
THE CARLYLE GROUP

Advancing the art of what's possible

CORPORATE SUSTAINABILITY REPORT 2019

We see opportunity where innovation and sustainable practices intersect. Pursuing these new avenues is one way we're creating value in meeting customers' needs while striving to be good corporate citizens.

EMPLOYEE ENGAGEMENT

CARBON NEUTRALITY

A COMMITMENT TO DIVERSITY

GOVERNANCE AND TRANSPARENCY

sustainability

MINORITY-OWNED
BUSINESS
OPPORTUNITIES

PHILANTHROPY

MEDICAL THERAPIES

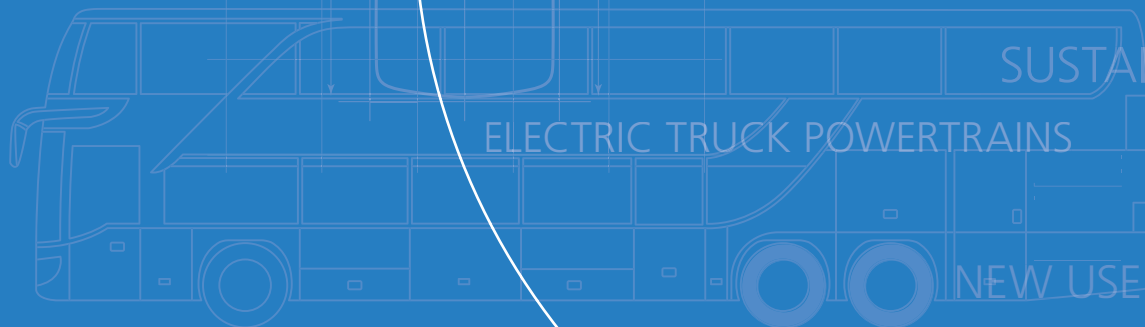
NEXT GENERATION PACKAGING AND PLASTICS

innovation

SUSTAINABLE PLATING PROCESSES

ELECTRIC TRUCK POWERTRAINS

NEW USE FOR TIRE SCRAPS



ESG



top line growth



happier customers



and a better world

The results:



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GLENN A. YOUNGKIN
Co-Chief Executive Officer

KEWSONG LEE
Co-Chief Executive Officer

TO OUR INVESTORS, OUR PARTNERS AND OUR COMMUNITIES

- Carlyle continues to be a leader among our peers in sustainability. After becoming the first major private investment firm to operate on a carbon-neutral basis in 2018, we recorded a second consecutive year with net zero emissions, in part through the renovation of our Washington, DC headquarters, which you can read about on page 31.

But at Carlyle, our commitment to strengthening our environmental, social and governance (ESG) impact goes beyond the firm's carbon footprint. It means embedding these values in our culture in ways that foster innovation and over time, seek to increase returns. That includes making sustainability a part of our investment process, helping us identify innovators who create value through commercially successful and sustainable solutions.

Across our portfolio, Carlyle supports the scaling of innovations designed to address specific sustainability challenges. Examples include our investments in companies such as Jeanologia (page 21), which has reengineered denim to lessen its environmental impact, or Logoplaste (page 22), which has designed new bottling systems to help decrease plastic waste. Our portfolio companies NOSA and PA Consulting are helping firms solve environmental health and safety issues, with the additional benefit of keeping Carlyle's platform up to date on best practices from South Africa to Europe.

Our investments also support some of the richest veins of sustainable innovation at our oldest, most traditional portfolio companies. With Carlyle's help, AxleTech (page 9) and Atotech (page 19), have been able to leverage their deep sector expertise and experience to develop sustainable solutions that meet the changing needs of the markets in which they operate.

We believe that a diverse team, bringing multiple perspectives, is critical to identifying unique investment opportunities. Our effort to build this diverse team is happening at all levels. We have hired several experts (profiled on pages 16–17) to contribute their specialized ESG knowledge

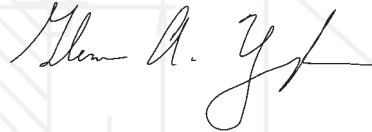
to our investment discussions. They oversee business-critical areas like human performance, information technology and security, diversity and inclusion, and of course, sustainability. By bringing this expertise in-house, we have created a knowledge base that we believe gives our investment teams a valuable edge.

Firm-wide, we are proud of our achievements in diversity and inclusion. For the past six years our Corporate Private Equity (CPE) Associate classes have been more than 50% diverse by gender or race.* Women hold 23% of senior positions in the United States. But there's more to be done and the firm's first-ever Chief Inclusion and Diversity Officer, Kara Helander, will lead the charge. Read about her on page 32 of this year's report. Unique partnerships (page 26) can also provide another source of diverse viewpoints to strengthen our origination and ownership processes. Innovative community partnerships in our investment in Terminal One at New York's JFK Airport helped de-risk a major infrastructure project, and working with the International Finance Corporation (IFC) to pilot a new tool for identifying energy efficiency features is intended to improve operations in new warehouses in China.

We are grateful for the trust you place in us as stewards of your capital. Sustainable innovation fostered by a diverse and inclusive culture remains an essential way in which we protect that capital from risk. We hope this year's report gets you excited about its potential for creating value and generating growth.



Kewsong Lee
Co-Chief Executive Officer



Glenn A. Youngkin
Co-Chief Executive Officer

Highlights

- We hired Kara Helander to be the firm's first-ever Chief Inclusion and Diversity Officer (page 32).
- In the latest One Carlyle initiative, Ortho Clinical Diagnostics hosted some of its fellow portfolio companies to share ESG best practices at its Raritan, New Jersey site with a six-acre solar farm (page 13).
- We backed electric trucking in a big way by investing in electric powertrains for trucks through AxleTech (page 9) and purchased carbon offsets to electrify trucking rest stops (page 31).
- We invested \$3.4 billion over the last 10 years in companies that align with the United Nations (UN) Sustainable Development Goals. We feature four such companies this year: Jeanologia, Liberty Tire Recycling, NOSA and Valcour Wind Energy.
- Women now manage \$108.6 billion of our assets as fund or business unit heads or co-heads (page 35).
- We added 13 new value creation case studies to our library, bringing our total to 60 since 2015.

*Diversity by Gender and Race includes Females, American Indian/Alaskan Native, Blacks, Hispanics, Native Hawaiian, Other and Two or more Races

Invest wisely and create value

These five words sum up everything Carlyle has stood for since our founding more than 30 years ago. Today we are a global investment firm with \$222 billion of assets under management across 343 investment vehicles.

\$222 billion

Assets Under Management

4

Business Segments

10

Core Industries



1,975 investors from 90 countries

Our investors range from public and private pension funds to university endowments, and sovereign wealth funds to unions and corporations. Pension funds are our largest group of investors. Their key stakeholders are pensioners who rely on strong, long-term investment performance.



One Carlyle in 33 offices and 20 countries

More than 1,700 Carlyle professionals work together seamlessly across funds, industries and geographies to deliver the knowledge and resources required to invest wisely and create value for our investors. We call our collaborative spirit One Carlyle.



Portfolio companies employ 650,000 people worldwide

Across our Corporate Private Equity and Real Assets segments, we have investments in more than 275 portfolio companies that employ more than 650,000 people worldwide. This large employee base is often a critical force in advancing sustainability initiatives.



Support for economic growth in local communities

“Over the past decade, ‘growth’ investments, including direct investments into founder-owned private businesses, have come to account for a much larger share of Carlyle’s corporate private equity portfolio,” says Jason Thomas, Director of Research at Carlyle. “The returns on these investments often depend much less on cost reductions than they do on sustained growth in portfolio company sales and employment.”

All data as of March 31, 2019.

The three goals guiding our sustainability strategy

Every day we see how expertise in ESG issues increasingly provides important data to assess investment decisions as sustainability influences portfolio company customer preferences, enters into competitive dynamics, brings new ideas for operational efficiency and helps engage employees.

At Carlyle, we focus on three goals to better integrate ESG risks and opportunities in our investment process and within our own firm:

1

Build strong ESG governance and capabilities

We work to ensure our investment process formally integrates ESG expertise and ESG issues are monitored at the board level.

2

Create value for investors

As part of the investment process, we evaluate risks and seek opportunities to create value through ESG. Companies are developing innovative solutions that deliver new environmental or societal benefits while seeking to create tremendous value.

3

Lead by example among private investment firms

We particularly focus on improving our own practices in the areas of diversity and inclusion and management of Carlyle's carbon footprint.

1

BUILD STRONG ESG GOVERNANCE AND CAPABILITIES

Since 2008, we have worked to continuously strengthen governance and transparency, aligning the interests of our investors, portfolio companies and investment professionals. Good governance processes enable Carlyle to monitor current and emerging risks and provide investors with the transparency they require. Ensuring that our investment process integrates ESG considerations equips us to better identify and monitor the most relevant ESG issues and most significant market trends—reducing risk and creating value.

Integrating ESG considerations into each phase of our investment process

We've made significant strides in embedding ESG considerations into our investment process to reduce risk and drive growth across our asset classes. Our deeper integration of ESG issues and trends also brings new expertise to help teams understand early on in the process the evolving landscape of portfolio company customer and other stakeholder expectations, which can identify emerging risks and produce new opportunities. Building from our Guidelines for Responsible Investment established in 2008, we now follow a systematic process that includes integration at each phase:

Due diligence Strong ESG governance starts with a detailed assessment of risks and opportunities in due diligence. Prior to investment committee reviews, each deal is required to identify material ESG risks and opportunities and outline how they may be mitigated or managed. Expertise is highly valued, and we benefit from teams' often deep experience with a sector. We frequently align due diligence conversations around the Sustainability Accounting Standards Board (SASB) standards. Deal teams access additional input from our team of internal leaders on ESG issues such as environmental risks, workforce diversity or data privacy and security. Our "investment transaction dashboard" systematically catches gaps in ESG information that must be addressed before meeting with the investment committee. Our sustainability team estimates that instances of missing ESG information have steadily decreased in the past five years.

Ownership Our growing expertise on a variety of ESG issues now enables us to routinely create more top line value from understanding and capitalizing on ESG trends in the marketplace. Our deal teams' understanding of material risks has expanded through support from sustainability experts, whether from our own team or outside the company. Pages 16–17 describe the growth in capabilities that supports our investment professionals and enables earlier implementation of risk management strategies.

In particular, we see two pivotal roles for Carlyle investment professionals in their work as portfolio company board members bringing sustainability perspectives to the table:

- **Strategic decision-making**, including capital investments (research and development, acquisitions, etc.), new hires, customer engagement and response to incidents—all of which can add significant value to an investment if the right ESG expertise is available and connected to management. Our AxleTech example on page 9 illustrates how key board decisions helped management take advantage of new top line sustainability opportunities that are sometimes not identified during due diligence.

OUR POLICY: Carlyle Guidelines for Responsible Investment

Our 2008 policy draws on international standards, including the UN Principles for Responsible Investment and the UN Global Compact—and can be found at www.carlyle.com/citizenship. In 2018, 97% of boards in our private equity segment reviewed their operations in accordance with our policy.

Our sustainability team consistently challenges our deal teams to understand the intersection between ESG issues and core components of the business.

- **Systematic monitoring of ESG issues**, increasingly through Key Performance Indicators (KPIs), gives Carlyle the ability to not only stay abreast of key ESG developments but also drive new conversations among all board members, including independent board members. Several years of data from our Carlyle Europe Partners Fund shows the breadth and depth of data that we now collect; our team of ESG experts helps teams uncover the insights these KPIs provide (page 10).

Exit As investments reach fruition, Carlyle now has a growing body of case studies where teams have realized the value of sustainability initiatives. Our newest AxleTech example highlights the value at exit of sustainability-driven innovations.

Whatever investment platform our teams pursue, our sustainability team consistently challenges our deal teams to understand the intersection between ESG issues and core components of a portfolio company's business, including customer trends, input costs, competition and a strong and inclusive workforce. Therefore, when ESG initiatives create tangible value, most often it aligns with one or more of these value creation drivers:

VALUE CREATION DRIVERS



**Customer
Satisfaction**



**Operational
Efficiency**

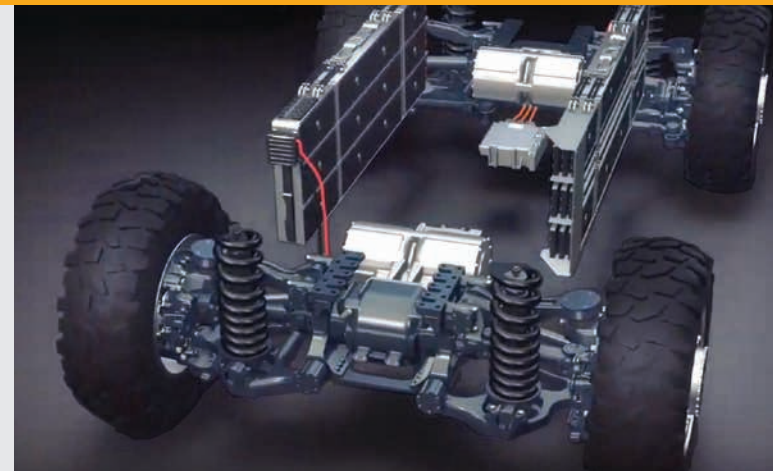


**Brand
Equity**



**Workforce
Strength**

VALUE DRIVERS



A strategic board decision finds a new growth edge

In-axle electric powertrain systems are setting new efficiency standards while preserving local air quality and reducing greenhouse gas emissions.

Soon after acquiring AxleTech International for a second time in January 2015, Carlyle supported its pivot from a traditional 100-year old company to a diversified business that is also a technology innovator in the electric vehicle space. AxleTech is a premier provider of powertrain systems and components for heavy-duty commercial and defense vehicles. With Carlyle’s support, AxleTech entered into the design, engineering and manufacturing of efficient powertrain systems for on-highway electric vehicles—including terminal tractors, lift trucks and transit buses.

Bill Gryzenia, CEO of AxleTech, says, “Carlyle’s team had the judgement to allow us to invest in a related but new area for us, signing off on hires of new types of engineers and software experts. The board’s calculated risk is paying off big. After first identifying electric vehicles as an opportunity for growth four years ago, AxleTech projects sales to double in the next 24 to 36 months. Numerous customers asked us to work on electrified axle solutions.”

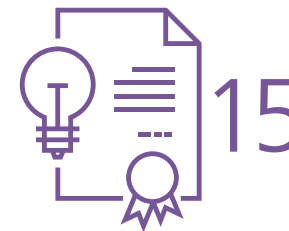
AxleTech developed “power-agnostic” in-axle electrification technology—full battery electric, hydrogen fuel cells, range-extending technology or even hybrids—to compete with fossil fuel vehicles and replace diesel buses with compact and powerful systems. Instead of the conventional longitudinal drivetrain platform, AxleTech designed its electric powertrain technology to improve performance, efficiency, cost, maintenance support and packaging. AxleTech’s e-axle solution offers a ~6% efficiency loss compared to the conventional ~10% efficiency loss.

Renowned engineering talent and strategic partnerships with key industry leaders have accelerated innovation and growth. Adam Glucksman, Carlyle Managing Director, says, “The electric vehicle industry is burgeoning, propelled by more robust technology and infrastructure and an enabling regulatory environment. AxleTech customers wanted to be a part of this trend, to improve their sustainability, lower their operating costs and maximize electric vehicle efficiency.”

After several years of investment and innovation, AxleTech sold the Electric Vehicle Systems unit for \$125 million against about \$20 million in capital spent on the project.



INDUSTRY	Transportation
REGION	United States
FUND	Carlyle U.S. Equity Opportunity Fund
INVESTED	January 2015
STATUS	Current



15 electric vehicle patents filed by AxleTech in just the last 18 months—more patents filed than in the last 10 years

1,100+

1,100+ miles traveled on a single charge using the powertrain, setting a world record

How Is ESG data used?

As described on page 8, ESG KPIs provide key information for a board of directors to monitor challenges and opportunities, assess performance relative to previous years and compare data across the portfolio where appropriate. More specifically, we increasingly use these indicators to help improve our:

Troubleshooting If we see employee turnover above a goal level at Comdata, one of our telecom companies, lessons learned from other companies can be brought to the management team. For example, packaging innovator Novolex (page 23) found that offering part-time employment in plants located in low-unemployment regions reduced their turnover rates and facilitated recruitment.

Identification of cross-cutting issues Multiple companies today face challenges in obtaining recycled materials to meet customers’ specifications—whether sourcing recycled polyethylene terephthalate (PET) at packaging developer Logoplaste (page 22) or finding recycled fiber for Dubl Life® bag products (page 23).

Strategic purchasing Several companies in our portfolio purchased a high percentage, if not 100%, certified palm oil. Carlyle can provide support on cost and availability data for this raw material input.

Marketing and communications ESG KPIs provide new data resources and information helpful to communications and marketing teams, whether for company marketing materials, sales team training or employee communications.

Assessment of overall strengths and weaknesses KPIs provide measurable ESG performance indicators for our portfolio at scale, across sectors, regions, sizes and company maturity.

Carlyle Europe Partners’ leadership in developing ESG KPIs is in its third year. Our investor template includes 19 companies, and our investors, investment professionals and management teams use this data.

What are we tracking? We develop company-specific KPIs based on material issues for each relevant sector and geography, but our data shows that ESG KPIs typically track goals and progress in seven core areas:

1. Environmental footprint of operations (air, water, waste, energy metrics)
2. Product stewardship (metrics on design improvements or product innovations)
3. Supply chain management
4. Workforce health and safety
5. Workforce diversity
6. Employee satisfaction (metrics on wages and measures of engagement)
7. Data security

Material KPI issues reported by company

COMPANY (INDUSTRY)	ENVIRON- MENTAL FOOTPRINT	PRODUCT STEWARD- SHIP	SUPPLY CHAIN	HEALTH/ SAFETY	DIVERSITY	LABOR PRACTICES/ ENGAGE- MENT	DATA SECURITY/ PRIVACY
COMPANY A (AEROSPACE)	█		█	█		█	
COMPANY B (APPAREL)			█			█	
COMPANY C (APPAREL)	█	█			█		
COMPANY D (APPAREL)			█		█		█
COMPANY E (BUSINESS SERVICES)					█	█	█
COMPANY F (BUSINESS SERVICES)					█	█	
COMPANY G (BUSINESS SERVICES)					█	█	
COMPANY H (CHEMICALS)	█	█		█		█	
COMPANY I (CHEMICALS)	█			█			
COMPANY J (FOOD & BEVERAGE)	█		█	█			
COMPANY K (FOOD & BEVERAGE)	█		█	█			
COMPANY L (FOOD & BEVERAGE)		█	█	█			
COMPANY M (MANUFACTURING)	█		█	█		█	
COMPANY N (MANUFACTURING)			█	█			
COMPANY O (MANUFACTURING)	█	█		█			
COMPANY P (MANUFACTURING)	█		█	█		█	
COMPANY Q (PACKAGING)	█	█	█	█			
COMPANY R (PACKAGING)	█	█		█			
COMPANY S (TRAVEL & LEISURE)	█					█	
NUMBER REPORTING OF 19 TOTAL	12/19	10/19	11/19	12/19	5/19	9/19	3/19

Presented for illustrative purposes only

VALUE DRIVERS



Improving health and safety performance

Professional services help businesses continually assess and improve their occupational health, safety and environmental risk and compliance management systems.

NOSA helps companies ensure the safety of their employees, contractors, customers and the environment. The company has been instrumental in reducing workplace-related injury and fatality rates in companies across various industries in South Africa since 1965 and China since 2005. Carlyle acquired NOSA in 2018 with plans to support NOSA’s digital transformation and international expansion.

With established subject-matter expertise in occupational health, safety and environmental risk management NOSA offers companies a comprehensive suite of consulting, audit, training and testing services as single or integrated solutions.

NOSA’s innovative and proprietary safety framework, the NOSA Integrated Five Star System, incorporates key elements of ISO 45001 and ISO 14001 and rates customers’ safety performance from one to five stars. Karl Campbell, CEO of Nosa, says: “Customers appreciate the system’s effectiveness; we recently had a large mining customer re-engage with NOSA. They used our system successfully until they were acquired by a U.S. firm that wanted to apply ISO standards to the mine. The mine’s safety record actually went backward. Now that they have re-embraced NOSA, we have seen a turnaround in incidents in that particular mine.”

Carlyle’s acquisition of NOSA sharpened the focus on sustainability within the business. One of the first steps Carlyle took following the acquisition was to implement within the first 100 days broad-based black economic empowerment (BBBEE) measures in line with legal requirements in South Africa and Carlyle’s responsible investment guidelines. Such measures included the granting of a 25% ordinary shareholding to an empowered staff trust*; increased and more targeted spending on corporate social responsibility, skills and enterprise development; and a strong emphasis on diversity and employment equity in senior management and board roles. The ongoing digital transformation in NOSA Training (move to e-learning from textbooks) and its back-office processes (move online from paper-based) are helping drastically reduce paper usage at NOSA.

With Carlyle’s support and growth orientation, NOSA has undertaken significant capital investments since 2018 to strengthen its subject-matter expertise—namely industry-specific audit protocols and training content—and upgrade its front- and back-end technology capabilities.

*Staff trust whose beneficiaries are NOSA employees from previously disadvantaged groups.



- INDUSTRY** Technology & Business Services
- REGION** Sub-Saharan Africa
- FUND** Carlyle Sub-Saharan Africa Fund
- INVESTED** April 2018
- STATUS** Current



Reduced injury and fatality rates in companies across five continents



Obtained broad-based black economic empowerment (BBBEE) certification, and 25% of the equity in NOSA is now allocated to black employees

How Carlyle adds ESG value

ESG considerations play a growing role in our investment process and the operations of our portfolio companies, often sparking innovative new products and services.

As part of our investment process, our investment professionals not only evaluate ESG risks, but increasingly identify opportunities for growth driven by market trends toward more sustainable products, services and companies. During our ownership period, we support portfolio company management teams' efforts to create new, more sustainable products and services and develop strategic ESG programs within their companies. Our ESG value drivers and case studies illustrate the range of opportunities for enhancing value through sustainability-driven innovation.

While backing strong ESG performers is a sound investment strategy, we aim to go further by providing a "Carlyle Edge" on sustainability issues, including in the following ways:

Lending expertise on ESG issues

Carlyle brings world-class ESG expertise to its portfolio companies, starting with our Chief Sustainability Officer, Jackie Roberts. Jackie, now in her sixth year at Carlyle, spent 20 years at the Environmental Defense Fund and holds a graduate degree in environmental management from Yale University. In addition to Jackie and the sustainability team, Carlyle maintains a network of preferred experts and consultants in all major ESG sub-fields, including Gare Smith of Foley Hoag, LLP, an expert in human rights and labor law. These internal resources and external references allow our portfolio companies to better understand the nature and materiality of their ESG issues and thus how to address them.

Market intelligence and One Carlyle platform

With more than 275 portfolio companies across the world, Carlyle has a unique edge when it comes to understanding the ESG needs that companies face. From "early warning" watch lists of ingredients in consumer products, to expectations of major buyers such as Walmart, to other portfolio companies' experiences with similar issues, Carlyle offers insights to our portfolio companies that go far beyond their scale. This market intelligence is key for identifying and developing sustainability solutions that can add value. The Carlyle portfolio itself also offers products and services that can be shared across the platform to solve ESG issues, such as NOSA's health and safety audits and procedures (page 11).

Capital injection to catalyze ESG progress

Numerous ESG initiatives have attractive financial returns but require upfront capital to get the ball rolling. Carlyle's investment, and the resulting capital injection, can help our portfolio companies get over that hump. One category of such projects are equipment upgrades, which typically make an operation more efficient from an environmental perspective in addition to serving a business imperative. In other cases, new personnel and expertise is needed to generate value from ESG initiatives, and capital helps acquire that talent. Finally, as with most of the case studies in this year's report, Carlyle's capital can fund research and development (R&D) to innovate solutions for ESG problems that affect the company's customers or operations.

Ortho Clinical Diagnostics

Carlyle portfolio companies share ESG successes and challenges at sustainability roundtable

In January 2019, the Environmental, Health and Safety (EHS) team at Carlyle portfolio company Ortho Diagnostics hosted a sustainability roundtable for fellow Carlyle portfolio companies at its Raritan, New Jersey headquarters. Companies in attendance included Albany Molecular Research Inc., Arctic Ice and Novolex.

Carlyle's Chief Sustainability Officer Jackie Roberts and Ortho's Raritan EHS Manager Tim Goddeyne welcomed all attendees for a productive day during which the Ortho EHS team shared sustainability and safety innovations, lessons learned and best practices. As a carve-out from Johnson & Johnson, an original member of the Dow Jones Sustainability Index in 2010, Ortho is one of our most mature companies on sustainability initiatives.

The portfolio company attendees, who each oversee sustainability in their roles, visited Ortho's six-acre solar farm. Then they toured Ortho's manufacturing operations, which produce the company's dry VITROS® system that, unlike traditional wet chemistry systems, does not require water or drains to operate.

"The roundtable provided a platform where we could learn from each other and discuss what works and, equally important, what does not work."

TIM GODDEYNE
ORTHO'S RARITAN EHS MANAGER



Expanding capabilities to invest in renewables and sustainable energy

The transition to a low carbon will require massive investment in renewable and sustainable energy infrastructure, since renewables now represent a supermajority of global additions to power generation capacity. As such, the rapidly growing renewables and sustainable energy sector represents a pivotal market trend, and Carlyle has responded by deepening and broadening our existing renewables investing experience.

This past year, Carlyle invested in building a top-tier team with deep investment and operational experience, including senior professionals who focus on investing capital or operating assets in the renewables sector on a dedicated basis. As announced in April 2019, Pooja Goyal will join Carlyle to lead our new Renewable and Sustainable Energy (RSEF) team, bringing nearly 15 years of experience investing in the renewables and sustainable resources sector.

While the RSEF team is comprised of new team members bringing deep sector knowledge and experience, it will also draw on insights from Carlyle's existing power, infrastructure and hydrocarbon businesses. Carlyle's diversified \$27 billion global energy platform operates more than 95 portfolio companies across 31 countries and six continents.*

Our RSEF investment team has experience sourcing verifiable projects and creating robust value creation plans. Under Pooja's leadership, our investment team will work in close coordination with the broader U.S. and international energy and power teams, to source, do due diligence, manage assets and optimize investments. As shown by our Valcour case study on page 15, our experience spans the full One Carlyle global platform, including Carlyle Power Partners.

We believe our global network of relationships, the firm's deep energy sector expertise and a new team with complementary experience will create unparalleled capabilities that can seamlessly plug into Carlyle's expansive platform.

*Data as of March 31, 2019

VALUE DRIVERS



Helping New York State reach its renewable energy goals

More than 400 turbines on six farms across the state generate power with wind.

New York’s renewable energy policy requires that 50% of the state’s electricity come from renewable resources by 2030. Last year Carlyle made a major investment in renewable energy to help the state achieve this goal. The acquisition of the largest operating wind platform in New York, renamed Valcour Wind Energy, represents about 29% of the state’s annual wind power production. It comprises 408 turbines across six independent wind farms in Northern and Western New York.

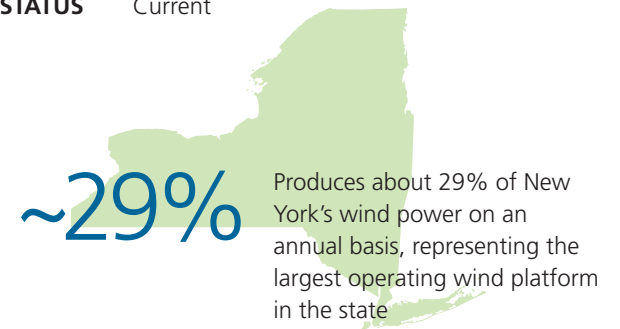
Carlyle acquired the 612 megawatts (MW) operating wind generation portfolio—its first wind investment—from Noble Environmental Power through Carlyle Power Partners II (CPP II), which invests in power generation and related assets, primarily in North America. This portfolio of assets is 100% owned by CPP II and operated by Cogentrix Energy Power Management, Carlyle’s dedicated power generation management platform and the technical and operating platform for power generation assets.

J.B. Oldenburg, Carlyle Vice President, says Carlyle began working to optimize the Valcour Wind Energy platform soon after the acquisition was complete. “We worked closely with Cogentrix to identify opportunities to reduce operating costs by up to 5% annually and optimize asset operating parameters to improve efficiency,” says J.B. “With a series of planned upgrades we expect to extend the operational life and increase production of the assets.” Carlyle is also working to dissect historical wind data and other meteorological aspects in the region to further optimize the wind farms. “This example shows how we are working to factor in changes in weather patterns, climate risk and resiliency to continue to provide New York State with zero-carbon energy for an extended period,” says J.B.

As part of the acquisition process, Carlyle worked with more than 450 land owners who lease land to Valcour Wind Energy for the wind turbines to assure them that the transition from Noble to Carlyle ownership would be smooth. “Community relations are very important to us,” says J.B. “The Cogentrix Energy team initiated a proactive outreach program, including town hall meetings with land owners and local recruiting events. We want to align with the communities in which these assets operate to ensure the greatest return for all parties involved.”

VALCOUR WIND ENERGY

- INDUSTRY** Energy & Power
- REGION** United States
- FUND** Carlyle Power Partners II
- INVESTED** December 2018
- STATUS** Current



612 MW

612 MW operating wind generation portfolio



JACKIE ROBERTS
Sustainability
and ESG issues

MIKE HAAS
Cyber security
and data privacy



INNOVATING IN OUR INVESTMENT PROCESS: SPECIFIC EXPERTISE WITHIN CARLYLE

During the last five years, we innovated our own investment process by integrating new types of expertise in ESG issues. In 2014, Jackie Roberts became our Chief Sustainability Officer, followed in quick succession by additional in-house experts whose unique perspectives are incorporated into the investment process so that today's investment discussions differ from those of even a few years ago.

Maximizing ESG opportunities

Jackie Roberts originated the position of Chief Sustainability Officer to bring comprehensive sustainability expertise into the investment process. "My responsibility is to bring my experience with environmental and social issues to support successful investments—which means that I support three key constituencies: our investors, investment professionals and our portfolio companies," Jackie says. "Whether reducing risk or seeing new opportunities, my role is to help articulate how successfully identifying and managing these issues builds portfolio company customer satisfaction, enhances brand value, creates operational efficiency or builds a top-tier workforce."

Protecting data and privacy

Mike Haas, who began working for Carlyle in 2016, serves as the Chief Information Officer of our firm and our portfolio. He focuses on information technology and business process due diligence and transitions across all business sectors, supporting cyber security and data privacy—which are considered ESG issues because of their social component. Mike says, "Cyber security is now a standard part of all diligence. Building our capabilities to address risk and remediation plans is part of our value creation program."

For the last 12–18 months, Mike's team assessed our portfolio companies and their progress against standards such as the ISO 27001 framework. All portfolio companies were asked to complete an independent third-party assessment of their current cyber risk profile and cyber security improvement program. Mike says, "We reviewed the output of the assessment with

each portfolio company and helped ensure they put a strong improvement plan in place. Cyber security threats continue to change so it is something you are never done with. Nobody has a completely risk-free environment.”

Improving organizational performance

Mindy Mackenzie, Chief Performance Officer, spent her career helping build businesses and leaders to be the best they can be. She now brings her unique brand of impact to our portfolio companies, helping them maximize organizational, operational and leadership effectiveness. Mindy brings insights around managerial strengths and weakness to our deal teams, infusing innovation into our own investment process.

Mindy also developed a proprietary Organization Health Survey focused on private equity firms that measures known drivers of performance to help optimize our portfolio companies' performance. “Companies everywhere administer organization surveys,” says Mindy. “We simplified the best of what is in the marketplace and designed a solution that provides a holistic view on key issues supporting or inhibiting performance.” Results can be used to design a customized action plan for a company or establish a baseline for ongoing measurement and tracking.

Incorporating diversity and inclusion into the investment process

Kara Helander, who joined us as our first Chief Inclusion and Diversity Officer in October 2018, defines diversity and inclusion as encompassing the meaningful differences that will enhance our business. “Our approach to diversity and inclusion is about opportunity,” she says. “That means tapping the wide range of diverse perspectives, backgrounds, knowledge bases, interests and cultural identities at Carlyle to deliver exceptional performance to our investors and capitalize on our greatest business opportunities.” Kara adds that being able to see opportunities and seize them is fundamental to Carlyle’s success. “Teams that are diverse and inclusive view opportunities from a variety of angles and use different models and approaches to assess them. The result is better decisions and better outcomes. That’s why we seek diversity within our own teams and at our portfolio companies.”



MINDY MACKENZIE

Organizational, operational and leadership effectiveness



KARA HELANDER

Diversity and inclusion

2

CREATE VALUE FOR INVESTORS

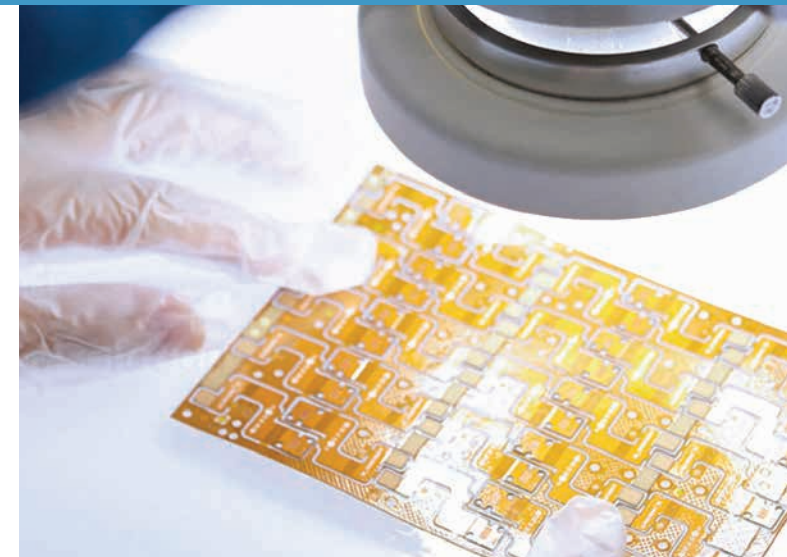


"We recognized the power of a trusted brand name ushering in innovative technologies."

PETE CLARE
MANAGING DIRECTOR,
CO-CHIEF INVESTMENT OFFICER
AND CO-HEAD OF U.S. BUYOUT

Carlyle supports our portfolio companies in their journeys to develop innovative strategies that create or improve value. Increasingly, sustainability is the spark for innovations that drive improvements and growth for a company. Whether creating environmental or social benefits, we most often see that such innovations directly connect to four primary value drivers (page 8). When innovations reflect the priorities of key stakeholders such as customers, employees and investors, the business benefits become more obvious. These value creation strategies come to life in our library of case studies, with examples from a variety of funds, geographies and sectors.

VALUE DRIVERS



Metal plating gets a sustainability makeover

Through innovations in plating production, customers reduce the use of hazardous chemicals, waste and water, as well as increase their performance and profits.

As a 100-year-old plating division that Carlyle carved out of French oil and gas giant Total in 2017, Atotech is hardly the stereotype of an environmental startup. However, it is precisely their deep plating expertise that allows the Germany-based firm to innovate and develop sustainable plating processes that keep it ahead of its competition.

Atotech's goal is to become the leading supplier of sustainable plating systems. To that end, 38% of their R&D investments are dedicated to achieving sustainability goals. These investments yielded breakthroughs for the environment and cost savings: the first electroplating hard chrome process free of hexavalent chromium, a milestone for the entire industry; the Uniplate® system for printed circuit boards that enables customers to consume 45% less water and 45% less chemical volume to plate their products than standard vertical plating lines; and Ecopact® CP, a direct metallization process free of cyanide and formaldehyde that reduces customers' use of water up to 28% and chemical volume up to 60%.

Martin Sumner, Carlyle Managing Director, says, "Atotech strongly believes in a more sustainable plating industry. Their new product lines better respond to customer needs, use materials and energy more efficiently and lower the company's environmental impact—both in their own operations and those of their customers." The products serve Atotech's ambition to remove from their processes all carcinogenic, mutagenic and reproductive toxic substances; heavy metals; toxic substances such as cyanide, hexavalent chromium or nickel compounds; and allergens.

Atotech is committed to the highest ESG standards. The company maintains ISO 14001 environmental management certifications in its most important geographies, including China, Germany, the United Kingdom and the United States. It maintains an excellent safety record of 1.31 incidents per 1 million working hours, well ahead of chemical industry averages. Atotech works to ensure no conflict minerals are sourced in the making of their products. And the company designs its production equipment to reduce water, energy and materials use: primary energy consumption decreased 29% across production sites and major technology centers between 2016 and 2018.



INDUSTRY	Industrial
REGION	Europe
FUNDS	Carlyle Asia Partners IV Carlyle Europe Partners IV Carlyle Partners VI
INVESTED	January 2017
STATUS	Current

38% 38% of R&D projects devoted to sustainable goals

29% 29% reduction in primary energy consumption across production sites and major technology centers

2,100+ 2,100+ registered active patents, of which 1,700 are for chemical processes and 400 are for equipment



INDUSTRY	Industrial
REGION	Europe
FUNDS	Carlyle Europe Partners IV Carlyle International Energy Partners Carlyle Partners VII
INVESTED	October 2018
STATUS	Current

20%

20% revenue from eco-premium products with customer benefits

>45%

>45% of all products have sustainability benefits

-3%

CO₂ emissions in own operations is down by 100,000 tons, which equals a reduction of 3%

50%

Almost 50% renewable energy usage

VALUE DRIVERS



Essential chemistry for a sustainable future

Innovative specialty chemicals support customers' desire for better performing solutions that do not come at the environment's expense.

With corporate roots dating back to the 1830s, Nouryon, carved out of AkzoNobel, ranks among Carlyle's oldest portfolio companies yet remains among our most productive innovators. As a specialty chemicals manufacturer, Nouryon has both the technical expertise and business necessity to capitalize on customers' interest in more sustainable chemistry for their plating of everyday products.

Carlyle's team spotted Nouryon's pre-existing strength on ESG issues broadly and their R&D pipeline as key assets in the business. In 2018, the year of our acquisition, Nouryon reduced its CO₂ emissions by 3%, sourced 47% of its energy usage from renewable sources and identified 20% of its revenue as linked to their "eco-premium" category for products that offer a sustainability advantage to comparable solutions. Nouryon routinely produced environmental innovations, including a joint venture with Evonik to reduce the ecological footprint of chlorine production at the company's Ibbenbüren facility in Germany by up to 30%. In 2017, the U.S. Environmental Protection Agency named Nouryon's surface chemistry business "Safer Choice Partner of the Year."

Upon investment, Carlyle appointed Charlie Shaver as CEO. He previously served as CEO of our portfolio company Axalta, which has been featured in several of our annual citizenship reports. Axalta found success in developing more sustainable paints and coatings that address customers' environmental concerns. "When I came to Nouryon, I was excited to see a rich and diverse set of innovations, many linked to more sustainable chemistry," Charlie says. "Our challenge in this investment environment is to find the match between the right innovative R&D program and the best market opportunity."

Building R&D at Nouryon continues to be a priority. In our short period of ownership, Nouryon has already announced a series of innovations with the potential to solve sustainability challenges for its customers, including: a line of bio-based polymers for detergents and personal care, developed in partnership with Itaconix; a proposal to build a waste-to-chemicals facility in Rotterdam, the Netherlands, in conjunction with Shell; a more sustainable, water-miscible defoamer created for use in household and industrial cleaners; and a more sustainable adhesion promoter, derived from renewable resources, for use in asphalt mixes. And Nouryon continues to invest in operational efficiency, for example by increasing the use of bio-steam at its operations in Hengelo and Delfzijl, the Netherlands, that reduces up to 150,000 metric tons of CO₂ equivalent per year. As particular innovations come to market, the "eco-premium" line is expected to grow its contribution to revenues and the bottom line.

VALUE DRIVERS



Eco-efficient technologies reshape the denim industry

Innovations in textile finishing improve the denim manufacturing process by reducing water consumption and environmental impact.

“A particular strength of Carlyle’s team is spotting investments where consumer sustainability concerns and innovative technologies come together to produce incredible products,” says Gregor P. Boehm, Carlyle Managing Director and Co-head of Europe Buyout. “Jeanologia’s efficient and sustainable production technologies for the denim industry perfectly fits this bill, and Carlyle is uniquely positioned to be their partner of choice.”

Established in 1994 and headquartered in Valencia, Spain, Jeanologia pushes for an ideally sustainable and eco-efficient denim industry. Their laser, G2 ozone and e-flow system offer design possibilities and garment finishes, while saving water, energy and chemicals, and eliminating waste and toxic emissions. With clients in 61 countries, the biggest global market brands use the company’s disruptive technology to meet their sustainability goals.

Carme Santacruz, Creative Designer at Jeanologia, says, “It is a challenge to work from an environmental perspective, but it is one that does not put constraints on creativity. Rather, it opens our minds to new, better ways of doing things.”

One example is Jeanologia’s 5.Zero, the world’s first laundry plant that promises zero waste and pollution. The plant saves up to 85% on water and chemical usage in the textile industry and eliminates harmful and labor-intensive garment finishing processes. Another innovation is the new e-Mark 5 laser design software, which designers can use to digitize the garment finishing process and measure the environmental impact of finishes before a single stitch is made.

“We saw an opportunity to continue to transform the industry with Jeanologia and worked hard to build a strong relationship with its founder,” says Alex Wagenberg, Carlyle Managing Director. “Our investment will support the company’s growth internationally, their continued R&D of technological solutions and quickly moving these solutions into the market. We believe backing Jeanologia with Carlyle’s strong brand will help accelerate adoption of this technology across all players in the industry.”

Jeanologia™

INDUSTRY Manufacturing
REGION Europe
FUND Carlyle Europe Partners V
INVESTED December 2018
STATUS Current

~15%

~15% of the six billion jeans produced annually are made with Jeanologia’s technology

85%

85% saved on water and chemical usage in the textile industry from pioneering 5.Zero laundry plant



Transforming packaging to meet sustainability concerns

Tube feed packaging and a non-hydrocarbon aerosol spray showcase packaging innovations that lead to better usability and less waste and pollution.

When Carlyle Europe Partners IV invested in Portuguese plastics packaging firm Logoplaste in 2016, they saw an opportunity to support the company's creative solutions for improving the usability and environmental profiles of packaging.

Nutricia's OpTri bottle is one such innovation, designed to make nutraceutical feeding easier for patients, caregivers and health care providers. OpTri offers new features in the tube nutrition market: fully collapsible, easier grip, bigger eye for the hanging hook and a more hygienic safety cap. The bottle contains six layers of high-density polyethylene (HDPE) plastic to protect the product from oxygen. Most importantly, with this all-in-one bottle, patients no longer need to transfer their liquid nutrition from cartons to a separate pouch delivery system, entirely eliminating "double packaging" and difficult-to-recycle cartons.

OpTri is recyclable and reclaimable, with waste plastic from the production process re-used and re-integrated into the manufacturing process. It produces 21% less CO₂ emissions than the previous pouch.*

Paulo Correia, Chief Technology Officer of Logoplaste, says, "We worked with Nutricia for four years to develop the functionality of an all-in-one, ready-to-use bottle that is convenient to hold but collapsible like a pouch. OpTri meets the needs of consumers and promotes sustainability at the same time. We launched the concept in France, Germany, The Netherlands and Belgium, and we're excited that other European markets will follow."

Another packaging innovation arose from Logoplaste's partnership with Procter & Gamble and Dutch firm AFA Dispensing: a propellant-free bottle with no need for pressurized gas, making it aerosol-free. Procter & Gamble wanted to integrate AFA's spray in their portfolio, and Logoplaste developed the industrial platform to produce the containers that did not exist at the time. The bottle has two layers: polyethylene terephthalate (PET) outside and HDPE inside to cover the product.

Carlos Robles, Carlyle Director, says, "If this unique non-aerosol spray packaging moves forward positively, we could see other consumer-based products move to this technology within five years. Logoplaste's Innovation Lab continuously develops these types of user-friendly packaging solutions to help its clients meet their sustainability goals."

Logoplaste

INDUSTRY	Industrial
REGION	Europe
FUND	Carlyle Europe Partners IV
INVESTED	October 2016
STATUS	Current

-85%

85% less water used during nutraceutical feeding bottle's manufacturing process than the previous pouch*

0

Zero non-recyclable multilayer cartons in their liquid nutrition delivery system

*based on anticipated annual volumes, according to Nutricia

VALUE DRIVERS



A better way to reuse shipping boxes

Recycling corrugated boxes into raw material that is converted into paper bag products satisfies sustainability needs and diverts tons of waste.

E-commerce has led to a rise in the need for corrugated cardboard shipping boxes while the production of newsprint is on the decline due to the prevalence of online news. This decline in newsprint has resulted in excess capacity in paper mills and post-consumer cardboard waste that needs to be disposed of properly.

Novolex™, a leading manufacturer of paper and plastic packaging and products, has turned this market shift into an opportunity by partnering with paper mills faced with a diminished printing and writing paper market. Novolex created an innovative sustainability solution for its customers: recycle the cardboard shipping boxes into brown Kraft paper for use in new foodservice and carryout bags sold under its Dubl Life® brand.

Kelly Wolfinbarger, Senior Director of Strategic Sourcing at Novolex, says, “Our technical experts worked with paper mills to leverage their processes and develop the end-product specifications needed to recycle used corrugated containers. The process and products had to meet Novolex’s high standards for recycled fiber content in the Kraft paper that we would use to make our Dubl Life products. In 2018, Novolex sold more than 75,000 tons of Dubl Life products, serving thousands of retail, foodservice and grocery stores.”

Getting the recycled materials to meet Novolex specifications required collaboration between the company and its suppliers. Suppliers of recycled paper materials were selected on the basis of their manufacturing capabilities, capacity and the technology at their disposal. Location was also a factor—keeping suppliers close to Dubl Life facilities would reduce transportation costs and emissions. In turn, suppliers welcomed the opportunity to work with Novolex since their mills producing newsprint paper were operating below capacity. The initiative enabled them to improve their return on invested capital and support jobs.

“Dubl Life is a great example of reduce, reuse and recycle,” says Phil Rozenski, Senior Director of Sustainability at Novolex. “This process illustrates how materials can be recycled and be part of the circular economy, which is the sustainability goal for our products. It’s not just about producing a quality bag. Dubl Life showcases how we collaborate with suppliers, innovate, provide jobs and support local communities that want to reduce waste.”

Looking ahead, with the investment provided by Carlyle, Novolex is examining opportunities to expand its production of recycled material to make Kraft paper at additional supplier mills and continually searching for additional ways to reduce the environmental footprint of packaging.



- INDUSTRY** Industrial
- REGION** North America
- FUND** Carlyle Partners VI
- INVESTED** December 2016
- STATUS** Current



100% recycled fiber in the Kraft paper used for Dubl Life® products, 60% of which is post-consumer corrugated material

123+

123+ tons per day of old corrugated cardboard used and diverted from landfills



VALUE DRIVERS



Recycling scrap tires proves its value

A new evaluation model uncovers how much the environment can benefit from recycling and reusing end-of-life tires as the base of smart, sustainable products.

The United States generates nearly 300 million scrap tires every year, which presents an enormous challenge for the waste management ecosystem. Historically, most of these tires would end up in a landfill, or worse, in a dangerous tire pile. Liberty Tire Recycling, the premier provider of tire recycling services in the United States and Canada, works to divert these scrap tires from the waste stream. The company transforms tires into raw materials for productive secondary uses, such as molded rubber goods, rubberized asphalt, landscape mulch and tire-derived fuel.

Seeing the potential value in such a solution, Carlyle initially invested in the company in August 2016 and ultimately acquired a majority equity stake in December 2017. While Carlyle knew that recycling tires frees up space in landfills, reduces environmental risks and produces sustainable alternatives, it had not quantified these benefits. Carlyle felt a precise model for measuring this impact could add value to Liberty Tire’s business by helping to guide its strategic decision-making, provide a selling point to customers and create an attractive profile for investors.

As a result, Liberty Tire engaged Bridge House Advisors, an environmental services firm, to create an impact model based on data from Liberty Tire and the industry. The types and magnitudes of the impacts that were identified and calculated were substantial. For example, rubberized asphalt saved 249 tons of CO₂ per lane mile paved compared to traditional asphalt, and even prevented 1 death and 161 injuries every year per 3,220 paved lane miles of road due to improved safety performance, particularly in wet conditions. The value of diverting volumes of tires from landfills varied by state based on capacity, indicating where Liberty Tire’s services were most valuable.

Thomas Womble, CEO of Liberty Tire, says, “We are constantly developing and testing new technologies to reuse tire material and conserve natural resources. The analysis of Liberty Tire’s positive impact on the environment and public safety underscores the value of our tire recycling services to our customers and communities.”

- INDUSTRY** Industrial
- REGION** North America
- FUND** Carlyle Strategic Partners IV
- INVESTED** August 2016
- STATUS** Current

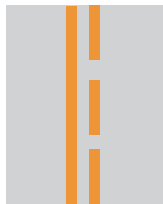


150 million

150 million scrap tires diverted from the waste stream each year

249 tons

249 tons of CO₂ saved by using rubberized asphalt per lane mile paved compared to traditional asphalt



VALUE DRIVERS



Changing consumer behavior one phase at a time

An innovative marketing approach to reduce the use of plastic straws in fast food dining created a win-win for the company, customers and the environment.

McDonald's Hong Kong works to continuously improve its environmental footprint and customer service. One year after Carlyle's investment in Grand Foods Holdings Limited, a quick service restaurant chain operator that manages McDonald's restaurants in China and Hong Kong, McDonald's Hong Kong collaborated with Ocean Park Conservation Foundation Hong Kong (OPCFHK) to become a "No Straw Partner" and eliminate plastic. Plastic straws are generally not compatible with recycling or composting programs. With more than 240 restaurants throughout the territory, McDonald's Hong Kong serves around one million customers per day and became one of the largest food chain companies participating in the campaign and a major contributor to the overall reductions targeted.

Given customers' long tradition of using straws, McDonald's Hong Kong developed an innovative, phased marketing approach to bring customers into the challenge. Leading up to the campaign, they rolled out "No Straw Monday" via press releases, an updated sustainability report, in-store communications and digital and social media messaging. They kept the restaurants' straw dispensers empty, and staff did not offer straws unless customers asked for them. Feedback showed that customers accepted the change as environmentally positive and one that did not alter their meal experience. Due to the success of the campaign, "No Straw Monday" expanded to "No Straw Every Day" in December 2018.

By implementing several environmental initiatives, including phasing out foam packaging, reducing the use of plastic straws and introducing wooden stirrers, McDonald's Hong Kong expects to reduce its single-use plastic usage by 30% every year. OPCFHK estimates the annual consumption of plastic straws in Hong Kong was reduced by more than 260 million in 2018.

Randy Lai, CEO at McDonald's Hong Kong, says, "It was gratifying to see our marketing put to good effect, with customers changing an entrenched behavior pretty quickly. The two-step introduction was an effective approach to change behavior and a great model for the future. Today, requests for straws are few and far between."



McDonald's Hong Kong

INDUSTRY	Consumer & Retail
REGION	East Asia & Pacific
FUND	Carlyle Asia Partners IV
INVESTED	July 2017
STATUS	Current



Getting the most value by finding the best partners

Often the best way to grow and thrive is to leverage the unique experiences, capabilities and perspectives of other organizations. At Carlyle, we believe our investment process benefits from our ability to search out and align with like-minded companies who value sustainability-driven innovation.

These partners range from all sizes and sectors: McKissack, the nation's oldest woman- and minority-owned construction management company, to overhaul JFK Airport; the IFC to develop green warehouses in China (page 28); Ocean Park Conservation Foundation Hong Kong to eliminate the use of straws in fast food service (page 25); and technology and medical collaborators to develop fully customizable clinical trials (page 29).

We have focused on proactive outreach in the communities in which we operate to increase awareness and respond to local concerns. We met with local owners of wind turbine farms in New York State to ensure a smooth ownership transition (page 15) and forged invaluable relationships with local professional services firms for the JFK Airport redevelopment project.

Our partnerships and community outreach have helped Carlyle and our portfolio companies to identify and reduce risks, innovate product lines and promote diversity and inclusion. We will continue to seek out partners, and encourage our portfolio companies to do so as well, as a primary means to address evolving sustainability challenges.

Seeding partnerships for infrastructure

Our commitment to diversity and inclusion extends beyond our own operations and right down to the grassroots of the investments we make. In October 2018, the Port Authority of New York & New Jersey selected the Terminal One Team, of which The Carlyle Group is the lead financing sponsor, to lead the \$7 billion overhaul of Terminal One at New York's JFK International Airport. Throughout the project to date, Carlyle has placed an unprecedented focus on minority- and women-owned business opportunities, and it is quickly becoming a reference point for diversity in major infrastructure projects nationally while securing a competitive advantage locally.

From day one of the project, Carlyle committed to prioritizing Minority- and Women-owned Business Enterprises (MWBE) participation beyond the Port Authority's already historic 30% commitment. Peter Taylor, Co-head of Carlyle Global Infrastructure Opportunity Fund, says, "At Carlyle, we operate under a social license in infrastructure. You cannot take for granted the diverse community you work in. Our commitment to inclusion from the onset of the project was a key reason why we believe our team was designated for the redevelopment of Terminal One. We have been credited with an innovative approach, but to me this is how all best-in-class infrastructure projects should be developed and operated."



THE NEW TERMINAL ONE

JFK INTERNATIONAL AIRPORT

“We have been credited with an innovative approach, but to me this is how all best-in-class infrastructure projects should be developed and operated.”

PETER TAYLOR
CO-HEAD OF CARLYLE
GLOBAL INFRASTRUCTURE
OPPORTUNITY FUND



JLC | MJE-Loop
Capital Partners LLC



Ortho Clinical Diagnostics

Early on, Carlyle sought as team partners JLC Infrastructure, a minority-owned investment firm whose sponsors are Loop Capital and Magic Johnson Enterprises, and McKissack, the nation’s oldest woman- and minority- owned construction management company with a strong community presence in New York. Typically, MWBE participation stops at equity and construction. Carlyle is driving inclusion across the project, at every phase and across all disciplines.

Carlyle is also very focused on community outreach and long-term job creation. Local MWBE professional services firms serve as partners and advisors. The project team is participating in regular Port Authority-led meetings and job fairs, growing a database of MWBE firms, involving MWBE firms in mentorship and training, and planning an academy to train local residents in airport operations and management. In March 2019, the Port Authority opened a local JFK Redevelopment Community Information Center in Jamaica, Queens to provide training, match local residents and firms with redevelopment opportunities and provide a one-stop post for any community concerns. Nine MWBE firms were involved in the development of the Community Information Center, with more than 80% of the total cost subcontracted out to these firms.

“We deliberately sought MWBE expertise locally,” says Peter. “These firms bring incredible breadth and local knowledge that are advantageous to project delivery and operating costs. The resulting groundswell of community support, including from the JFK Redevelopment Community Advisory Council, separated our team from alternative proposals and allowed us to play offense instead of defense with local elected officials, businesses and community leaders.”

Throughout the Terminal One redevelopment project to date, Carlyle has placed a particular focus on minority- and women-owned business opportunities, and it is quickly becoming a reference point for diversity in major infrastructure projects nationally while securing a competitive advantage locally.



VALUE DRIVERS



Partnering with IFC to advance sustainable building design

In combination with the International Finance Corporation (IFC), Carlyle invests in warehouses in China that are designed with sustainability in mind from the start.

In 2018, Carlyle invited IFC, the private investment arm of the World Bank Group, to participate in a dedicated co-investment to develop green and sustainable warehouse buildings with a modern logistics platform in China, known as Project Rome..

The warehouses are being designed and built using EDGE, a tool developed by IFC that enables development partners to identify potential green elements in their building designs quickly and early in the process. IFC's range of EDGE solutions helps companies model how construction factors such as building orientation, materials and energy-efficient lighting can help reduce costs and climate change impact. EDGE factors in local market conditions to provide cost-benefit data on specific green building features.

Available for free online, the EDGE tool allows developers to design their projects to minimize water, material and energy use. To become EDGE-certified, developers must achieve at least a 20% improvement compared to the baseline structure in all three categories in a given geography. IFC provides ongoing training to partner developers on how to use the EDGE tool and acquire EDGE certification, making it both cheaper and easier to use than more cumbersome alternatives. Project Rome's commitment to EDGE certification prompted IFC to double its investment.

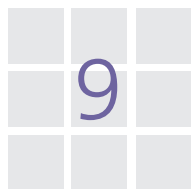
Carlyle and IFC are developing, building and operating nine warehouses in various cities across China. All of the warehouses are located in large population centers with easy access to major transportation networks and in industrial parks with no large residential communities nearby. This project represents the first time EDGE has been applied to warehouses in China. When complete, the warehouses will total 10 million square feet.

The properties' high environmental standards are expected to make them attractive to world-class tenants, an appeal that can enhance the investments' performance. Targeted tenants include third-party logistics providers, e-commerce companies, retailers or manufacturers with light assembly activities onsite. One of the project's first tenants is Carrefour SA, a multinational retailer based in France.

PROJECT ROME



INDUSTRY	Real Estate
REGION	Asia Pacific
FUND	Carlyle Asia Real Estate Partners
INVESTED	February 2017
STATUS	Current



Nine warehouses in China totaling 10 million square feet comprise Carlyle's China Logistics Platform



The project's commitment to EDGE certification prompted IFC to double its investment

VALUE DRIVERS



Making clinical trials easier and faster

Accelerated enrollment and virtual trials can increase patient access, retention and engagement in medical research that could benefit all.

One of the most stubborn challenges in drug development is enrolling patients in clinical trials for new medical therapies. Many potential participants do not know about these trials, do not live near the research sites or find that joining is too demanding for their busy lives.

Building on its more than 30-year history of quality execution and on-time delivery for biopharmaceutical clients, Pharmaceutical Product Development, LLC (PPD) is tackling these challenges with innovative patient-centric strategies for trial enrollment. PPD aims to provide patients with quicker access to treatment they might not otherwise receive and enhance their clinical trial experience as well. If new treatments can be tested quicker, then these drugs' availability will increase for the broader population who suffer from pain or disease.

PPD business unit Accelerated Enrollment Solutions (AES) is the largest global patient access and clinical site conduct business, spanning 150 locations in 20 countries. AES enrolls all of the patients in a clinical trial in as quickly as half the time compared to historic norms. David Simmons, Chairman and CEO of PPD, says, "Only 5% of eligible trial participants are patients of the researcher's medical practice or in the researcher's database. To reach the remaining 95%, AES' proprietary methodology quickly and predictably recruits and enrolls patients who previously were difficult to identify."

Also, to help address the geographic barriers and time constraints associated with traditional clinical trials that can discourage many eligible patients from participating, PPD is developing fully customizable virtual trials organically and through collaborations and partnerships. These include digitally enabled, hybrid-parallel and fully virtual studies, all of which leverage technology and data to drive efficiencies while lowering the participation burden. By creating a more convenient trial experience, PPD can help customers reach, recruit and retain more patients.

Carlyle believed in PPD's progressive approach when they invested in the company in 2017 to drive continued growth. Steve Wise, Carlyle Managing Director, says, "By leveraging patient-centric services, along with wearables and other remote technologies to make the trial experience easier for patients, PPD is innovating to enable faster and more productive clinical trials—ultimately improving health by helping their customers deliver life-changing drug therapies."



INDUSTRY	Healthcare
REGION	North America
FUND	Carlyle Partners VI
INVESTED	May 2017
STATUS	Current



Up to 50% reduction in time it takes for all patients to be enrolled in a clinical trial, compared to historic norms



Removing geographic barriers to enable more patients to participate in clinical trials of promising medical therapies



3

LEAD BY EXAMPLE AMONG PRIVATE INVESTMENT FIRMS

Our ESG strategy includes seeking ways to innovate within our own firm by advancing ESG issues. We work to cultivate an environment rich in different backgrounds, perspectives and experiences. We participate in ESG events and organizations, aiming to stay at the forefront of emerging issues such as climate risk. We encourage our employees to get involved where they live, work and invest through our volunteer and wealth sharing programs. And we work to continually improve environmental stewardship within our firm, particularly in the areas of energy and materials use.

1001 Pennsylvania Avenue renovations

In 2019, our Washington, DC offices added additional floors within its 1001 Pennsylvania Avenue headquarters, with the renovated space offering several environmental advantages. The lighting power density has been reduced significantly compared to the old space, and is now 44–49% better than the already stringent DC Green Construction Code. One hundred percent of lighting in the new space is efficient light-emitting diode (LED), and the lighting is attenuated by occupancy sensors and daylight harvesting photo sensors. The air volume system now uses variable frequency drives and will undergo commissioning to ensure it functions as designed throughout the seasons.



Carbon neutrality

In last year's report, we announced that Carlyle had become the first major private equity firm to operate on a carbon-neutral basis, and over the last year we continued with that commitment. Our approach to carbon is to measure, reduce and offset our emissions. In line with our commitment to leadership in this field, we shared our methodology with other private equity firms who embarked on their own footprinting efforts.

Measure In line with the World Resources Institute's Greenhouse Gas Protocol, we measured each scope (1, 2 and 3) of our emissions. Our 2018 footprint was more than 6% smaller than our 2017 footprint on a per-capita basis, mostly due to a reduction in air travel.

Reduce Every year our Global Technology Solutions team looks for means to reduce our footprint. In 2018, they continued our aggressive shift toward the cloud, decommissioning more than a dozen servers and reducing energy use at our data centers. Further, a new virtual desktop solution eliminated the need to provide hundreds of laptops for consultants, resulting in significant material (and therefore carbon) savings.

Offset As we did last year, we purchased offset credits from Carbonfund.org that support the electrification of truck rest stops. This project provides electrical and heat hookups that allow those functions to come directly from the grid rather than relying on a diesel engine, saving carbon and other emissions. The technology is not yet commercially viable, which is what gives Carlyle's funding the "additionality" in averting carbon emissions.

CATEGORY	EMISSIONS (MT CO ₂ E)
Office Utilities (Scope 2)	5,117
Data Centers (Scope 2)	403
Air Travel (Scope 3)	9,655
Commuting (Scope 3)	1,301
TOTAL	16,476





“Given Carlyle’s reach, this presents an extraordinary opportunity to impact business and our broader society.”

KARA HELANDER
CHIEF INCLUSION AND DIVERSITY OFFICER

60%
of promotions
to partner in 2018
were women

Creating greater employee engagement and value for our investors

A diverse and inclusive culture is a competitive edge that enables us to make the best decisions and attract the best talent across geographies, strategies and functions. Helping to hone that edge is our Chief Inclusion and Diversity Officer, Kara Helander.

Prior to joining Carlyle, Kara co-founded the Science of Diversity and Inclusion Initiative and spent 10 years as managing director and global head of diversity and inclusion at BlackRock. In addition to leading Carlyle’s in-house inclusion efforts, Kara works to diversify the boards of our portfolio companies. “Given Carlyle’s reach, this presents an extraordinary opportunity to impact business and our broader society.”

Carlyle women senior leaders (Managing Directors and Partners)



Carlyle's Diversity & Inclusion Council goes global

Since our last report, we made key changes to our Diversity & Inclusion Council that guides the firm's overall diversity and inclusion efforts. To better reflect the scope and importance of our diversity and inclusion work, the council is global and now comprises our most senior leaders.



PETE CLARE



MARK JENKINS



MARCEL VAN POECKE



MIKE ARPEY



RUULKE BAGIJN



HEATHER MITCHELL



ROB STUCKEY



SANDRA HORBACH



CHRIS FINN



CURT BUSER



XD YANG



GREGOR BOEHM



IAN FUJIYAMA



BROOKE COBURN



KEWSONG LEE



KARA HELANDER



GLENN YOUNGKIN

D&I COUNCIL CO-CHAIRS

"Diversity is not a corporate function—it is a mindset, something Carlyle needs to live out every day. It takes focused strategies and leadership from the top but real success happens when it is a cultural norm for the entire organization."

GLENN YOUNGKIN, CO-CHIEF EXECUTIVE OFFICER

Recognition for Carlyle leaders

We are proud of the recognition that Carlyle leaders received for being role models and leading change in the industry, including:



TANAKA MASWOSWE, named one of *Business Insider's* Rising Stars of Wall Street in November 2018.



RUULKE BAGIJN chairs the Level 20 Dutch Committee in Amsterdam, a non-profit that inspires women to join and succeed in the private equity industry.



LUBNA QUNASH, named one of *Financial News's* 25 up-and-coming young stars in private equity for 2018.



HEATHER MITCHELL won the 'General Counsel of the Year' award from *Legal Business*.

Our Year Up partnership

Since 2007, Carlyle has partnered with Year Up in the staffing of internships and contract roles. Year Up provides urban young adults with the skills, experience and support that will empower them to reach their potential through professional careers and higher education.

The organization offers intensive training programs that provide opportunities for young adults ages 18–24 to gain hands-on skills development, coursework eligible for college credits, corporate internships and wraparound support that helps them to better secure employment.

Our Global Technology and Solutions (GTS) organization provided internships for 78 women and men from various ethnic backgrounds via Year Up, a six-month internship offering hands-on technology experience and opportunities to work directly with Carlyle's diverse internal employee base. To date, Carlyle has hired four interns for full-time positions and extended employment for more than 21 via contract roles.

GTS also partners with McKinley Technology School, a premier STEM (Science, Technology, Engineering and Math) high school in Washington, DC. To date, GTS has hosted two male and two female interns from McKinley.

Employee Resource Groups

Our Employee Resource Groups (ERGs) provide the opportunity for employees across the firm to connect, develop professionally and help shape our culture. ERGs create meaningful opportunities for members to advance their careers, share experiences and enhance their impact and engagement. Carlyle ERGs include:

- DC/Rosslyn Women
- NY Women
- Multicultural
- Veterans
- Young Professionals
- Working Parents
- Lesbian, Gay, Bisexual, Transgender and Queer (LGBTQ)



Key Performance Indicators (KPIs)

ALL U.S. EMPLOYEES

49%

Of investment professionals hired in the U.S. in 2018 were diverse*

60%

Female in the 2019 U.S. CPE incoming post-MBA class

18%

Female Managing Directors and Partners

48%

Overall hiring diversity (by gender and race) in Analyst-Partner levels*

42%

Overall population diversity (by gender and race) in Analyst-Partner levels*

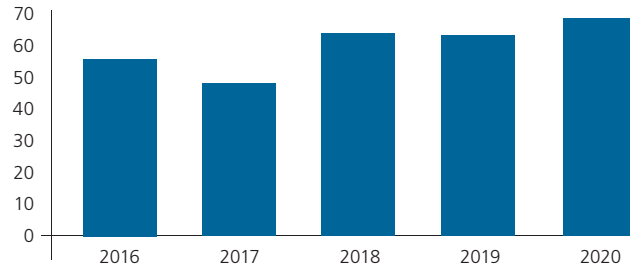
23%

Women in senior positions (Principal-Partner levels)

67%

CPE 2-Year Associate class has been more than 50% diverse over the last five years, with the 2020 class at 67%*

U.S. CPE 2-Year Associate Class Diversity by Race/Gender (percent)



ALL GLOBAL EMPLOYEES

23%

Female promotions for Principal through Partner

20%

Women in senior positions (Principal-Partner levels)

17%

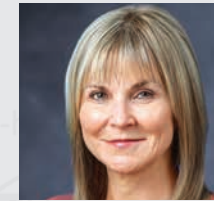
Female Managing Directors and Partners

*Diversity by Gender and Race includes Females, American Indian/Alaskan Native, Blacks, Hispanics, Native Hawaiian, Other and Two or more Races

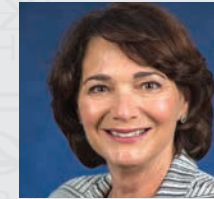
Data as of December 31, 2018

\$110B

Assets Under Management (AUM) managed by women senior leaders (out of a total \$222B Carlyle AUM)



SANDRA HORBACH
—US BUYOUT
\$39.0 BILLION



LINDA PACE
—LOANS &
STRUCTURED CREDIT
\$25.6 BILLION



RUULKE BAGIJN
—INVESTMENT
SOLUTIONS
\$45.4 BILLION

Data as of March 31, 2019

Mentoring: Building an inclusive culture and boosting careers

Mentorship is powerful. It turbo charges careers and expands opportunities. At Carlyle, we do not leave it to chance. The Diversity & Inclusion Council created our global mentoring program in 2014, and since then more than 600 employees have participated from every corner of the firm.

600+
participants in Carlyle
mentorship program



Sarah Schwarzschild and Ed Mathias

Vice president to partner in five years

Sarah Schwarzschild had lunch with Ed Mathias, a Senior Advisor, right after he was paired with her as her mentor. "Based on that lunch he concluded that leveraging my team was going to be key to my success," she remembers. Ed's observation appears to have been prescient: since joining Carlyle five years ago, Sarah has been promoted three times and is now a partner.

Paving the way from New York to Amsterdam

Sarah pays it forward by being a mentor herself, for Samantha Meskin, an Associate at Alpinvest Partners. Sam says, "The introductions Sarah made for me helped make a large firm feel much smaller and paved the way for me to move from New York to Amsterdam with the firm."

Carlyle's culture in action

Recognizing how his own mentors contributed to his successful career path, Curtis Johnson, a Managing Director on the Investor Relations team, found much satisfaction mentoring Chirayu SJB Rana, an Associate with Global Credit. Chirayu says Curtis helped him grow professionally and personally. "It is refreshing to see how senior people are successful in their own fields but also real human beings with interests outside of work," Chirayu says. "The mentorship program at Carlyle is a perfect example of Carlyle's culture in action."



Curtis Johnson and Chirayu SJB Rana

Philanthropy

Global Volunteer Month Employees from across the globe volunteered with several organizations during Carlyle's seventh annual Global Volunteer Month.

Washington, DC, and Rosslyn, Virginia, United States Employees volunteered with a range of organizations:

- Served meals and cleaned facilities at So Others Might Eat, a local organization that cares for the homeless.
- Participated in hands-on urban farm work at DC Greens, a local organization working to advance food justice in the nation's capital.
- Mulched trees and helped clean and beautify Rock Creek Park in Washington, DC.
- Assisted with outdoor chores and landscaping at House with a Heart Pet Sanctuary, a local organization that houses and cares for elderly pets.
- Volunteered for a ninth consecutive year with Junior Achievement's "JA in a Day" program to teach financial literacy to first- through fifth-grade classes in a Washington, DC elementary school.

New York Employees visited Randall's Island Park to build raised beds, mulch and help with planting at the urban farm.

London More than 20 employees ran in the JP Morgan Corporate Challenge benefiting Cancer Research UK, an organization that funds scientists, doctors and nurses dedicated to cancer research. Employees also collected charitable donations at tube stations for Help for Heroes, providing assistance to service personnel, veterans and their families.

Hong Kong Volunteers prepared meal boxes for Food Angel, a food rescue and assistance program that provides meals for underprivileged communities in Hong Kong.

Japan Volunteers provided administrative support at the Japan International Volunteer Center and helped cleanup efforts at Komazawa Olympic Park, Mount Takao and Fukudenkai orphanage.

A Commitment to Sharing Wealth Our Wealth Sharing Program supports Carlyle employees in their charitable giving by matching on a dollar-for-dollar basis any contributions made to educational and humanitarian organizations. In the United States, Carlyle matches up to \$2,000 per year per employee. In 2017, Carlyle matched nearly \$300,000 in employee contributions. A similar matching program in the United Kingdom raised \$38,000 in 2017. A total of more than \$10,000 in charitable donations was matched as part of our U.K. gift matching scheme in 2018.



One Community Volunteer Program

Carlyle's One Community program encourages employees to volunteer in their own local communities—as well as at organizations across the country and around the world. We had another great year whereby our employees shared their time, talent and resources with a variety of charitable organizations as they worked to improve the places where they live and invest.

THE CARLYLE GROUP

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