 4.6 million U.S. households.⁵

PRESERVING FOOD

Food waste is responsible for significant greenhouse gas emissions, and it is estimated that one-third of all food produced for human consumption is lost or wasted every year.⁶ It is critically important that we utilize the durable and versatile characteristics of plastics to protect food from damage and extend shelf life. Plastic packaging keeps what we eat clean and fresh long after our groceries are brought home from the store, which helps to reduce food waste.

5. Franklin Associates, Ltd., U.S. DOE and U.S. Census Bureau
6. N. Voulvoulis, R. Kirkman, T. Giakoumis, P. Metivier, C. Kyle and V. Midgley, Examining Material Evidence. The Carbon Fingerprint, Imperial College (London), 2020

Additional Resources

1. Alliance to End Plastic Waste
2. Circulate Capital Ocean Fund
3. Infinity Recycling
4. Operation Clean Sweep®
5. CPChem invests in Infinity Recycling's Circular Plastics Fund
6. CPChem completes first commercial sale of Marlex® Anew™ Circular Polyethylene
7. Six Pines Investments LLC purchases stake in top plastics recyclers
8. CPChem earns top honors from PLASTICS Industry Association for Marlex® Anew™ Circular Polyethylene



Our Products Have Purpose

The reputation CPChem holds with its employees, communities, customers and owners has been earned through safe and reliable operations that yield products and services with exceptional value. We create solutions that benefit society while working to leave behind the smallest footprint possible.

The unique properties of our polymers allow us to create lightweight, high-quality products that excel in a myriad of applications across many industries. Our products serve essential industries like healthcare, agriculture, transportation, construction and more. The global effects of climate change and resource scarcity have challenged and energized CPChem employees to design products that deliver sustainable advantages through the entirety of their life cycles.

// FEATURE

BRINGING WATER

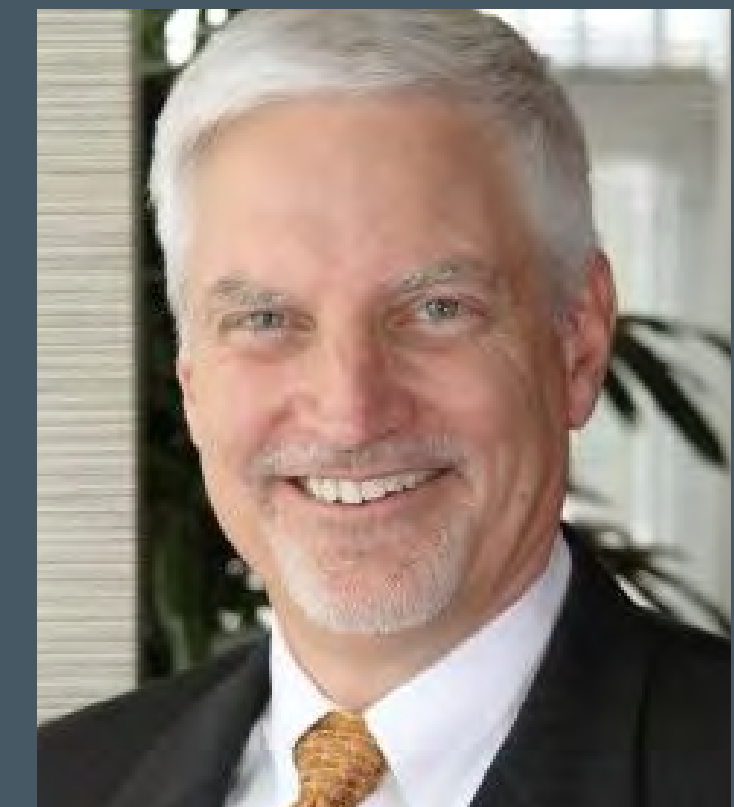
In 2021, CPChem announced a new collaboration with Water Mission, a non-profit organization that brings clean water to underdeveloped and disaster areas. According to the World Health Organization, more than 2 billion people lack access to safe water, with sanitation and hygiene-related diseases responsible for nearly 1 million deaths every year.

Founded in 2001, Water Mission has served more than 7,000,000 people in 57 countries in its twenty-year existence, providing clean water and hygiene resources to those most impacted by the global water crisis.

In 2022, through its Performance Pipe division, CPChem will provide piping materials needed to construct a new water distribution system and connect residents in a

remote town of Peru to a permanent, reliable supply of clean drinking water. Specifically designed to transport and conserve water, these high-density polyethylene (HDPE) pipes are virtually leakproof and are engineered to withstand high-pressure applications.

Our products and efforts improve lives. CPChem's collaboration with Water Mission serves as another example of the company's dedication to elevating communities around the world, adhering to our tagline, Performance by design. Caring by choice.™



"We manufacture high-performing, purposeful products that improve the health, well-being and prosperity of consumers. CPChem's efforts to source lower carbon feedstocks, expand our circular product portfolio, and support projects that work to end plastic waste in the environment, demonstrate the company's commitment to building a more sustainable future."

Ron Abbott
Sustainability Technology Manager



Giving Plastics a Second Life

Enabling a Circular Economy

The transition from a linear economy where goods are produced → packaged → sold → used → sent to landfill is already underway in many industries, including our own. We embrace practices and products that enable a circular economy, where goods, their packaging and the processes used to create them are sustainable and financially viable through a product's first life, its second, third, and so on. All recycling technologies will play a pivotal role in our industry's evolution. CPChem's maturing advanced recycling program is able to recover hydrocarbons from plastic waste that have previously been difficult or impossible to recycle via traditional (mechanical) recycling methods. Devoting resources to advanced recycling while simultaneously amplifying our long-held advocacy for traditional recycling, we are leveraging the strengths of both technologies in a complementary approach to reduce plastic waste. The industry's movement toward a circular economy will require creativity and collaboration across both public and private sectors, and CPChem is eager and engaged in furthering this important transition.

Advanced Recycling

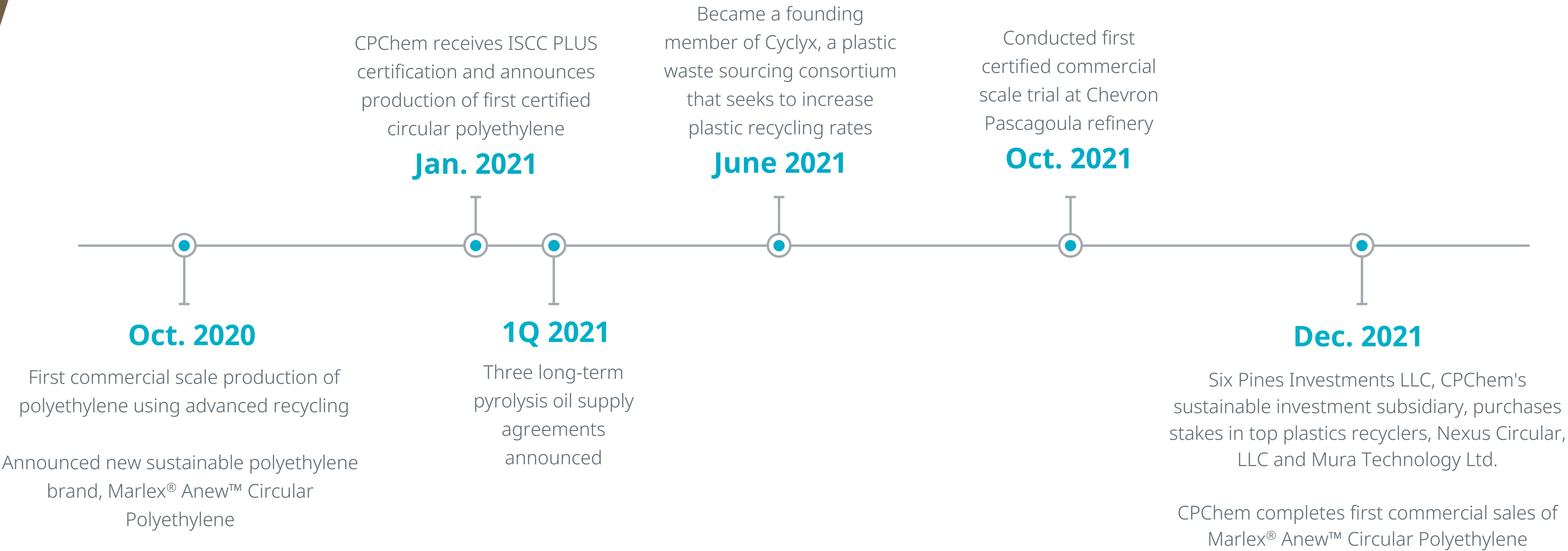
Advanced recycling converts post-use plastics into hydrocarbons that can then be transformed into feedstocks for producing new polymers. Because of the potential to repeatedly recycle post-use plastics using this process, polymers produced through advanced recycling are often referred to as "circular polymers." Circular polymers are identical to first-life polymers made from traditional feedstocks, meaning materials produced via advanced recycling are capable of being qualified for use in highly regulated applications like food packaging, medical devices, and pharmaceutical use. Our customers and the expanding circular polymers market are helping to create demand for products made via our advanced recycling program. CPChem's advanced recycling program is responsible for launching the company's first fully circular, sustainable product, [Marlex® Anew™ Circular Polyethylene](#). The organization's advanced recycling process is certified annually through the International Sustainability & Carbon Certification PLUS (ISCC PLUS) program, a globally recognized sustainability certification system.





In 2021, Plastics Industry Association awarded CPChem with the Leadership in Sustainability Award for efforts converting difficult-to-recycle plastic waste into top-quality raw materials. This award is designed to recognize outstanding innovations in plastics manufacturing that further environmental advantages in design, material, and end-of-life management. CPChem was identified as the front-runner in judging criteria categories of innovation, environmental impact and market impact.

The company's circular polymers business experienced several notable milestones in 2021, scaling production volumes, signing long-term supply agreements with producers of high-quality feedstocks, and completing its first commercial sales of Marlex® Anew™ Circular Polyethylene. These significant developments strengthen the circular economy for plastics and illustrate how CPChem is delivering on its commitment to bring a fully certified circular polyethylene product to market in the U.S. These efforts contribute toward CPChem's announced annual production target of 1 billion pounds of Marlex® Anew™ Circular Polyethylene by 2030. To meet this goal, CPChem is collaborating with plastics recyclers, refinery operations, and providers of innovative technologies driving a circular future for plastics.



Traditional Recycling

Traditional recycling refers to widely practiced recycling methods that rely on mechanical processes like grinding, melting and remolding to process recycled plastics. Its simplicity and low energy requirements make traditional recycling an attractive approach to keep specific types of plastics in circulation and out of landfills. CPChem recognizes the value of traditional recycling and views mechanical and advanced recycling as complementary approaches needed to achieve a circular economy. Evolving technologies and technical innovation are expanding the applications of recycled materials and helping to expand circular polymers throughout global commerce.

// FEATURE

HELPING TO PAVE A NEW ROAD TO RECYCLING

CPChem recently used a specialized asphalt mix containing approximately 1,000 kilograms of recycled plastic to pave a 67,000-square-foot parking lot at its facility in Port Arthur, Texas. Working with the Plastics Industry Association, we are participating in a New End Market Opportunities (NEMO) study analyzing the performance of post-use plastic in asphalt. The newly paved lot is estimated to contain nearly 200,000 plastic bags, redirecting these valuable materials from ending up in a landfill or unintended places in the environment.



Read the full story



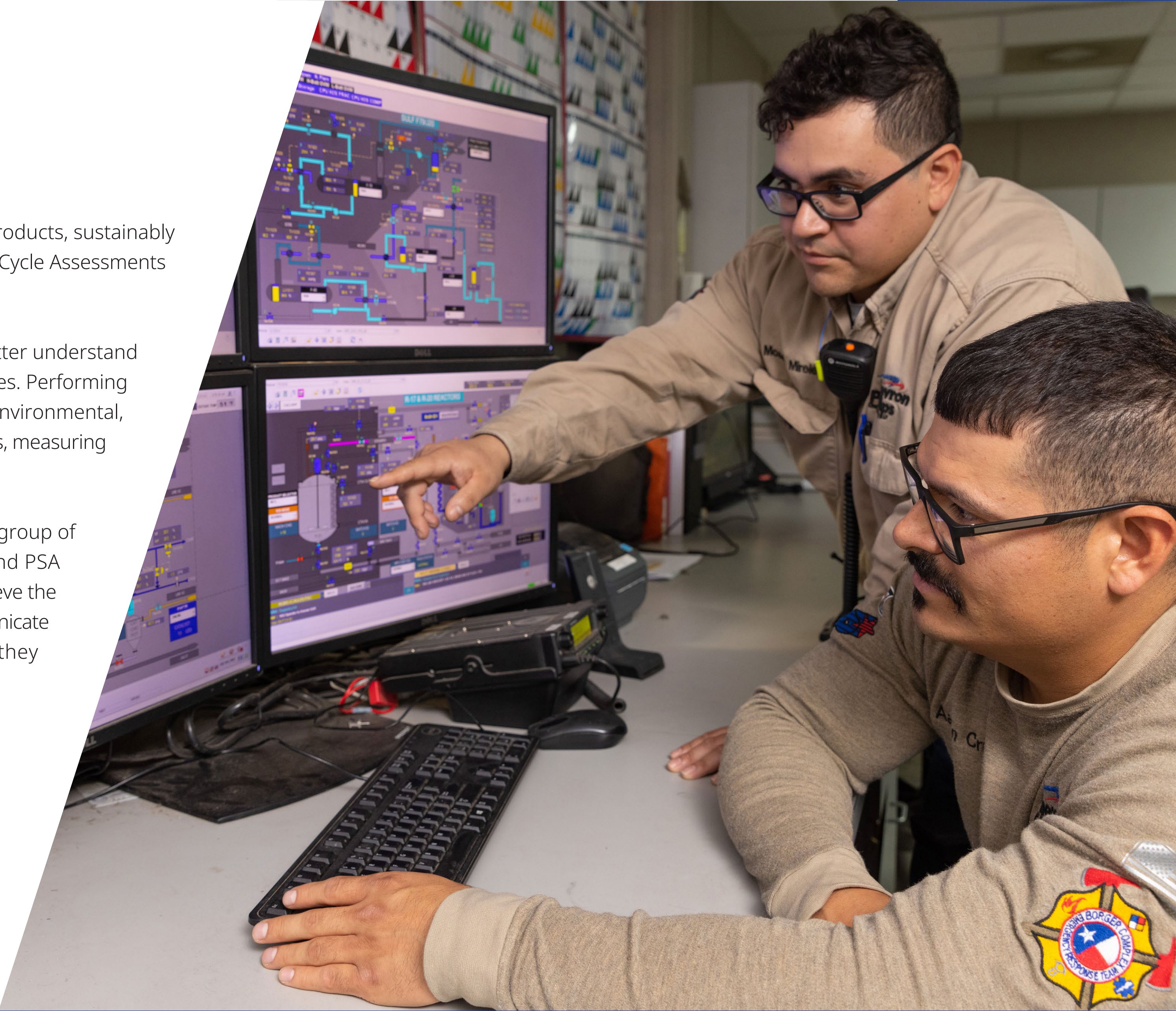
Assessing Impact

Life Cycle and Portfolio Sustainability Assessments

As part of our efforts to optimize our product portfolio and produce life-enriching products, sustainably leaving behind the lightest footprint, we have accelerated our efforts to perform Life Cycle Assessments (LCA) and Portfolio Sustainability Assessments (PSA) on our current products.

Completing the systematic analyses required for each LCA will help our business better understand potential environmental and health impacts of our products over their life cycle phases. Performing the PSA will allow us to look at our portfolio holistically by incorporating economic, environmental, and social factors, and help us to optimize our product portfolio by identifying strengths, measuring product risks and uncovering opportunities for sustainable innovation.

In 2021, we assembled an Accelerated LCA/PSA Guidance Review Team, an internal group of subject matter experts responsible for the strategy and implementation of LCA and PSA measurement projects. As we build a library of life cycle and sustainability data, we believe the accuracy of our measurements is just as important as our commitment to communicate the social, economic, and environmental impacts of our products and the value they bring to society.



Product Stewardship

Operation Clean Sweep®

Plastic waste should never end up in the environment, and CPChem understands the challenges posed by this issue. For more than 20 years, CPChem has been a member of Operation Clean Sweep® (OCS®), a global initiative targeting zero plastic loss to the environment during manufacturing and distribution of products. We are proud of the success of our plastics management programs and ongoing commitment to keep plastic out of unintended places.

In the U.S., all CPChem operations follow enhanced OCS® Blue membership guidelines, which involve a deepened commitment to pellet loss reduction and additional program requirements like the sharing of best practices, additional reporting, and cross-industry collaboration. Our OCS® Blue membership demonstrates our company's progress and perseverance in our work to keep plastic waste out of the environment.



// FEATURE

BOOSTING OUR DEFENSE AGAINST PLASTIC LOSS, SINGAPORE

In 2021, our Singapore-based polyethylene joint venture significantly enhanced its plastic management program, completing 13 OCS® related projects and initiating an additional 20 projects dedicated to preventing the release of plastic into the environment.

// FEATURE

INNOVATION AWARD FINALIST, ORANGE

CPChem's Orange facility was a finalist in 2021 for the American Fuel and Petrochemicals Manufacturers (AFPM) Innovation Award for inventing a specialized floating skimmer. The skimmer design features a screening system which collects plastic while recovering water.

// FEATURE

THE SHARED VALUES OF OUR VALUE CHAIN, EU

By the end of 2021, 70% of our European operation's logistics service providers became signatories of the OCS® pledge, taking a stance with CPChem to curb plastic loss.



Plastic Management Program

In 2021, CPChem introduced a companywide plastic management standard across our global operations and value chain. As part of our commitment to OCS® and plastic management programs, we established best-practices and maintenance procedures for our operations, and we require all employees to complete annual OCS® awareness training. Additionally, we complete routine inspections and assessments of our facilities to ensure the integrity of our plastics recovery systems and equipment.



[Read more about our Plastic Management Approach](#)

Product Safety

Through the sustainable transformation of our operations and products, we remain vigilant in securing the health and safety of our customers and communities. We carefully test our products and communicate details related to health, safety and environmental impacts in accordance with ACC's Responsible Care® program. By emphasizing safety within our operations and upholding standards for the safe use of our products, we empower our entire value chain to harness the full value of CPChem's product portfolio.



[Read more about Product Responsibility and Customer Health and Safety in our GRI Content Index](#)

Global Cleanup Challenge

Employees and families around the world removed more than 197,000 pieces of waste from the environment during spring and fall cleanup campaigns in 2021. We are proud of our employees' engagement and diligence in improving the communities where we live and work. To multiply the positive environmental impact of litter cleanups, CPChem also donated funds to plant 10,000 new trees across its three main regions (Asia, Europe and U.S.) to 501(c)(3) organization, OneTreePlanted.

Ending Plastic Waste

CPChem is working to end plastic waste in the environment and backs numerous initiatives effecting meaningful change in this area. Our company is committed to ensuring plastics continue to deliver much needed societal benefits while leaving behind the lightest footprint.

Alliance to End Plastic Waste

We are facing a global waste problem, and plastic debris is one of many materials that can end up in the wrong place. As a founding member of the Alliance to End Plastic Waste (Alliance), CPChem is collaborating with more than 90 global companies to support innovative ideas and organizations dedicated to eliminating plastic waste via investments in infrastructure, innovation, cleanup efforts, education and engagement. Members have collectively committed \$1.5 billion over five years to design and scale realistic solutions. Supporting 35 projects across 29 countries in 80 cities, 4,000 metric tonnes of plastic waste have been diverted from the environment.

Circulate Capital Ocean Fund

CPChem reinforced its commitment to take care of the environment by making a \$15 million investment in the Circulate Capital Ocean Fund (CCOF) in 2019. CCOF is the world's first investment fund dedicated to incubating and financing companies and infrastructure designed to eliminate ocean plastic in South and Southeast Asia. Since 2019, CCOF has provided financing to companies and projects to build circular supply chains that can deliver and re-capture resources at scale while preventing the flow of plastic pollution into oceans in South and Southeast Asia. In 2021 alone, this investment fund enabled the collection, sorting and recycling of plastic waste which led to more than 3,000 metric tonnes of plastic to be diverted from the environment, 40,000 metric tonnes of materials recovered and properly managed, almost 7KT GHG avoided and 4,000 metric tonnes per year new infrastructure capacity built. Our company has a vision to help create a fully circular economy where every piece of post-consumer plastic finds new uses through recycling, reuse or repurposing. Our investment with Circulate Capital plays an important role in ensuring plastics continue advancing the sustainable economy.

Investing in the Future

CPChem is a founding investor in Infinity Recycling's Circular Plastics Fund. Registered in Luxembourg, the Fund invests in advanced recycling businesses which convert plastic waste back into virgin-grade feedstock for the manufacturing of new products, focusing first on Europe with ambitions for global expansion. Infinity Recycling's Circular Plastics Fund aims to accelerate the transition to a circular plastic economy by investing in advanced recycling technologies. Complementary to mechanical recycling, emerging advanced recycling technologies are forecast to play a key role in increasing recycling rates needed for the development of a sustainable, circular economy for plastics.



TRANSFORMING OUR PERFORMANCE

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Performance by Design

Leveraging Innovation from our Greatest Assets – Our Employees

Performance by Design (PBD) is a companywide initiative that continuously improves our business by leveraging the ideas of our people. PBD seeks to innovate and enhance processes, procedures and best practices to unlock hidden value. PBD is a call to action that empowers employees to share their ideas and unique perspectives. The spirit of PBD is woven into our culture, challenging the status quo to streamline work processes and deliver inventive solutions that better our organization.

CPChem created the Performance by Design Keystone Award to recognize employees who represent the principles and creative intent of the PBD program. In 2021, employees submitted nearly 1,000 innovative and original ideas. Careful evaluation and implementation of the 2021 submissions produced PBD initiatives responsible for generating greater than \$600 million in value to the company. Last year, we celebrated 225 Keystone Award recipients from across our global enterprise, all nominated for their contributions to PBD.

Metrics that Matter

CPChem's Metrics that Matter is an internal dashboard and central hub that provides accurate and up-to-date Key Performance Indicators (KPIs) at a site-specific level, as well as holistically for the company. The Metrics that Matter dashboard connects employees with real-world data and communicates progress on our KPIs. This expanding project will soon encompass relevant KPIs related to CPChem's Environmental, Social and Governance targets. Enhancing how we measure progress on our KPIs and sharing this information with our employees through the Metrics the Matter dashboard will help align our company and create a more cohesive workforce. As this program matures, we hope to include progress on these KPIs in future CPChem reports.



"Ensuring safe and reliable operations protects the people and communities associated with our business. CPChem's unwavering commitment to safety and reliability means we leverage best-practices, identify and act on opportunities for improvement, and cultivate a workforce capable of best-in-class performance."

Bryan Canfield
Senior Vice President, Manufacturing

Our Journey to Zero

Continuing the Journey

More than six years ago, CPChem introduced *Our Journey to Zero*, a program with a tailored focus on reducing incidents by increasing the safety and reliability of our operations. At its outset, the program worked to continuously strengthen and maintain the company's exceptional safety performance. Revamping existing structures and introducing new management systems, governance, and procedures to eliminate high potential, high severity incidents have produced measurable improvements in our safety performance. *Our Journey to Zero* makes us a better company by placing a spotlight on our strengths and opportunities for improvement.

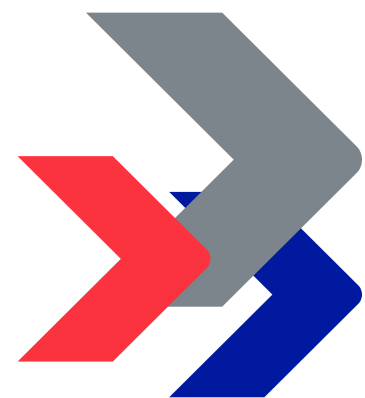
In 2021, an interdisciplinary team set out to build atop the foundational strategy introduced six years ago. A dedicated environmental performance component was added to the program to reflect CPChem's determination to better-protect the environment.

We also revamped our communication strategy to create a more approachable and relatable program capable of empowering our workforce. The added depth of *Our Journey to Zero* intends to produce tangible results and provide a blueprint for how to follow our journey every day. The team created an interactive course for mid-level and first-level leaders focusing on empowering employees to identify and improve our operations and reduce impact on the environment. Multiple workshops were conducted on how each facility could activate a refreshed strategy for *Our Journey to Zero*. Additionally, CPChem equipped employees with "Toolbox Talks," to remind our workforce of existing platforms we can utilize to incorporate these efforts. Supervisor and employee accountability, operational discipline, and embedding existing tools focused on operating safely into our daily conversations will help remove barriers for improvement and drive connections between our cultural evolution and safety performance.



"We continue to focus on advancing Our Journey to Zero, committing to actions that support the health and safety of our workforce and bringing to life our company's tagline, Performance by design. Caring by choice.™"

Elliott Johnson
Senior Vice President, EHSS



Our commitment to each other and to our communities

- > We put the health and safety of all personnel before production.
- > We eliminate high severity, high potential incidents.
- > We maintain and operate a safe, secure and reliable workplace.
- > We protect the environment.



We Care for Each Other by:

- > Empowering employees and contractors to be safety leaders
- > Supporting the health and well-being of our workforce
- > Equipping all with the tools and knowledge to complete the job safely and without incident
- > Ensuring the security of our facilities

We Drive Safe and Reliable Operations by:

- > Eliminating hazards and risks that can cause an injury or process safety event
- > Identifying and mitigating hazards and risks during job planning and execution
- > Ensuring quality procedures and standards and demonstrating operational discipline every day
- > Building a culture to learn from past performance

We Protect the Environment by:

- > Working to reduce total emissions and waste
- > Actively reducing resource consumption
- > Preventing spills and environmental events
- > Growing our recycling efforts

We Drive to Zero by Applying



Stop Work Responsibility



Life Saving Rules



Tenets of Operation



Procedures & Standards



Hazard Recognition

Business Performance and Looking Ahead

Business Performance

An essential component of our business strategy is to grow earnings and harness our company's financial and intellectual capital to seek sustainable solutions with far-reaching benefits. In 2021, CPChem achieved record earnings. This best-ever performance was driven by strong demand and PBD initiatives that contributed to production records at 11 of our units, further boosting profitability. Facing challenges of the ongoing COVID-19 pandemic, global market volatility and impacts to our U.S. Gulf Coast assets caused by weather in early 2021, the combined strengths of our global asset base, feedstock position and high-performing workforce enabled us to deliver phenomenal value. We also advanced our U.S. Gulf Coast II and Ras Laffan Petrochemical Projects, broke ground on a world-scale 1-hexene unit and announced plans to build a new propylene splitter unit.

Last year, we made significant improvements in process safety performance by leaning into our company culture that prioritizes safe and reliable operations. Through our Business Transformation initiative, we activated opportunities for innovation, improvement and accountability while also carrying out the company's Digital and Culture Evolution strategies. CPChem's Digital Transformation harnesses modern solutions to optimize operations, empowers employees to work safely and more effectively, and better meet the needs of customers.

Culture Evolution reinforces the soft skills of our workforce, highlighting strengths and identifying opportunities for improvement. The Culture Evolution program aims to create an atmosphere where employees thrive, and this program will play an important role in CPChem's continued success.

In 2021, we enhanced the strategies we plan to use to achieve CPChem's ESG-related goals and to expand our positive impact. An example of this includes scaling production of Marlex® Anew™ Circular Polyethylene and the installation of a robust governance structure to guide ESG goals.



"Our momentum and mounting progress in 2021 were achieved because of the high caliber of this company's employees, whose dedication to our mission stirs action and drives us to continue contributing to a more sustainable future."

Justine Smith
Senior Vice President, Petrochemicals



Looking Forward

At CPChem, we are proud that our products can offer access to clean water, food supplies, medical care and provide many significant benefits to society that are often overlooked. We believe that demand for our products will grow as countries, communities and individuals advance and develop their economies. CPChem is poised to meet this demand and will maintain its industry-leading position by operating safely and reliably, amplifying its business value, materializing sustainable growth projects, and advancing its ESG efforts.

The materials we produce will play a considerable role in achieving a lower carbon, circular economy for petrochemicals, and we are prepared and eager to collaborate with consumers, brand owners, communities, and regulators to promote this global transition. At CPChem, we are accelerating change for a sustainable future.



Performance by design.
Caring by choice.™

ENVIRONMENTAL PERFORMANCE

201620172018201920202021

GRI Disclosure

PLASTIC MANAGEMENT

Reported plastic releases from facilities (pounds)	-	-	4	0.02	0	0
Plastic recycled from facilities in the U.S. (millions of pounds)	-	-	31.5	29.2	31.3	28.2

ENERGY

Energy Consumption ¹ (million MMBtu)	170	163	204	206	209	206	302-2
Electricity	28	26	33	32	33	32	
Fuel (Net purchased and produced)	109	105	136	137	141	139	
Steam (Net purchased and produced)	33	32	35	36	35	35	
Energy Index ²							302-3
Energy index (Operations in the U.S.)	1.02	1.00	0.98	0.94	0.94	0.98	
Energy index (Operations in Europe)	0.83	0.81	0.78	0.77	0.81	0.73	
Energy index (Operations in Singapore)	0.94	0.92	0.92	0.90	0.91	0.93	
Energy Intensity ³ (Btu/lb. of product)	5,407	5,368	5,687	5,188	5,274	5,547	302-4
Energy Intensity ³ (Current year/average of prior three years)	-	-	-	0.95	0.97	1.03	
Energy Intensity ³ (Current year/previous year)	-	0.99	1.06	0.91	1.02	1.05	

ENVIRONMENTAL PERFORMANCE

201620172018201920202021

GRI Disclosure

WATER

Total Water Intake ⁴ (thousand megaliters)	579	552	565	581	570	581	303-3
Surface water	43.1	38.5	45.8	49.9	48.1	46.4	
Ground water	0.8	0.6	0.6	0.6	0.8	0.7	
Seawater	533	510	515	525	509	527	
Third-party	3.0	2.6	2.7	4.0	4.3	6.1	303-4
Total Freshwater Intake (less seawater) ⁴ (thousand megaliters)	46.8	41.7	49.0	54.5	53.2	53.1	
Freshwater Intake Intensity ⁵ (liters freshwater/kg. product)	4.3	4.1	3.8	3.8	3.7	3.9	
Total Water Discharge ⁴ (thousand megaliters)	558	537	537	547	538	549	
Surface water	25.1	27.0	21.9	22.0	22.4	20.9	303-5
Ground water	0.2	0.2	0.2	0.2	0.2	0.2	
Seawater	531	509	514	523	515	526	
Third-party	1.4	1.3	1.2	1.3	0.9	1.8	
Total Freshwater Discharge (less seawater) ⁴ (thousand megaliters)	26.8	28.5	23.2	23.5	23.4	22.9	303-5
Total Water Consumption ⁴ (thousand megaliters)	21.8	15.2	28.1	34.2	31.1	31.9	

1. Energy consumption totals are reported on an equity basis and represent wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of Performance Pipe, AmSty and owner operations in Borger, Texas.

2. Energy index compares a facility's performance to a baseline year. A majority of our facilities use 2008 as a baseline year.

3. Energy intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem, with the exception of Performance Pipe.

4. Water intake, discharge and consumption totals are reported on an equity basis and represents wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of AmSty and owner operations in Pascagoula, Mississippi, as well as 100% stake is reported for a CPChem-operated joint venture in Baytown, Texas, and a CPChem-operated, owner-owned facility in Old Ocean, Texas. Total Water Consumption represents the difference between water intake and water discharge and includes water lost due to evaporation.

5. Freshwater intake intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem.

ENVIRONMENTAL PERFORMANCE

201620172018201920202021

GRI Disclosure

EMISSIONS							305-1 305-2 305-3 305-4 305-7
Total Direct (Scope 1) and Indirect (Scope 2) GHG Emissions Equity Share ⁶ (million tonnes of CO ₂ e)	-	-	9.4	8.9	9.3	9.5	
Direct GHG emissions (Scope 1)	-	-	7.1	6.7	6.9	7.2	
Indirect GHG emissions from electricity and steam (Scope 2)	-	-	2.4	2.3	2.5	2.4	
Total Direct (Scope 1) and Indirect (Scope 2) GHG Emissions Operated ⁷ (million tonnes of CO ₂ e)	-	-	6.4	6.1	6.4	6.5	
Direct GHG emissions (Scope 1)	-	-	4.6	4.3	4.5	4.7	
Indirect GHG emissions from electricity and steam (Scope 2)	-	-	1.9	1.8	1.9	1.7	
GHG Emissions Intensity ⁸ (tonnes CO ₂ e/tonnes product)	-	-	0.49	0.43	0.44	0.48	
Emissions Events ⁹	44	50	31	47	51	54	
Total Criteria Pollutant Emissions ¹⁰ (thousand tonnes)	10,632	11,635	13,000	11,320	11,442	11,715	
PM	674	636	636	627	644	644	305-7
SO ₂	1,482	888	819	808	741	754	
NOx	3,276	3,848	4,170	4,062	4,157	4,186	
CO	2,452	3,436	3,920	2,953	2,977	3,080	
VOC	2,749	2,827	3,455	2,870	2,922	3,051	
Criteria Pollutant Emissions Intensity ¹¹ (tonnes/thousand tonnes product)	0.67	0.73	0.73	0.57	0.57	0.64	

ENVIRONMENTAL PERFORMANCE

201620172018201920202021

GRI Disclosure

WASTE							306-3
Total Waste ¹² (thousand tonnes)	-	45.6	46.9	31.9	39.2	49.3	
Hazardous waste ¹³	-	14.6	14.4	11.1	15.2	12.4	
Non-hazardous waste	-	30.9	32.5	19.0	24.0	36.9	
Recycled ¹⁴	-	-	-	-	-	4.4	
Waste Intensity ¹⁵ (tonnes waste/tonnes product)	-	0.004	0.003	0.002	0.003	0.003	
Waste Diverted from Disposal ¹⁶	-	-	-	-	-	4.4	
Waste Directed to Disposal ¹⁶	-	45.6	46.9	30.1	39.2	45.0	307-1
Total Fines	-	-	-	8	9	11	
Total Amount	-	-	-	\$570,761	\$210,829	\$621,048	

6.

GHG emissions reported on an equity basis represent wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of owner operations in Borger, Texas, as well as a 100% stake reported for a CPChem operated owner-owned facility in Old Ocean, Texas. Totals are rounded to the nearest hundred thousand tonnes.

7.

GHG emissions reported on an operated basis represent 100% stake for wholly owned and joint venture operations which are operated by CPChem. Totals are rounded to the nearest hundred thousand tonnes.

8.

GHG emissions intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem. GHG Intensity is the ratio of the greenhouse gases emitted (pounds of CO₂e) divided by the products produced (pounds of product).

9.

A reportable emissions event includes air, water or land releases above the Reportable Quantity, exceedance of a water discharge limit (permit and regulatory), and emissions events as defined in local regulations or permit conditions that require immediate agency reporting. Emission events count includes wholly owned operations and operations in the Middle East.

10.

Criteria pollutant emissions data is reported on an equity basis and represents wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of Performance Pipe, AmSty and owner operations in Pascagoula, Mississippi, as well as a 100% stake reported for a CPChem-operated joint venture in Baytown, Texas, and a CPChem-operated, owner-owned facility in Old Ocean, Texas.

11.

Criteria pollutant emissions intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem, with the exception of Performance Pipe.

12.

Waste totals are reported on an equity basis and represents wholly owned operations and the equity stake for facilities where CPChem has only partial equity ownership, with the exception of AmSty and owner operations in Pascagoula, Mississippi and Borger, Texas, as well as a 100% stake reported for a CPChem operated joint venture in Baytown, Texas, and a CPChem-operated, owner-owned facility in Old Ocean, Texas.

13.

Hazardous waste data represents waste deemed hazardous by region specific definitions.

14.

Hazardous waste that was recycled for energy recovery.

15.

Waste intensity is reported on an operated basis and represents 100% stake for wholly owned and joint venture operations which are operated by CPChem.

16.

Representative of hazardous waste only.

SOCIAL PERFORMANCE

201620172018201920202021

GRI
Disclosure

EMPLOYEES

Total employees (as of Dec. 31)	4,881	4,812	4,730	4,805	4,715	4,760
Female	21%	21%	21%	21%	21%	22%
Male	79%	79%	79%	79%	79%	78%
Employees by Region and Gender						
North America	4,266	4,247	4,193	4,247	4,207	4,254
Female	20%	20%	20%	20%	20%	20%
Male	80%	80%	80%	80%	80%	80%
Europe	281	285	285	305	306	322
Female	26%	28%	27%	28%	29%	30%
Male	74%	72%	73%	72%	71%	70%
Asia Pacific	177	166	161	177	151	136
Female	54%	55%	56%	49%	54%	53%
Male	46%	45%	44%	51%	46%	47%
Middle East	157	114	91	76	51	48
Female	4%	5%	5%	8%	10%	10%
Male	96%	95%	95%	92%	90%	90%

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102-8

SOCIAL PERFORMANCE

201620172018201920202021

GRI
Disclosure

EMPLOYEES

Represented employees by region ¹						
North America	583	593	565	585	557	569
Female	11%	11%	11%	12%	11%	11%
Male	89%	89%	89%	88%	89%	89%
Asia Pacific	141	138	129	143	141	117
Attraction and attrition						
Total hires into organization	261	339	362	417	252	469
Attrition rate	-	7.9%	9.0%	6.9%	6.9%	9.1%
Voluntary attrition rate (less retirements)	-	3.3%	4.9%	3.7%	2.6%	3.8%
Parental leave utilization (total employees) ²						
Total employees (as of Dec. 31)	-	-	-	-	180	179
Total female	-	-	-	-	27	36
Total male	-	-	-	-	152	142
Total undisclosed gender	-	-	-	-	1	1

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401-1

401-2

1. Represented employees in Europe are not included due to privacy laws.
2. 2019 was the first full year in which the parental leave policy was in place. Data prior to 2020 is not included in the Performance Data Tables.

SOCIAL PERFORMANCE

201620172018201920202021GRI Disclosure

OCCUPATIONAL HEALTH AND SAFETY

Total Recordable Incidence Rate (Recordable injuries*200,000/hrs) ³	0.3	0.14	0.1	0.15	0.05 (0.18)	0.10 (0.21)	403-9 403-10
Combined employee and contractor Recordable Incidence Rate (excluding major capital projects)	0.16	0.14	0.11	0.15	0.05 (0.18)	0.10 (0.21)	
Employee Recordable Incidence Rate (excluding major capital projects)	0.11	0.17	0.08	0.07	0.05 (0.31)	0.09 (0.31)	
Contractor Recordable Incidence Rate (excluding major capital projects)	0.21	0.11	0.13	0.24	0.05 (0.06)	0.10 (0.00)	
Major capital projects Recordable Incidence Rate	0.56	0.14	0	0	0	0	
Fatalities	1	1	0	0	0	0	
Work-related Injuries	90	36	19	26	9	17	403-9
Employee work related injuries (excluding major capital projects)	10	14	7	5	4	8	
Contractor work related injuries (excluding major capital projects)	20	9	12	21	5	9	
Major capital projects work related injuries	59	12	0	0	0	0	
Fatalities	1	1	0	0	0	0	

SOCIAL PERFORMANCE

201620172018201920202021GRI Disclosure

OCCUPATIONAL HEALTH AND SAFETY

Work-related Ill Health	1	1	0	1	0 (23)	0 (19)	403-10
Employee work related ill health (excluding major capital projects)	0	1	0	1	0 (22)	0 (19)	
Contractor work related ill health (excluding major capital projects)	1	0	0	0	0 (1)	0	
Major capital projects work related ill health	0	0	0	0	0	0	
Fatalities	0	0	0	0	0	0	

TRAINING

Total employee training hours (Virtual and in-person training) ⁴	-	-	-	236,799	265,302	251,000	404-1
Average Hours of Training per Employee	-	-	-	49.4	56.3	52.8	

PROCESS SAFETY

Tier 1 and Tier 2 Process Safety Event Rate (events/hrs*200,000) ⁵	0.04	0.06	0.05	0.03	0.04	0.07
Tier 3 >10% of Tier 2 quantity threshold	0.18	0.32	0.35	0.31	0.38	0.39
Tier 1 Process Safety Severity Rate ⁶	0.01	0.1	0.04	0	0.07	0.11

3. TRIR is the number of recordable injuries, multiplied by 200,000, then divided by the total number of hours worked in a year. Data within parentheses indicate rates inclusive of confirmed work-related COVID-19 illnesses.

4. 2019 data only includes online training and does not include classroom training. 2020 data only includes months April through December for classroom trainings due to changes in tracking these courses. This disclosure does not include hours for any external trainings taken by employees and paid for by the company.

5. The total Tier 1 and Tier 2 events, divided by work hours, then multiplied by 200,000.

6. Tier 1 process safety events are ranked 1-4 based on severity. Tier 1 PSE Severity Rate = [(# of Level 4 ratings x 1) + (# of Level 3 ratings x 3) + (# of Level 2 ratings x 9) + (# of Level 1 ratings x 27)] / [Total Process Safety Work Hours x 200,000] where a Level 4 incident is the least significant Tier 1 event.

SOCIAL PERFORMANCE

2016

2017

2018

2019

2020

2021

GRI Disclosure

WORKFORCE DIVERSITY⁷

U.S. Employee Diversity						
American Indian/Alaskan Native	1%	1%	1%	2%	2%	2%
Asian	4%	5%	5%	5%	5%	5%
Black or African American	9%	9%	9%	9%	9%	9%
Hispanic or Latino	11%	12%	12%	14%	15%	15%
Hawaiian or Other Pacific Islanders	<1%	<1%	<1%	<1%	<1%	<1%
Two-or-more races	1%	1%	1%	1%	1%	1%
White	74%	72%	72%	69%	68%	68%
U.S. Managers Diversity						
American Indian/Alaskan Native	1%	1%	1%	1%	1%	1%
Asian	4%	4%	4%	5%	5%	6%
Black or African American	6%	6%	6%	5%	5%	7%
Hispanic or Latino	7%	8%	8%	9%	9%	10%
Hawaiian or Other Pacific Islander	0%	<1%	<1%	0%	0%	0%
Two-or-more races	1%	1%	1%	1%	2%	1%
White	81%	80%	80%	79%	78%	75%

405-1

7. Employees are not required to disclose information related to diversity and these figures represent the number of employees who voluntarily self-identified with one or more of the listed groups. Previous data on women and diversity have been restated due to a broad change in reporting boundary. We disaggregated visible diversity and employees of color into female and specific races. Headcounts have been restated from previous reports due to small headcount adjustments (due to backdated actions in our software applications). Manager is defined as a supervisor of at least one employee. Senior Leadership is defined using the Affirmative Action Program definition of 1A Managers.

SOCIAL PERFORMANCE

2016

2017

2018

2019

2020

2021

GRI Disclosure

U.S. Senior Leadership Diversity						
American Indian/Alaskan Native	1%	2%	2%	2%	2%	1%
Asian	4%	4%	4%	4%	4%	5%
Black or African American	2%	2%	4%	3%	2%	4%
Hispanic or Latino	4%	4%	5%	4%	5%	6%
Hawaiian or Other Pacific Islander	0%	0%	0%	0%	0%	0%
Two-or-more races	1%	1%	1%	1%	2%	1%
White	88%	87%	84%	86%	85%	83%
Global Employee Diversity						
Women among total employees	21%	21%	21%	21%	21%	22%
Women as managers	18%	19%	20%	20%	21%	21%
Women in senior leadership	11%	11%	15%	15%	18%	19%
Percent Headcount by Generation						
Silents (1925-1945) ages 76+	<1%	<1%	<1%	<1%	<1%	<1%
Baby boomers (1946-1963) ages 58-75	32%	29%	25%	22%	19%	15%
Generation X (1964-1978) ages 43-57	41%	41%	42%	43%	44%	44%
Generation Y (1979-1994) ages 27-42	27%	30%	32%	33%	34%	37%
Generation Z (1995 and later) ages 26-younger	<1%	<1%	1%	2%	3%	4%

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FINANCIAL PERFORMANCE *(in Millions, USD)*

	2016	2017	2018	2019	2020	2021	GRI Disclosure
Annual Sales and Other Operating Revenues	8,455	9,064	11,310	9,333	8,407	14,104	102-7
Total Liabilities	3,987	4,371	4,173	4,421	4,774	5,014	
Total Members' Equity	11,478	12,396	12,437	12,447	12,252	12,763	
Net Income	1,687	1,446	2,069	1,760	1,260	3,684	
Current Assets	2,695	2,944	2,820	2,554	2,816	3,381	
Total Assets	15,465	16,767	16,610	16,868	17,026	17,777	
Current Liabilities (Excluding Debt)	1,418	1,439	1,281	1,247	1,394	1,854	
Debt-to-Capital Ratio	15%	16%	16%	16%	16%	16%	201-1
Total Revenues & Other Income	8,769	9,378	11,696	9,443	8,266	14,403	
Capital Spend	1,953	1,477	553	795	525	726	
Community Investment	-	-	-	6.00	6.97	6.07	



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