

The United Nations Global Compact-Accenture CEO Study

# Special Edition: A Call to Climate Action



United Nations  
Global Compact

 **accenture**strategy

Caring for Climate |





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# Special Edition: A Call to Climate Action

In the first Special Edition of the CEO Study, the world's largest program of CEO research on sustainability, business leaders call for urgent action from governments and policymakers as we examine their views on the importance of climate change to their business; on the opportunities for growth and innovation in addressing the climate challenge; on the role of policy in enabling new solutions, digital technologies and innovative business models; and on the need for bold action in Paris to unlock the potential of the private sector.

November 2015

# Caring for Climate – The Business Leadership Platform

## A Statement by the Business Leaders of the Caring for Climate Initiative

Since business leaders from around the world first came together to issue this statement in 2007, the magnitude and urgency of the climate challenge has become more apparent. Climate change is a momentous threat to development, to peace and security, and to market stability. While the pace of action by governments, businesses and society at large has increased, our efforts, individually and collectively, must be accelerated further if the threat of catastrophic climate change is to be removed effectively. It is with this in mind that we renew our call to the business community to make a lasting commitment to climate action now.

## We, the Business Leaders of Caring for Climate:

### RECOGNIZE THAT:

1. Climate Change is an issue requiring urgent and extensive action on the part of governments, business and citizens if the risk of serious damage to global prosperity, sustainable development and security is to be avoided.
2. Climate change poses both risks and opportunities to businesses of all sizes, sectors and regions of the world. It is in the best interest of the business community, as well as responsible behavior, to take an active and leading role in deploying low-carbon technologies, increasing energy efficiency, reducing carbon emissions and in assisting society to adapt to those changes in the climate which are now unavoidable.

### COMMIT TO:

3. Taking further practical actions to improve continuously the efficiency of energy usage and to reduce the carbon footprint of our products, services and processes, to set voluntary targets for doing so, and to report publicly and annually on the achievement of those targets in our Communication on Progress-Climate.
4. Building significant capacity within our organizations to understand fully the implications of climate change for our business and to develop a coherent business strategy for minimizing risks and identifying opportunities.
5. Engaging more actively with our own national governments, inter-governmental organizations and civil society to develop

policies and measures to provide an enabling framework for business to contribute effectively to building a low-carbon and climate-resilient economy.

6. Continuing to work collaboratively with other enterprises both nationally and sectorally, and along our value-chains, to set standards and take joint initiatives aimed at reducing climate risks, assisting with adaptation to climate change and enhancing climate-related opportunities.

7. Becoming an active business champion for rapid and extensive climate action, working with our peers, employees, customers, investors and the broader public.

### EXPECT FROM GOVERNMENTS:

8. The urgent creation, in close consultation with the business community and civil society, of comprehensive, long-term and effective legislative and fiscal frameworks designed to make markets work for the climate, in particular policies and mechanisms intended to create a stable price for carbon.

9. Recognition that building effective public-private partnerships to respond to the climate challenge will require major public investments to catalyze and support business and civil society led initiatives, especially in relation to research, development, deployment and transfer of low-carbon energy technologies and the construction of a low-carbon infrastructure.

10. Vigorous international cooperation aimed at providing a robust and innovative global policy framework within which private investments in building a low-carbon economy can be made, as well as providing financial and other support to assist those countries that require help to realize their own climate mitigation and adaptation targets while achieving poverty alleviation, energy security and natural resource management.

### AND WILL:

11. Work collaboratively on joint initiatives between public and private sectors and through them achieve a comprehensive understanding of how both public and private sectors can best play a pro-active and leading role in meeting the climate challenge in an effective way.

12. Invite the UN Global Compact to promote the public disclosure of actions taken by the signatories to this Statement and, in cooperation with UN Environment Programme and the secretariat of the UN Framework Convention on Climate Change communicate on this on a regular basis.



# Foreword

The adoption of the Sustainable Development Goals marks a critical turning point in the history of global development. As we look ahead to a new sustainable development agenda that tackles emerging challenges across economic, social and environmental dimensions, we anticipate the need for a rejuvenation of our global partnership.

As we embrace a new set of global goals for development, we recognize a single, integrated agenda that codifies our ambition to end extreme poverty, fight inequality and injustice, and tackle climate change. Business, governments and civil society have a unique opportunity to step up in support of the Sustainable Development Goals, acting in concert to unlock the full potential of our combined commitment, attention and resources.

On the eve of the 21st Conference of the Parties in Paris, the international community has an immediate opportunity to advance action through a bold, ambitious and universal agreement on climate. Collectively, we must recognize that climate change is not simply one element among multiple priorities: action to protect habitats, secure livelihoods and enshrine environmental justice can provide the cornerstone of an integrated development agenda and can lay the foundations of achievement across the 17 individual development goals.

Achieving ambitious goals on climate will depend on the active engagement of business. Through commitments rooted in the Ten Principles of the United Nations Global Compact—the core values across human rights, labor standards, the environment and anti-corruption that participant companies are asked to embrace, support and enact—business leaders can play a central role in galvanizing momentum to meet the first test of our collective ability to deliver collaborative action on the Sustainable Development Goals.

But unlocking the potential of the private sector will require enabling action on the part of governments and policymakers. The innovation required to forge the transition toward a low-carbon economy will depend on clear, coherent and consistent policy frameworks that enable companies to invest with confidence and place the big bets that will bring about new technologies and new business models to tackle the challenges of the 21st century.

Foremost among the challenges we face in rejuvenating our partnership for development is working together effectively across sectors, understanding our common priorities and facilitating transformative action. Over the past decade, the UN Global Compact-Accenture CEO Study has helped to understand the priorities of business leaders worldwide, revealing the motivations of companies leading on sustainability and uncovering the challenges in embedding environmental, social and governance issues at the heart of business worldwide.

Recognizing the urgency and immediacy of the climate challenge, we have dedicated this Special Edition of the CEO Study to understanding the perspective of business leaders on climate change. In presenting the authentic voice of global CEOs on the importance of climate change to their business; on the opportunities for growth and innovation in addressing the climate challenge; and on the role of policy in enabling new solutions, digital technologies and innovative business models, we hope to provide a rich, robust evidence base for discussion and collaboration that can lay the foundations of transformation in a new era of global development.



**Lise Kingo**  
Executive Director  
United Nations  
Global Compact



**Jean-Marc Ollagnier**  
Group Chief Executive,  
Resources  
Accenture







# Introduction

The climate negotiations in Paris in December present a unique opportunity to chart a new pathway for the development of the global economy. Fully 91% of CEOs see climate change as an urgent priority for business, and a clear majority call for urgent action from policymakers to unlock growth and innovation in the private sector.

Growing recognition of the scale of the challenge has begun to translate into renewed advocacy for action: for perhaps the first time, we are beginning to see a united front of business leaders and policymakers setting their course toward a bold deal that can begin to close the gap between ambition and execution.

This year is also a significant milestone for the United Nations Global Compact, marking 15 years since its founding at the turn of the millennium, and for our CEO Study program. Over the course of a decade of research, during which we have been fortunate enough to conduct one-to-one interviews with several hundred CEOs from the world's largest companies, and collect the views of thousands more through our surveys, we have traced the development of corporate sustainability from its roots in corporate social responsibility toward the integration of environmental, social and governance issues as a critical element in strategies for growth.

In compiling this year's study, we followed two principal strands of research. First, we conducted two surveys: one of CEOs of Caring for Climate participant companies, to identify and explore the unique approaches and beliefs of companies publicly leading the way in addressing the climate challenge; and another of business leaders from 750 Global Compact participants, drawn from 152 countries across 41 industry sectors, to "take the temperature" of a wide cross-section of companies globally.

Second, we have engaged further with Caring for Climate participants to develop in-depth case studies of companies approaching the climate challenge as an

opportunity for growth and innovation, and we have invited CEOs to share their views through a series of open letters. While we acknowledge our sample may not be representative of business globally – in its balance of gender, or of industries and regions represented, for example – we hope that our research can provide a platform for the authentic, unmediated views of business leaders to share their unique perspectives on the climate challenge and the role of the private sector in charting a pathway forward.

On behalf of the United Nations Global Compact and Accenture Strategy, we would like to express our sincere thanks to the CEOs, business leaders and other stakeholders who participated in the study. The project team has endeavored to understand and interpret their many ideas, reflections and case study examples in conducting the study and delivering this report. Any insights are theirs, while any errors are our own.

In compiling this CEO Study Special Edition, we are once again indebted to the Global Compact and Caring for Climate team of Lise Kingo, Sean Cruse, Margaret Fenwick, Carrie Hall, Tim Wall and Bianca Wilson. We also recognize the leadership of the Accenture team, in particular lead author and project manager Jenna Trescott, as well as Marielle Tourel and Amanpreet Talwar. There have been many further contributions from colleagues in Accenture too numerous to mention here, but without whom our analysis would not be as compelling—in particular the project sponsors Jean-Marc Ollagnier and Bruno Berthon, as well as Nobuko Asakai, Gib Bulloch, Ynse de Boer, Alexander Holst, Jessica Long, Matthew McGuinness and Liz Steel.

Last—and most importantly—we pay tribute to the founding executive director of the Global Compact, Georg Kell. Georg's leadership and vision over the past 15 years has been instrumental in the growth of the Global Compact to become the world's largest voluntary corporate sustainability initiative, and the unique role of the Global Compact in inspiring, guiding and catalyzing change will stand testament to his extraordinary legacy.



**Lila Karbassi**  
Head of Environment  
and Climate  
United Nations  
Global Compact



**Peter Lacy**  
Global Managing  
Director  
Accenture Strategy,  
Sustainability Services



**Rob Hayward**  
CEO Study Lead  
Accenture Strategy,  
Sustainability Services

# Caring for Climate: An Urgent Priority



of business leaders believe that climate change is an **urgent priority** for business



believe **progress is on track** to restrict global warming to less than 2C



believe **business is not doing enough** to tackle climate change



750

business leaders surveyed



41

industry sectors



152

countries



## Growth & Innovation: A Climate of Opportunity

**54%** of business leaders see **opportunities for growth and innovation** in addressing the climate challenge

**57%** believe that **investment in climate solutions** is essential to competitive advantage

Of leaders from the world's largest companies\*:

**70%** see opportunities for **growth and innovation**

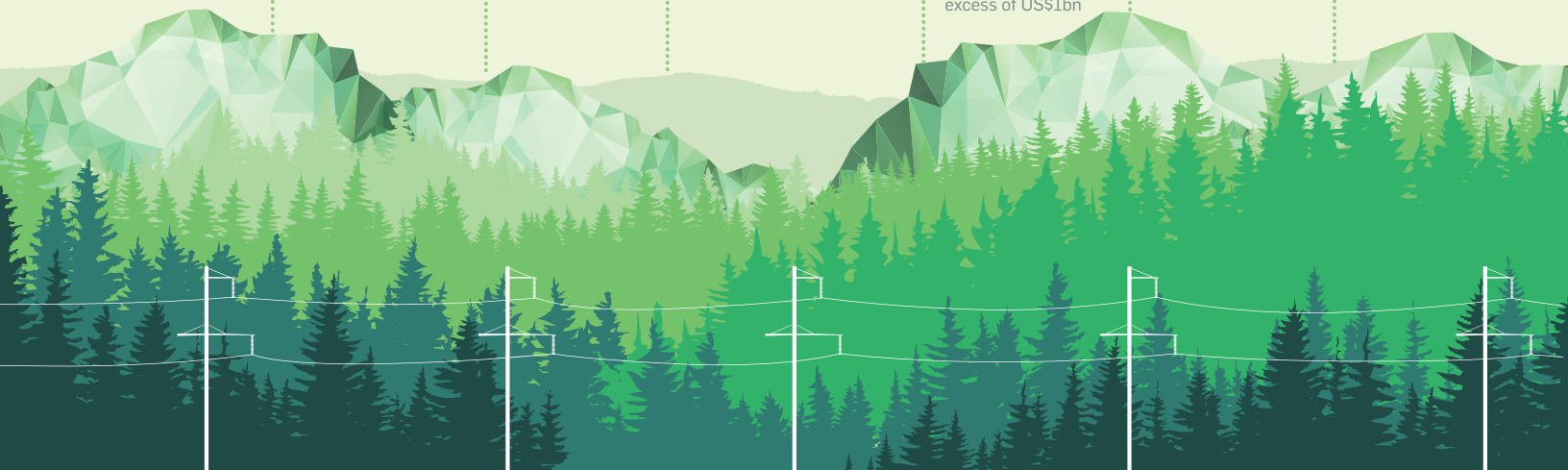
**67%** report a **clear business case for action**

**69%** see **investment in climate solutions** as essential to competitive advantage

**48%** report a **clear business case for action** on climate



\*annual revenues in excess of US\$1bn





# Climate Coalitions: The Road to Paris

Business leaders identify  
**5 Policy Measures**  
that can unlock further  
private sector investment  
in climate solutions:

**61%** of respondents, and  
**74%** of leaders of the  
world's largest companies, see a  
long-term agreement in Paris as  
critical to unlocking private sector  
investment in climate solutions

Legislative  
and fiscal  
mechanisms  
to increase  
investment



Financial  
instruments  
to stimulate  
R&D and  
innovation



Global,  
robust and  
predictable  
carbon pricing  
mechanisms



Performance  
standards  
to reduce  
emissions  
and enhance  
resilience



The removal  
or phasing  
out of fossil  
fuel subsidies



Our research also identifies  
**5 Leadership Behaviors**  
exhibited by companies taking a leading  
role in addressing the climate challenge:

Providing proactive, constructive  
input for governments to create  
effective climate policies



Collaborating with  
industry peers to  
foster leadership  
and innovation



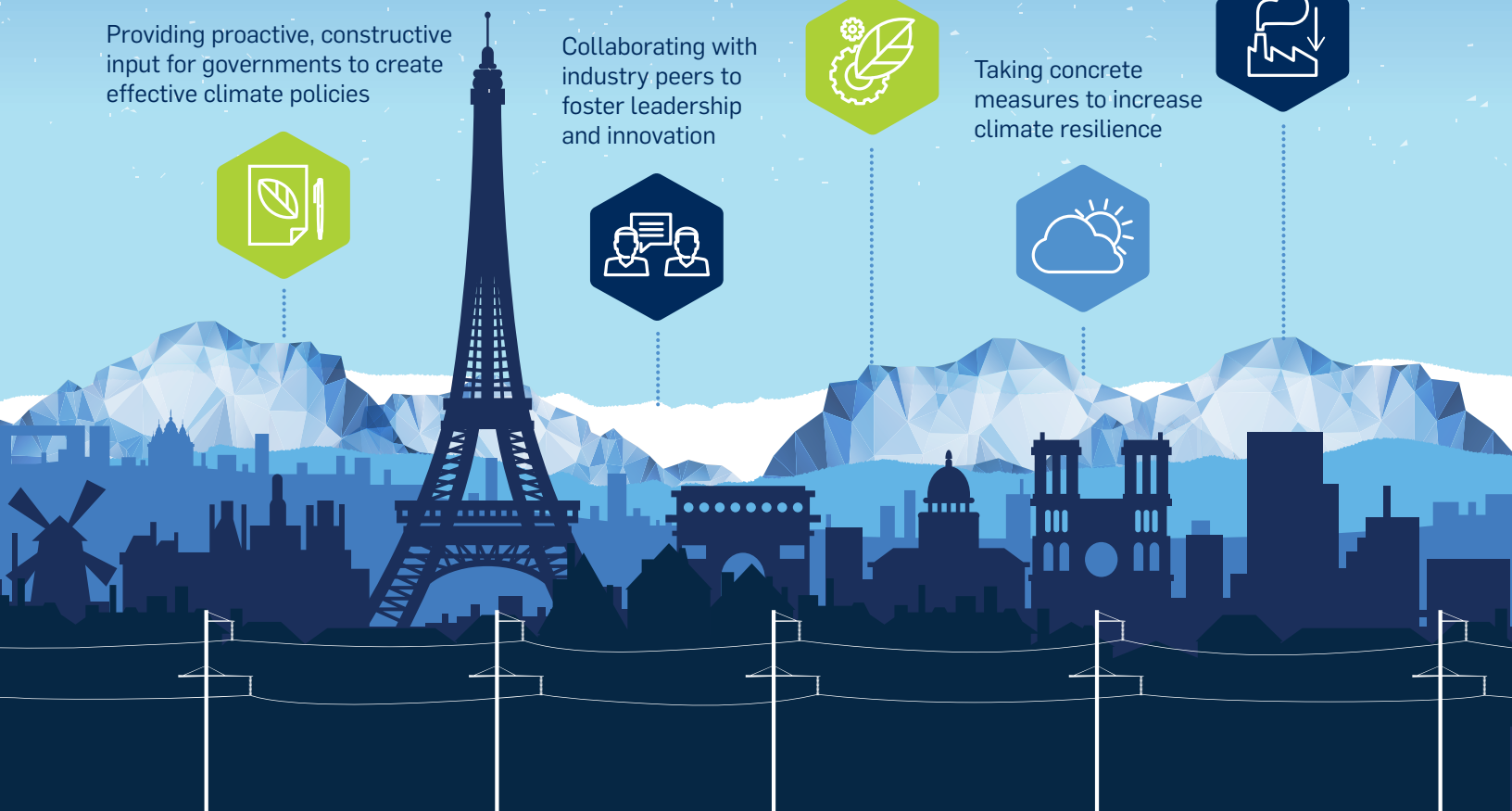
Investing in low-carbon  
technologies and solutions



Taking concrete  
measures to increase  
climate resilience



Setting emissions  
reduction targets  
inline with science  
and the 2C limit



# The Road to Paris: A Call to Action

We would like to thank the CEOs featured here for their participation in the Study, and for contributing their insights on the challenges and opportunities of climate change for their companies. The in-depth perspectives shared in our series of open letters complement our broad-based survey research, and offer a unique insight into the opinions and approaches of leading companies worldwide.

Kurt Bock  
CEO, BASF



"At COP21, politicians have the chance to set up a long-term, reliable emission reduction framework, enabled by low-carbon technologies... Creative minds in business all over the world would have a clear picture of the low-carbon future they are innovating for, finding answers to the substantial challenges we are facing."

Gavin Patterson  
Chief Executive Officer, BT Group



"We need certainty. Certainty that our investment in renewable energy and the low-carbon economy will reap rewards for all. Certainty that the actions of companies like ours are adding up to a bigger impact on a global scale. Let's make Paris not just a footnote in history, but a turning point for us all."

Niels B. Christiansen  
President and CEO, Danfoss A/S



"In Paris in December, world leaders should ensure that the new global agreement enables greater uptake of energy efficient solutions: we need to create frameworks that make it easier to overcome barriers such as funding, policy incentives, knowledge sharing and education."

Claudio Descalzi  
Chief Executive Officer, Eni S.p.A.



"We believe this is not the time for business as usual, but that we now need governments around the world to provide a precise, stable, ambitious regulatory framework."

José Édison Barros Franco, Board of Directors' President, InterCement



"We hope the private sector will, through leadership and collaboration, unlock scalable solutions that will address the climate challenge. We have already come a long way, but we have to—and we can do—even more."

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"We strongly believe that business is part of the solution and that industry-wide, multi-agency, collaborative efforts are pivotal to scale efforts and make lasting change. We want to encourage country member states to make ambitious, time-bound commitments and set action-oriented targets."

Paul Bulcke  
Chief Executive Officer, Nestlé



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"I believe international and domestic collaboration will be critical to more broadly commit the private sector to climate solutions."

Zenji Miura  
President and CEO, Ricoh



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"The opportunity is clear: We have the technologies, we have the business cases, and we have the responsibility. Now all we need is the commitment."

Joe Kaeser, President and Chief  
Executive Officer, Siemens AG



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"Making the transition to a low-carbon economy is a bigger task than any single company alone can achieve. For us to contribute more and faster, we need urgent action from policymakers to enable clear, stable and long-term regulatory frameworks."

Eldar Sætre, President and Chief  
Executive Officer, Statoil ASA



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"At COP21 in Paris this December, we need business, governments and civil society to come together to set a global framework that enables greater international ambition while securing justice and prosperity for all."

Murilo Ferreira  
CEO, Vale







# Growth and Innovation: A Climate of Opportunity

## Business leaders see climate change as an urgent priority for business—but do not believe their industries are doing enough

Climate change is an urgent priority for business, presenting a clear business case for action and opportunities for growth and innovation – but companies are not doing enough, and government action will be essential to unlocking the full potential of the private sector.

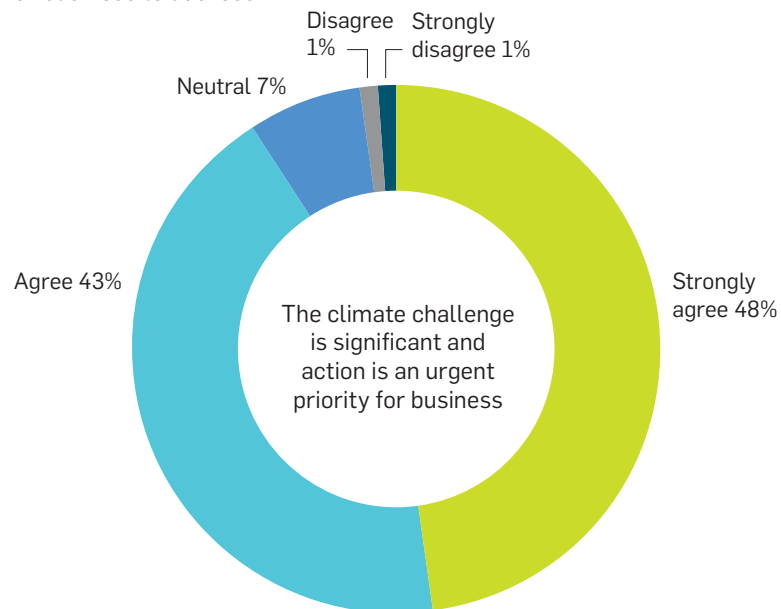
That is the unambiguous view of business leaders in our latest survey of United Nations Global Compact participants. Fully 91% of the 750 business leaders we surveyed, across 152 countries and 41 industry sectors, believe that the climate challenge is significant and that action is an urgent priority for business – not just in the interests of the planet, but core to the future success of their companies.

More than half (54%) of business leaders surveyed believe that climate change will create opportunities for growth and innovation for their company in the next five years, and 48% believe that there is already a clear business case in their industry for action on climate change.

But amid this strong belief in the importance of urgent action, and the opportunities that action on climate change can present, just one-third of business leaders surveyed believe that progress is on track to restrict global warming to less than 2 degrees Celsius (2C)—and just one-third believe that companies in their industry are doing enough.

These views are particularly pronounced among the world's largest companies: 94% of business leaders from companies

Figure 1: Business leaders believe climate action is an urgent priority for business to address



Data based on UN Global Compact-Accenture survey of 750 Global Compact participant companies

with annual revenue in excess of \$1 billion see climate change as an urgent priority, and 70% see opportunities for growth and innovation – but less than one-quarter (24%) believe that progress is on track.

In the context of the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) negotiations in Paris later this year, this marks an important recognition of the gap between ambition and execution, and promises bolder action from the private sector in collaborating with governments and policymakers to address the climate challenge.

Our sample of 750 UN Global Compact participant companies reveals instructive findings on business leaders' approaches to climate change. Against the backdrop of climate challenges reshaping industry dynamics, leaders

in certain sectors perceive the climate challenge particularly acutely: 100% of business leaders we surveyed in the mining and metals industry, for example, and 97% of those in the utilities sector see climate change as an urgent priority. But despite the clear impact of climate change on the economics of their sector and the drivers of future success, just 35% and 44%, respectively, see their industry peers doing enough.

Strikingly, for industry sectors that will be at the center of global initiatives to address the climate challenge, very few business leaders in the financial services (25%) and energy (26%) sectors believe their industries are making sufficient efforts to restrict global warming to less than 2C, demonstrating the scale of the challenge in extending the commitment of leading companies to businesses globally.



Kurt Bock  
CEO, BASF

A stylized, handwritten signature of Kurt Bock in black ink.

"Limiting [global] warming to 2C involves substantial technological, economic and institutional challenges".

This quote from the Fifth Assessment Report of the Intergovernmental Panel on Climate Change points out the scale of progress demanded from our society to address climate change. As a business, we will play an important role to find the answers to this challenge and related issues, such as the availability of water and raw materials.

The challenge will be to develop solutions, which enable the growing world population to attain a high standard of living while using resources most efficiently. With an adequate regulatory framework in place, and guided by an agenda for sustainable development as laid out by the UN, the economy will be able to act as a "broker" and facilitate the best possible distribution of limited resources.

At the same time, substantial technological innovations are required to enable every human being to lead a "good life" without overusing the resources. These technological innovations are mainly driven by enterprises: in order to be able to assert themselves in competition, they invest in research and development and introduce new technologies into the market.

Both the incremental further development of existing products as well as game-changer innovations are key contributions to this end. For example, BASF has continuously been improving and developing insulating materials that help in significantly

lowering the energy demand of houses. At the same time, we have been innovating in order to reduce the fossil fuel demand and associated carbon emissions in transportation radically, starting with lighter materials. Realizing that electric cars with an increased battery performance will allow for larger cruising ranges and thus "change the game", we began to work intensively on materials for more efficient batteries.

Just as we drive product innovations, we also further develop our own production processes. Since 1990, we have reduced the greenhouse gas intensity of our production by 74%. In order to continue on this path, we just set ourselves the new corporate target to implement energy efficiency management systems at all our production sites by 2020. However, we have to realize that the technological improvement of existing processes has physical limits. That is why we are also looking for disruptive innovations for our production processes. In this respect, I am convinced that cross-sectoral co-operations play an important role. Together with ThyssenKrupp and Linde, for example, we are working on a new process for the production of hydrogen (a basic material for the chemical industry) that is much more carbon efficient than the conventional process and at the same time delivers metallurgical carbon for use in the steel industry. Similarly, we have teamed up with other chemical companies in a Low Carbon Technology Partnership initiative. Jointly we are analyzing the potential of various game-changing innovations for carbon emission reduction in chemical production.

The potential that enterprises have for driving technological innovations for a low-carbon future can also be seen in our R&D expenditure. BASF spends more than 50% of its annual R&D budget of 1.9 billion euros on solutions in the area of climate protection and energy and resource efficiency.

And this is where we come full circle – back to the regulatory framework mentioned at the beginning. The investments in R&D are always long-term oriented with the ultimate target to improve processes or go for new technologies. At COP-21, politicians have the chance to set up a long-term, reliable emission reduction framework, enabled by low-carbon technologies. The national contributions to this framework need to be globally harmonized. This is key as the economy will only be able to fulfill its role as a "broker" for the best possible global distribution of the limited carbon emission budget, if we have comparable levels of greenhouse gas reduction efficiency globally rather than regionally diverging concepts and measures.

I am convinced that with such an agreement in place, investments into incremental technological improvements as well as into R&D for breakthrough innovations would further increase. Creative minds in business all over the world would have a clear picture of the low-carbon future they are innovating for, finding answers to the substantial challenges we are facing.



## Business leaders are more engaged than ever before on the climate challenge

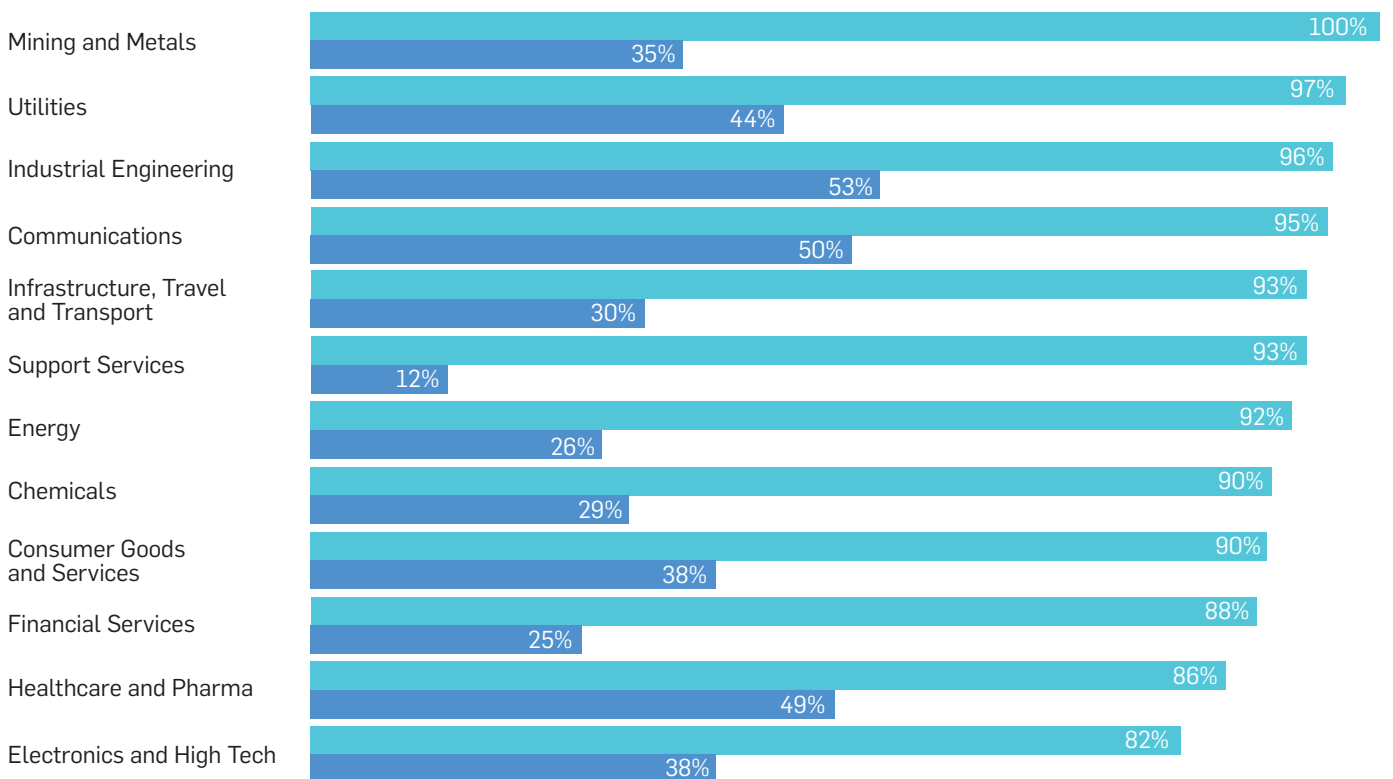
The run-up to the Paris climate conference, COP21, has focused attention on the ability of the global economy to transition toward a low-carbon future. As governments, policymakers, businesses and nongovernmental organizations come together to forge a universal agreement limiting the rise in global average temperature to 2C above preindustrial levels, attention is focused on a settlement that enables continued economic growth and prosperity while reducing the environmental impact of human development.

To many observers, the Business & Climate Summit, held in Paris in May 2015—a symbolic six months before the beginning of COP21—marked a sea change in the public role of the private sector. Previously, many business leaders were perceived to have been publicly content to wait for action from governments; now, against the backdrop of country-by-country national commitments ("intended nationally determined contributions," or INDCs), senior figures across industry sectors began to call for ambitious action to address the climate challenge.

Recognizing the ever-increasing importance of the private sector to the climate debate—not only in

fueling the ambition and determination of negotiators in Paris, but also in innovating the solutions that will enable ambitious commitments to be realized—the United Nations Global Compact, Caring for Climate and Accenture Strategy have partnered this year to conduct a Special Edition of the long-running CEO Study research program. Usually conducted every three years, the CEO Study examines business leaders' attitudes toward sustainability, and since its first publication in 2007 has traced the development of sustainability strategies from philanthropy and corporate social responsibility toward a landscape in which environmental, social and governance issues have become a critical part of business as usual.

Figure 2: Business leaders do not believe their industries are doing enough to address climate change



- Business leaders who believe climate change is significant and an urgent priority
- Business leaders who feel sufficient efforts are being made in their industry to restrict global warming to less than 2 degree Celsius

Note: Percentage represents the proportion of respondents selecting 'Strongly agree' and 'Agree'



## Joe Kaeser President and Chief Executive Officer, Siemens AG

Committing to cutting our global carbon footprint is not only prudent — it's profitable.

A number of major companies — from PepsiCo to Walmart to U.P.S. — have recognized that corporations have a responsibility to address the causes of climate change before it is too late.

We do not have to wait for an international treaty or new regulations to act. At Siemens, the global industrial manufacturing company I lead that makes everything from wind and gas turbines and automation systems to high-speed trains and M.R.I. machines, we understand that taking action is not just prudent — it's profitable.

That's why, today, we are committing to cut our global carbon footprint in half by 2020 and to make our global operations carbon neutral by 2030. We will accomplish this by eliminating a vast majority of our carbon emissions, while also supporting projects that reduce greenhouse gas emissions outside of Siemens, known as carbon offsets. Our net CO<sub>2</sub> emissions will be zero.

Worldwide, Siemens employs more than 340,000 people, does business in over 200 countries, and operates nearly 300 major production sites. Last year, we were responsible for 2.2 million metric tons of carbon emissions. That means our global carbon footprint is about three-quarters that of Washington, D.C., where our United States headquarters is.

So how does a company cut its carbon footprint in half in just five years? We're targeting facilities, vehicles and fuel.

Over the next three years, we plan to invest more than \$110 million to improve

energy efficiency at offices and factories, including sites in the United States, Germany, China, Brazil and Britain. These investments are based on existing strategies and promising results.

At our gas turbine plant in Berlin, we installed automated heating and ventilation systems and moved to more energy-efficient lighting. At our plant in Sacramento, where we build light-rail vehicles and Amtrak locomotives, we installed solar panels that generate about 80% of the plant's energy needs.

While time consuming and labor intensive, requiring us to go system by system and location by location, the effort is paying off. Between 2010 and 2014, we increased our facilities' carbon efficiency by approximately 20%. We also will require Leadership in Energy and Environmental Design certification for all our new buildings, including our new global headquarters in Munich.

We will also focus on our company fleet of about 45,000 vehicles producing roughly 300,000 metric tons of carbon emissions per year. In Germany and elsewhere, we have already lowered emissions by the purchase of more fuel-efficient cars for our employees and service teams. Now we'll do this on a global scale.

We will increase our use of distributed energy systems at our own sites — by combining solar panels, wind and highly efficient gas turbines with intelligent energy management, smart grids and energy storage solutions.

Finally, we will buy clean power. To make up for the emissions that cannot be avoided in the near term, we will purchase electricity from renewable sources like wind parks and

"carbon credits" from credible organizations working to reduce carbon around the world, ranging from reforestation efforts to updating power plants.

Through these steps, we hope to demonstrate to other companies that cutting your carbon footprint is not only possible, but profitable. With today's software and technology, it's easier than ever before to increase efficiency. And while it requires a substantial investment, it will pay for itself quickly. In fact, we expect our \$110 million investment to pay for itself in just five years and generate \$20 million in annual savings thereafter. In other words, cutting your carbon footprint is not only good corporate citizenship — it's also good business.

I do not want to make this effort sound simple. This requires major support at all levels of the company, particularly at the board level. It requires that we take a longer-term view when it comes to investment decisions. It means accepting a longer payback period for energy-efficiency measures.

But no effort can be spared and all of us must do something. While we remain hopeful that global policymakers will come to an agreement at the United Nations Climate Change Conference in Paris later this year, we also know that the business community does not have to wait to act.

As we approach the COP21 negotiations in Paris, the opportunity is clear: We have the technologies, we have the business cases, and we have the responsibility. Now all we need is the commitment.

*A version of this letter was originally published in The International New York Times on September 22, 2015.*

## The climate challenge is presenting both challenges and opportunities to companies in every sector

This year, our research demonstrates that business leaders are engaging with climate change not only as a global issue that demands urgent action, but also as a powerful disruptive force that is presenting challenges and opportunities for their companies. Where action on climate change may previously have focused on the mitigation of disruptive impacts and the management of future risk, business leaders are beginning to focus on opportunities for growth and innovation. More than half (54%) of company leaders surveyed—and fully 70% from companies with annual revenue in excess of \$1 billion—believe that climate change will create

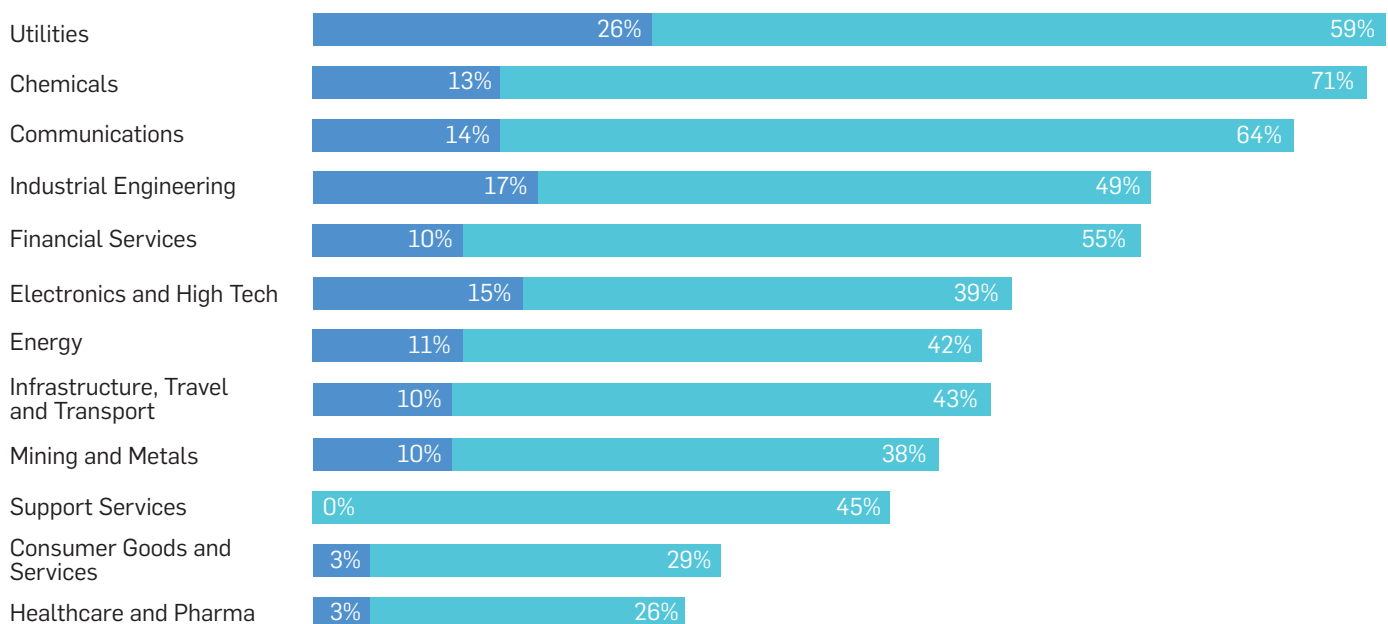
opportunities for growth and innovation for their company in the next five years, and 48% believe that there is already a clear business case in their industry for action on climate change.

As might be expected, views of climate challenges and opportunities vary widely by industry. Leaders of fully 85% of companies in the utilities sector, 84% in chemicals, and 78% in communications see climate change bringing about new opportunities by 2020. Similarly, a majority of business leaders in utilities (77%) and chemicals (65%) already see climate change reshaping industry economics. Most strikingly, business leaders in certain sectors already see climate change having a profound and disruptive impact on their industry, with direct impacts of climate change, the effects of enhanced regulation and government action, and future opportunities to enable new solutions all contributing to shifting

industry environments: more than one-third of companies in the utilities (46%), communications (36%) and infrastructure (33%) sectors believe that climate change will fundamentally disrupt their business within five years.

The disruptive impact of climate change on traditional business models and industry sectors, added to opportunities for growth and innovation in addressing the global challenge, means that climate change now sits at the center of many corporate strategies for growth. More than half (57%) of business leaders we surveyed believe that investment in climate solutions will be critical to achieving competitive advantage in their industry; this trend is particularly pronounced in certain sectors (90% in mining and metals, 83% in utilities), in certain regions (69% in Africa, 65% in Latin America), and among the world's largest companies (69% of companies with annual revenue in excess of \$1 billion).

Figure 3: Business leaders across industry sectors see opportunities for growth and innovation in addressing the climate challenge



■ "Strongly agree": Climate change will create opportunities for growth and innovation for my company in the next 3-5 years

■ "Agree": Climate change will create opportunities for growth and innovation for my company in the next 3-5 years





## Gavin Patterson Chief Executive Officer, BT Group

*Gavin Patterson*

When I became BT CEO two years ago, I knew we could do more not only to help ourselves be a low-carbon company, but also help our customers on this journey too.

Last year we earmarked £440 million to ensure all our energy came from renewable sources. BT is now 100% renewable in the UK and in less than five years' time, 100% of our global operations will be renewably powered where markets allow.

But we want to go even further, because at BT our purpose is to use the power of communications to make a better world.

People around the globe have become savvy downloaders, digital creators and online shoppers. Our customers now want and expect always-on connectivity. Whether they're at home or out and about. Whether they're working, streaming entertainment or relying on ICT to keep their global business connected. An always-on, constant flow of data is becoming the new norm.

ICT enabled solutions also have the potential to remove 9.1 Gt of CO<sub>2</sub> from industrial production per year. According to the IEA's Carbon Tracker Initiatives, that's more than 10% of the amount of CO<sub>2</sub> we can 'safely' manage to prevent dramatic climate change. A Harvard Business School study estimates that across 11 representative economies 4.5 Mt of CO<sub>2,e</sub> could be saved annually from virtualizing services.

Managing a company with these types of tools gives us a huge responsibility and it's one I intend we live up to.

We've set ourselves a simple ambition. To help our customers reduce their carbon emissions by at least three times our own end-to-end carbon impact by 2020.

Our toughest challenge is still on the demand side – inspiring people to take action on climate change. That's why in September we launched 100% Sport. It's a global movement to inspire millions of sports fans worldwide to switch to renewable energy to make a better world. It also aims to encourage the clubs, organizations and players they love to do the same. 100% Sport has the potential to accelerate our journey to the next century.

But of course we're just one company in a globe of many. Failure to tackle that big challenge – climate change – puts us all at risk. So we need certainty. Certainty that our investment in renewable energy and the low-carbon economy will reap rewards for all. Certainty that the actions of companies like ours are adding up to a bigger impact on a global scale.

That's why, with the UN climate negotiations almost upon us, on behalf of my colleagues, our customers and myself, I'm asking for three clear things before the end of the year:

- Firstly, new financial instruments to help stimulate alternative energy and efficiency projects as well as green bonds.

- Secondly, an ambitious fifth carbon budget to help drive further reductions in UK emissions. I know we all work harder when we have clearer goals to work towards.
- And thirdly, a strong global climate deal in Paris in December, which limits temperature rises to 2C. We have a unique chance to make this happen and a unique responsibility.

The economic cost of not meeting this challenge has been well quantified – 4% of our global GDP by 2100 according to the World Resources Institute.

The benefits grow clearer day by day. When we're connected we come together. And when we come together we can achieve great things, not just for us today, but for our children tomorrow.

Let's make Paris not just a footnote in history, but a turning point for us all.

## To unlock the potential of the private sector, business leaders are looking to close the gap between ambition and execution

Central to our research into business leaders' views is an apparent paradox. More than 90% of business leaders we surveyed believe that climate change is an urgent priority for business, and a majority believe that investment in climate solutions will be critical to future competitive advantage in their industry. Yet less than one-third of companies are allocating significant investment to innovate and scale transformative solutions to the climate challenge, and two-thirds report that their industry peers are failing to play their part.

This gap between ambition and execution is not encouraging for those who believe that the private sector must play a critical role in delivering the transformation required to transition toward a low-

carbon economy. Recognizing this gap, however, many business leaders have begun to engage more actively with governments and policymakers—both publicly and behind closed doors—to shape policy solutions that can unlock further investment from business and begin to provide the means of delivering against an ambitious agreement in Paris.

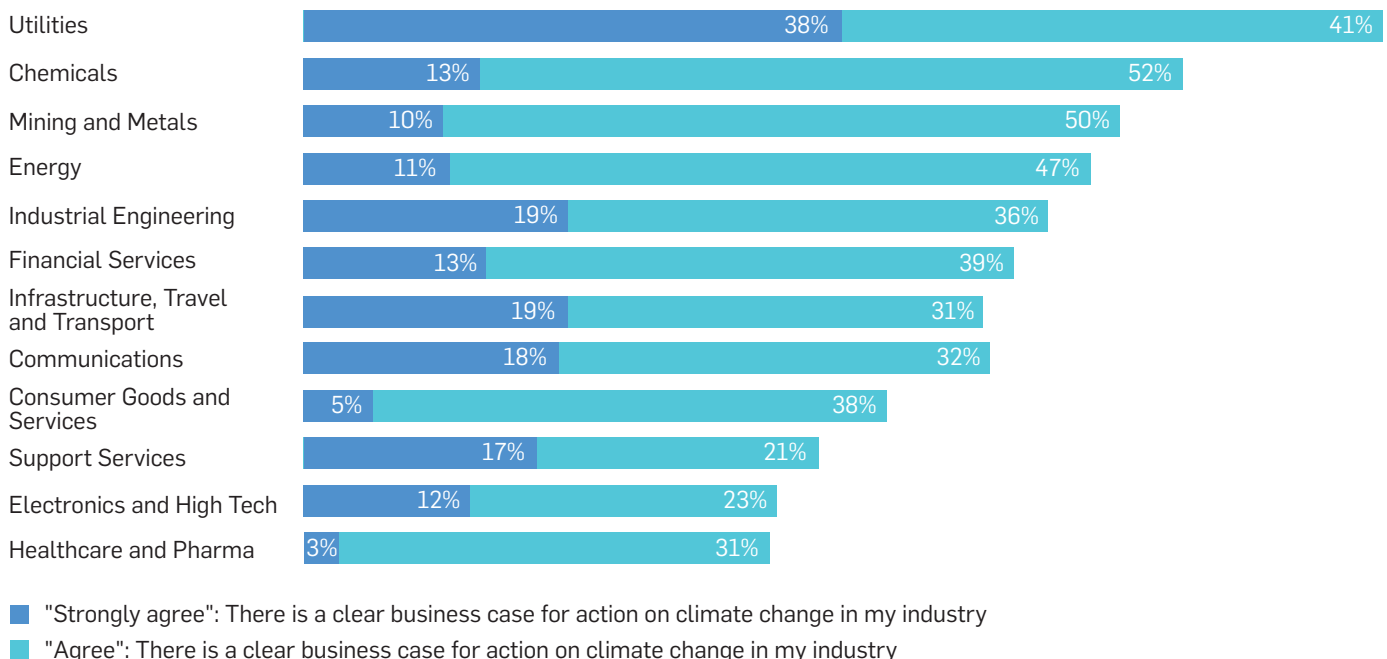
Immediately after the Business & Climate Summit in May, worldwide business networks pledged to lead the global transition to a low-carbon, climate-resilient economy. With widespread recognition at the summit that business could lead the way through scaling-up efforts to build the prosperous, low-carbon economy of the future, business leaders called on policymakers to leverage public funds and private sector finance toward low-carbon assets; to introduce carefully designed, robust and predictable carbon pricing; and to eliminate fossil fuel subsidies.<sup>1</sup>

This coordinated, public engagement was the latest in a reemergence of high-profile business leaders addressing the climate challenge and pledging

to support governments to take bold and ambitious action. In April 2015, a coalition of 43 CEOs facilitated by the World Economic Forum affirmed their collective responsibility to “engage actively in global efforts to reduce global greenhouse gas emissions, and to help the world move toward a low-carbon, climate-resilient economy.” Further, the coalition called upon governments “to take bold action at the Paris climate conference in December 2015 to secure a more prosperous world for all of us,” through “a comprehensive, inclusive and ambitious climate deal in Paris on mitigation, adaptation and finance—in combination with a strong set of clear policy signals from the world’s leaders.”<sup>2</sup>

With a clear, consistent policy landscape, business leaders believe that the private sector can begin to scale up its investment in low-carbon technologies with greater confidence. Closing the gap between ambition and execution—for individual companies, for industry sectors and for the economy as a whole—will depend on unlocking innovation to find solutions that can enable a prosperous future.

Figure 4: Business leaders already see a clear business case for action on climate change



Percentage represents the proportion of selecting 'Strongly agree' and 'Agree'; data based on survey responses from 750 Business Leaders.

## Special Focus – Leading the Way: Views of Caring for Climate CEOs

Signatory companies of Caring for Climate, the UN's initiative for business leadership on climate change, are paving the way for transformative action.

Launched by UN Secretary-General Ban Ki-moon in July 2007, Caring for Climate mobilizes business leaders to advance climate solutions and policies. Since the founding of Caring for Climate, participant companies have demonstrated remarkable progress in pursuing comprehensive long-term strategies that seek to align their interests with a concerted and collaborative global effort to tackle the climate challenge. Through investment in energy efficiency and innovative technologies, these companies are beginning to forge a pathway to a low-carbon economy: in the words of José Édison Barros Franco, InterCement Board of Directors' President, "We have the capital and flexibility to implement low-carbon initiatives that both make business sense and can lead the economy to a new model of production-consumption."

### From transformational leaders to climate champions

In the most recent UN Global Compact-Accenture CEO Study, published in 2013, our analysis of the 'Transformational Leaders' showed how companies that combine outstanding business performance with sustainability leadership are more likely to regard sustainability as critical to the success of their business; to approach sustainability as an opportunity for growth and innovation; and to attach greater importance to effective partnerships with investors, governments and civil society.

This year, to understand the views of CEOs leading the way in the private sector's response to the climate challenge, we have conducted a special survey of CEOs of Caring for Climate participant companies. Our analysis reveals instructive lessons on how leading companies are approaching the climate challenge. Fully 80% of CEOs surveyed believe that action on climate change is an urgent priority for their business: not just a top-level agenda item for business generally, but critical to the future prospects of their own company. Murilo Ferreira, CEO of Vale, notes that widespread participation in Caring for Climate initiatives are "essential to the success of our business and the prosperity of host communities" and in the words of Paul Bulcke, Chief Executive Officer of Nestlé, "We are strongly committed to providing climate change leadership in the long-term."

This commitment is rooted in the fundamentals of business success: 77% of Caring for Climate CEOs perceive opportunities for growth and innovation in addressing climate change – significantly higher than the 54% of UN Global Compact participants globally – and 74% report that their companies are already seeing rewards from their investments in low-carbon solutions. The motivations of these business leaders to invest in climate solutions are striking: the potential for revenue growth and cost reduction is identified as the single most important

factor, cited by two-thirds of respondents. Zenji Miura, President and CEO of the Ricoh Group, notes the company is looking for opportunities beyond the boundaries of their conventional businesses, "We seek to become a leader in releasing and spreading new low-carbon technologies, products, and business models around the world, which address the climate challenge while growing our business in new markets."

Brand, trust and reputation remains important, as consumers and citizens look to the private sector for leadership, and companies see an opportunity to steal a march on their competitors: the third-most important motivating factor cited by CEOs is the opportunity for competitive advantage in their industry. As Joe Kaeser, President and Chief Executive Officer of Siemens AG, observes: "We understand that taking action is not just prudent — it's profitable."

These motivations provide an illuminating comparison with the critical factors cited by CEOs in the 2013 CEO Study. Then, a clear majority of respondents (69%) saw brand, trust and reputation as a key motivating factor, with 49% citing the potential for revenue growth and cost reduction. The primacy of revenue- and cost-related motivations with regard to investment in climate solutions is an encouraging sign for those working to align global markets with development objectives – and confirms that many



Figure 5: Caring for Climate CEOs are realizing the business opportunity in investing in climate solutions



Data based on survey of 75 CEOs of Caring for Climate participant companies; data represents proportion of respondents selecting "agree" and "strongly agree".

of the world's leading companies are approaching climate change as a route to innovation and growth.

### Making progress: CEOs call for ambitious action in Paris

Amid the commitment of CEOs to tackling the global climate challenge is a clear message to governments and policymakers. With one-third reporting that current policy and regulation is hindering their company from investing in low-carbon solutions, fully 87% of CEOs believe that a long-term agreement in Paris is critical to unlock private sector investment in addressing the climate challenge.

Business leaders recognize that the onus is not on the public sector alone. An essential element in the commitment of CEOs to the Caring for Climate platform is to engage actively and responsibly with governments and policymakers; in this context, 93% believe that greater collaboration is needed between business and governments, and 84% assert that companies must step up their role in providing proactive, constructive input for governments to create effective climate policies. Kurt Bock, CEO of BASF, emphasizes the need for disruptive innovations, noting "I am convinced that cross-sectoral co-operations play an

important role"; similarly, Zenji Miura underlines that the Ricoh Group "calls upon our peers to take a leadership position on climate change."

Asked what action by governments would motivate their companies to accelerate action in tackling climate change, CEOs identify an ambitious global agreement in Paris as the single most important factor: as Niels B. Christiansen, President and CEO of Danfoss A/S, notes, "we absolutely need to speed up the implementation of low-carbon solutions, and a strong agreement in Paris could serve as a much welcome accelerator."

### Accelerating action: The need for carbon pricing

Addressing the specific elements of a deal in Paris, business leaders emphasize the urgent need for a robust system of carbon pricing (see 'Special Focus: Carbon Pricing', p. 34). Fully three-quarters of CEOs surveyed believe that carbon pricing is an essential tool in accelerating action on climate change. Specifically, 84% believe that carbon markets, enabled by a robust carbon price, can drive low-carbon innovation and investments in clean energy and efficiency: as Claudio Descalzi of Eni notes, "We believe that carbon pricing will discourage high emissions options and reduce uncertainty, while

stimulating investments in low emissions technologies and the use of the right resources at the right time." Reflecting on the road ahead, and the ability of their companies to plan effectively for the future, 82% of CEOs believe that business needs a clear roadmap and timeline from governments on policies related to future carbon pricing mechanisms.

Business leaders also see other interventions from governments and policymakers as part of the critical pathway towards unlocking further private sector investment. Nearly half of CEOs surveyed (43%) identify a need for legislative and fiscal mechanisms (e.g. tax incentives, removal of trade barriers, feed-in-tariffs) that can stimulate investment in climate solutions; 38% call for more stringent and consistent performance standards that can reduce emissions and enhance climate resilience; and 31% see the removal or phasing out of fossil fuel subsidies as key to further progress. In the words of Eldar Sætre, President and Chief Executive Officer of Statoil ASA, "The transition to a low-carbon economy is a bigger task than any single company alone can achieve. For us to contribute more and faster, we need urgent action from policymakers to enable clear, stable and long-term regulatory frameworks to channel investments and technological advancement in the right direction."

# Climate Coalitions: The Road to Paris

## The opportunities presented by the climate challenge will be seized through investment and innovation

Our research demonstrates that companies in every region and in every industry sector are seeking new opportunities for growth and innovation in addressing the climate challenge. For those companies that can take a leading role in innovating the solutions of tomorrow, the opportunities are legion. But striking out ahead of competitors and achieving a new competitive advantage will depend on clear, unambiguous leadership and a commitment to investment in new markets and new technologies.

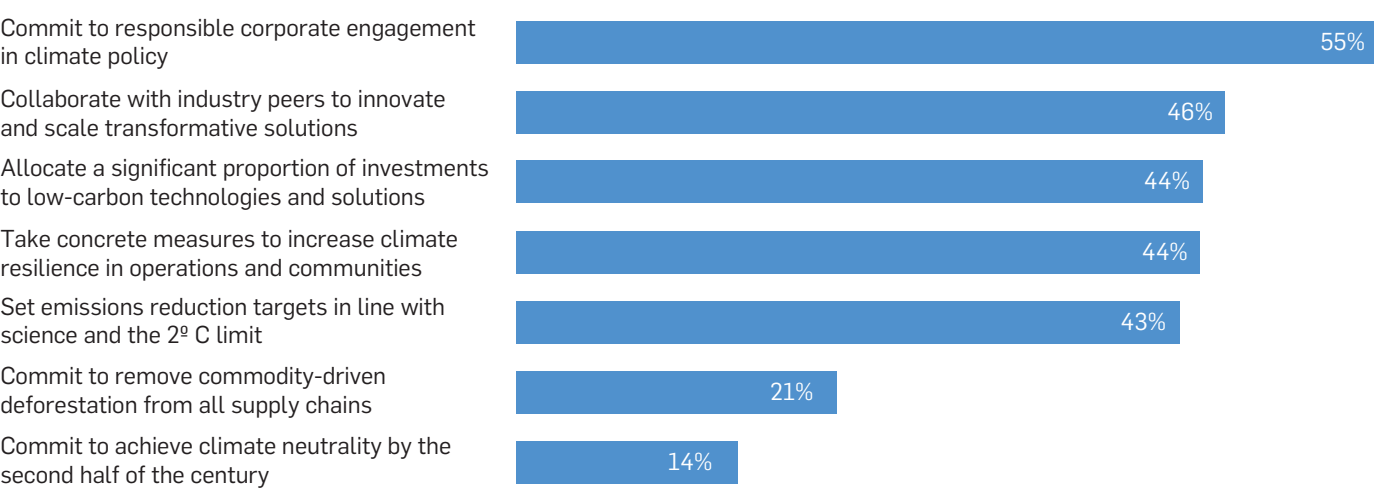
Adopting a leadership role on climate will demand that companies orient their operations to the demands of the climate challenge, seeking efficiencies throughout their supply chain; scale up their investment and innovation targeted at new market opportunities through innovative solutions; and work collaboratively with governments, regulators and industry peers to shape consistent and coherent regulation that ensures a level playing field for climate change action.

To inspire participant companies to adopt an active leadership role in key areas, Caring for Climate has developed a series of business leadership practices. These recommended behaviors for companies committed to demonstrating active leadership in addressing the climate challenge provide practical guidance and blueprints in key areas, including Carbon Pricing; Science-Based Targets; Climate Policy Engagement;

Climate Adaptation and Resilience; and Transparency and Disclosure.

This year's CEO Study Special Edition offers the opportunity to understand the perspectives of business leaders with regard to the leadership behaviors they perceive as important, and those on which their company is currently engaged. Asked about the most important behaviors that characterize leading companies on climate change, business leaders identify responsible engagement (with 55% selecting this behavior among their top three), collaboration with peers to innovate and scale transformative solutions (46%), and investment in low-carbon technologies (44%). Respondents also recognize the importance of business leadership in areas such as climate resilience in operations and communities (44%), and emissions reduction targets in line with science and the 2C limit (43%).

Figure 6: Business leaders see responsible engagement, collaboration and investment as critical to business leadership on climate change



Note: data represents the proportion of respondents selecting each factor among their top three choices.

## Leadership behaviors: responsible corporate engagement

Business leaders identify the most important business leadership behavior on climate change as committing to responsible engagement in climate policy. Companies play an important role in providing proactive, constructive input for governments to create effective climate policies. Through the core elements of legitimacy, opportunity, consistency, accountability and transparency, businesses can “connect the dots” between their sustainability commitments and their corporate policy positions.

The commitment to this principle of responsible engagement is demonstrated by the group of nearly 400 UN Global Compact signatories who have already made a public commitment to engage more actively and responsibly with policymakers. Through committing to engage responsibly on climate policy, companies agree to:

- **Identify the company's climate change risks, opportunities and policy influences:** To establish legitimacy and understand opportunity, a responsible company will tune into the outside world and be open to understanding the implications of climate change.
- **Align words with actions, ambitions and influences (both direct and indirect):** To ensure consistency and accountability, a responsible company will take steps to review and align its direct and indirect influences on climate policy.
- **Report on policy positions, influences and outcomes:** To ensure transparency, a responsible company will disclose information about how it views climate policy and what it is doing (or has done) to help advance policies that reflect that position.<sup>3</sup>

## Leadership behaviors: collaboration with industry peers to innovate and scale transformative solutions

Through assessing the implications of climate change, creating and aligning policy positions, and seizing these opportunities to provide constructive input, leading companies are charting a pathway for others to follow in their engagement on climate policy, shaping the context for future transformation.

Respondents to our survey also believe strongly in the importance of collaboration with industry peers to foster leadership, innovation and scaling of climate solutions. Collaboration among business, governments, civil society and the UN can fuel innovation and advance solutions to effectively address climate change; effective partnerships can help facilitate the transfer of technologies, especially to developing and middle-income countries.

In our survey, 46% of business leaders identify collaboration with industry peers to innovate and scale transformative solutions as one of the critical leadership behaviors for success. They perceive advantages for their industry, and the beneficiaries of the solutions it can provide, but also for their own company: 48% believe that broad action by business in their industry will accelerate market opportunities for their own companies.

The emphasis on collaboration is particularly strong in asset-intensive industries that need to overcome unique barriers to promote innovation: business leaders in the energy (61%), chemicals (61%) and mining and metals sectors (55%) place particular emphasis on collaboration with peers. To meet this need, the UN Global Compact Business Partnership Hub has been created to facilitate such collaboration. It allows companies to browse existing partnership projects and to showcase those that have potential for scalability and that seek to engage additional partners.

## Leadership behaviors: investment in low-carbon technologies and solutions

Business leaders identify investment in low-carbon technologies and solutions as the third most important leadership behavior on climate change. In our survey, 44% of respondents identified investments in low-carbon technologies and solutions as a critical leadership behavior; the proportion is notably higher in the communications (59%), energy (58%) and utilities (56%) industries, all sectors well positioned to gain from the market opportunities presented by the transition to a low-carbon economy.

A commitment to investing in new technologies and solutions is a critical element in leading companies' ability to shift the response of the private sector to the climate challenge. In moving from an approach of mitigation and adaptation that responds to climate impacts to a proactive, forward-looking mindset focused on opportunity, innovation and growth, the private sector can harness its collective resources to become the engine of transformation. Tackling climate change will be central to the achievement of the Sustainable Development Goals, ensuring livelihoods and prosperity, and the ability of companies to invest in innovation and technology will be critical.

Leading companies are already developing and improving innovative technologies, driving energy efficiency, growing the supply of renewable energy, leveraging low-carbon innovations and building climate resilience. With a number of leading technological and social innovations already in place, there is enormous potential to mitigate and adapt to climate change by bringing these innovations to scale. The Caring for Climate Business Forum provides a venue for business and investors to demonstrate progress and discuss how to bring greater scale to business innovation.



## Leadership behaviors: climate adaptation and resilience

Of the 750 respondents to our survey, 44% underlined the importance of investing in climate adaptation and resilience across their operations and in the communities in which they operate.

Climate change poses risks for human and natural systems and, according to the IPCC, can lead to breakdowns of infrastructure networks and critical services, food and water insecurity, and the loss of ecosystems. The consequences of climate change can have an impact on the utilities and affect operations of businesses, their supply chains, workplace security, consumer needs and market expansion. Anticipating and adapting to climate change impacts therefore bring multiple benefits to companies, such as avoiding costs and better managing liabilities, protecting employees, expanding market shares

through new products and services, and accessing new financing streams.

Business leadership in this area can be driven by risk and opportunity, for example, in preempting the potential consequences of climate change that can affect supply chains, or in expanding into new markets through new products and services. Caring for Climate aims to highlight leading corporate adaptation actions to show the benefits of adaptation and community resilience for the private sector, particularly in developing countries, and to inform the preparation of company strategies and activities in this area.

## Leadership behaviors: science-based targets

Leading companies are also taking action to set ambitious climate goals and capture the economic opportunities of a low-carbon transition. Specifically, science-based target setting to reduce greenhouse gas emissions and limit

global warming to less than 2C is an effective mechanism for businesses to address climate change and advance the global development agenda. In our survey, 43% of CEOs see reduction targets in line with science and the 2C limit as one of the most important climate leadership behaviors for companies to adopt.

According to data reported to CDP, more than 80% of the largest 500 companies in the world have already adopted commitments to reduce their greenhouse gas emissions. By aligning corporate voluntary greenhouse gas reduction targets with climate science, companies can contribute to closing the gap to 2C, improve performance through resource efficiency and innovative solutions, and strengthen stakeholder reputation and investor trust.

Caring for Climate, in partnership with CDP, the World Resources Institute (WRI) and WWF, calls on companies to align corporate voluntary greenhouse gas

## RELX Group: Capturing the opportunity in big data analytics to transform the future of agriculture

With the market for big data and mobile information services valued at over \$220 billion in 2014, major companies are looking to expand their capabilities and access new markets. Across industry sectors, climate-smart solutions are revolutionizing management and helping companies make better decisions, optimize resource productivity, improve resilience and reduce emissions. Mobile information services, for example, combined with cloud-based analytics, are transforming production and land use in the agricultural sector, optimizing inputs and improving yields.

RELX Group, formerly Reed Elsevier, is one of the world's largest content, technology and analytics companies. The company has rapidly responded to changing markets and technologies, transforming from print publishing to digital, and is now driving the transition from electronic reference to electronic

decision tools with broader data sets and more sophisticated analytics. Through Reed Elsevier Ventures, a global venture capital partnership, RELX invests in disruptive companies that align with its core competences to partner in transforming markets through the application of data, technology and analytics.

Recognizing the rapidly changing future of farm production, in 2014 Reed Elsevier Ventures entered the agricultural information management and big data market with an investment of \$5.4 million in Agworld, an Australian agricultural cloud software company. Agworld provides a farm management platform which connects key players in arable agricultural production to enhance the efficiency and profitability of farms. Cloud-based analytics and mobile information services can improve agricultural

techniques and resilience to deliver better results: by generating detailed insights, for example, farmers can make data-based operational decisions on nutrition that optimize yields, increase revenue, reduce costs and lower the risk of crop failure.

Agworld is currently used by over 17,000 growers and consultants in the U.S., Australia, New Zealand, South Africa and Chile, and is at the forefront of farming information solutions. At present, limited knowledge and mechanisms for the diffusion of technology are major barriers to the expansion of smart agricultural and land use techniques: government intervention to advance local financing systems and increase awareness among fragmented producers will be critical to developing markets and driving adoption of the big data technologies that fuel climate-smart farming solutions.

reduction targets with climate science, demonstrating how companies that follow this path can safeguard future profitability through driving innovation, enhancing competitiveness, building their credibility and reputation, and influencing public policy frameworks.<sup>4</sup>

## Companies demonstrate a 'performance gap' between ambition and execution

Our research uncovers a gap between ambition and execution on climate action, with notable "performance gaps" between those leadership behaviors that CEOs believe are most important, and those actions that their own companies have already taken. For example, while 43% of business leaders believe companies should set emissions targets in line with science, just 27% report they have already done so. And while 44% believe

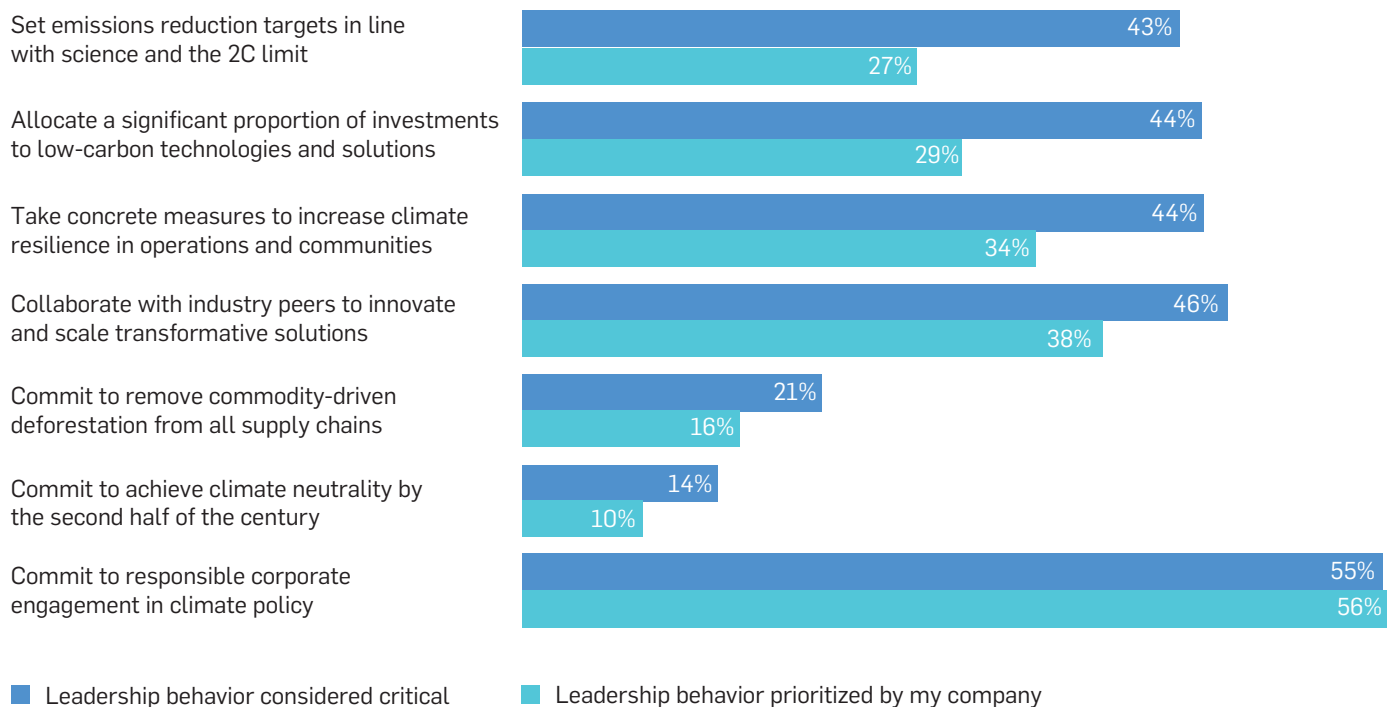
companies should scale up their interests in low-carbon solutions, only 29% are already allocating significant investment.

These gaps demonstrate the challenge that many business leaders face in advancing transformative action on climate change. Even for those leaders personally committed to advancing action on climate change, pressure from shareholders and other stakeholders, the lack of a compelling business case, or a lack of clarity in policy and regulation may be holding them back. Indeed, 14% of all respondents acknowledge that they are not currently engaged in any of their identified leadership behaviors.

Even on responsible engagement, a behavior already adopted by 56% of companies in our survey, progress may be slower than a glance at the leaders might suggest: less than half of respondents believe that business as a whole is providing constructive input to create effective climate policies.

Importantly, our survey suggests that the push for more responsible engagement may be hampered by the lobbying activities of some industry and trade associations. While nearly three-quarters of Global 500 respondents to CDP reported that they engaged with policymakers on climate legislation through their trade associations, our respondents highlight inconsistencies with trade associations as one of the greatest challenges to responsible engagement on climate policy: just 45% of respondents (as few as 38% in North America) believe the industry associations reflect their views on climate policy.

Figure 7: Companies demonstrate a performance gap between ambition and execution



Note: data represents the proportion of respondents selecting each factor among their top three choices.



## José Édison Barros Franco

### Board of Directors' President, InterCement

Climate change poses a threat to the sustainability of all life on Earth and is the greatest challenge we will face in the 21st century. While the intensive use of carbon-intensive materials has led to the incredible pace of prosperity and social progress seen in the last century, if we continue on this path all progress to-date will be at risk.

Ongoing debate regarding the human origins of global warming and resulting changes in weather patterns are futile. In the world today, we are already experiencing the impacts of climate change, and they threaten business and economic growth. A new, low-carbon economy has become essential.

While we have all contributed to this urgent issue, we must now be a part of the solution, and InterCement believes that the private sector will have a decisive contribution to make in the transition to a low-carbon economy. We believe we have a moral obligation to act on climate change, reduce the negative impacts from our operations, and pursue business opportunities to innovate transformative solutions. We have both the capital and flexibility to implement low-carbon initiatives that both make business sense and can lead the economy to a new model of production-consumption.

Our company works with construction materials, a key sector for providing elements that are essential for human development, including infrastructure, housing, schools, hospitals and sanitation. Concrete is the second most consumed material on the planet and the industry's carbon footprint is responsible

for almost 5% of the world's greenhouse gas emissions. We have both a duty and responsibility to act.

At InterCement, we have incorporated climate change into our strategy. In 2006, we ratified the "Sustainability Letter," which described our ambitions and long-term vision for economic, social and environmental issues. In 2009, we set out our "Climate Agenda," which comprised nine commitments for mitigating and adapting to climate change. Our current long-term strategy, "Vision 2023" further incorporates the carbon variable and defines our commitments to:

- Increase our substitution of fossil fuels for alternative energy sources, from 15% to 43.4% by 2023;
- Increase additives in the cement production process from 28.2% to 40% by 2023, underpinned by hard-won achievements in establishing new technical standards that will substitute the consumption of natural resources and reduce CO<sub>2</sub> emissions; and
- Invest approximately \$80 million in R&D projects by 2023, achieving a low-carbon portfolio that has the potential for reducing carbon emissions by up to 40%.

The cement sector also plays an important role in industrial ecology, when it transforms waste, an environmental liability, into an alternative fuel. Co-processing is, therefore, an important element in our emission reduction strategy.

Because of our leadership in these areas, InterCement is prominently recognized among our peers in the Cement Sustainability Initiative, a voluntary movement that brings together the largest international cement companies. We see a strong role for partnerships in the search for transformational, industry-led solutions: we are proud to engage in the Caring for Climate initiative and other voluntary business forums, with universities and with governments, to share our path and identify new opportunities. We hope the private sector will, through leadership and collaboration, unlock scalable solutions that will address the climate challenge.

In Paris and beyond, governments and policymakers will have the opportunity to finalize the debate on matters that are fundamental to creating business opportunities in the construction sector. COP21 will play a critical role in providing mechanisms for encouraging renewable energy and energy efficiency and a price on carbon that enforces the true value of environmental assets

We have already come a long way, but we have to—and we can—do even more.



## Business leaders see a vital role for policy in unlocking the potential of the private sector

The most recent triennial UN Global Compact-Accenture CEO Study, published in September 2013, demonstrated a notable change in attitudes over the role of policy. In a distinct shift away from the widespread faith in market solutions that was shared by the majority of CEOs interviewed for the 2007 and 2010 studies, 83% of CEOs in 2013 highlighted the importance of government policymaking and regulation in achieving further progress on sustainability.

This year, for our Special Edition Study on climate change, we asked business leaders for their views on the policy tools that could enable their companies to go further, faster on climate change. Looking specifically at the climate challenge, CEOs see five critical policy measures that can unlock further private sector investment and address the climate challenge:

### 1. Legislative and fiscal mechanisms to increase investment in climate solutions

In our survey, 70% of business leaders identify legislative and fiscal mechanisms as a critical element in unlocking further private-sector investment in climate solutions. Sector-specific fiscal policies can send price signals to the market, creating incentives for business to invest in low-carbon technologies and accelerate the implementation of existing solutions on a wider scale.

Fiscal incentives and policy mechanisms, such as rebates, tax credits, feed-in tariffs and subsidies, can be used to stimulate new markets for innovative technologies and overcome entry barriers. They can also be used to create demand for low-carbon solutions and to drive adoption of new technologies. Mechanisms also include reducing barriers to trade and investment for

renewable energy and low-carbon technologies, boosting access to innovation and enhancing the resilience of communities.

By setting coherent fiscal mechanisms at the global, regional and local levels, governments and regulators can provide a level playing field that can help to scale up climate-smart innovations, and stimulate investment in low-carbon technologies. New frameworks can stimulate market-based investment, knowledge and technology development, and collaboration.

### 2. Financial instruments to stimulate R&D and innovation in low-carbon solutions

The second highest-priority policy measures, identified by 50% of our respondents, is the creation of innovative climate financing mechanisms that can unlock private-sector investment to address the climate challenge. R&D is needed not only to develop new technologies but also to make existing ones more affordable; government support can help bring forward innovation and technology breakthroughs, reducing the costs and the risks associated with investment.

Mechanisms to support and de-risk long-term investments or early-stage technologies can include direct grant or research funding, subsidy mechanisms, innovation agreements, tax credits or deductions. Government commitments to the Green Climate Fund have the potential to be catalytic, particularly in developing countries, where public finance can support policy improvements, the green bonds market, public-private partnerships, investment screening and innovative financing.

These instruments, business leaders believe, can stimulate and grow new financing for low-carbon and resilient economic growth, as investors are able to take greater account of climate risks and opportunities in their strategies: the UN-supported Principles for Responsible Investment (PRI) and the

United Nations Environment Programme Finance Initiative (UNEP FI) advocate the integration of climate aspects into decision-making processes.

### 3. Performance standards to reduce greenhouse gas emissions and enhance climate resilience

Business leaders believe that the development of harmonized technical standards could significantly enhance climate resilience and reduce greenhouse gas emissions, particularly in carbon-intensive areas such as infrastructure, construction and transport. Regulatory standards provide certainty and consistency on emission levels, and they send a clear signal that discourages business as usual: nearly half of all business leaders (47%) in our survey identify performance standards as critical to private-sector investment.

Government-led emissions standards and regulations can be designed to mandate companies to invest in low-carbon improvements and incentivize demand for low-carbon products while also being simple for companies to understand and respond to. Examples of such policies include imposing greenhouse gas emission limits or performance standards on operations and products, such as efficiency and vehicle emission standards. The need for and adoption of performance standards can be better understood by the private sector with the development of and access to climate-related risk information, including forecasting systems and vulnerability and exposure data.

### 4. Global, robust and predictable carbon pricing mechanisms

Business leaders are standing up in support of a price on carbon as an effective way to incentivize low-carbon growth and lower greenhouse gas emissions. When surveyed, 42% of CEO respondents (and 59% of those from companies with annual revenue in excess of \$1 billion) cited global, robust and predictable carbon pricing mechanism as critical to unlocking investment (see Special Focus: Carbon Pricing, p. 34).

Establishing a price for carbon could send a clear and predictable signal to business, which commits governments to penalizing greenhouse gas emissions and rewarding deployment of low-carbon solutions. A meaningful price on carbon can bring about the investment needed to realize complex and long-term solutions, such as carbon capture and storage, offshore wind and smart cities.

Carbon pricing mechanisms, such as emission trading schemes and carbon taxes, can be complemented by long-term national or regional energy plans. These plans could include targets for renewable energy use and energy efficiency, and they could support the deployment of renewables through policies such as feed-in tariffs, fiscal incentives and grid integration measures.

### 5. Removal or phasing out of fossil fuel subsidies

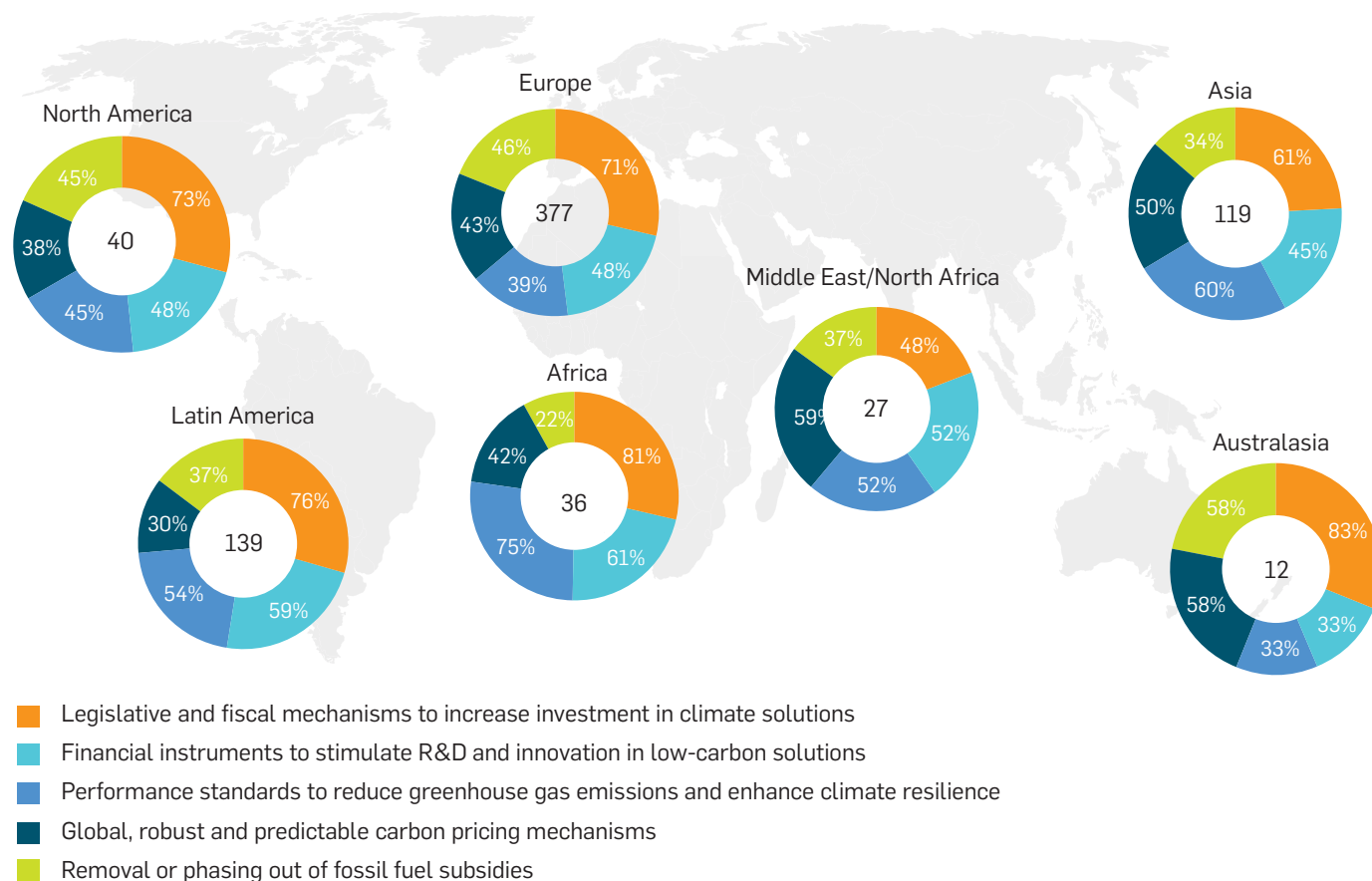
Many business leaders believe that the removal or phasing out of fossil fuel subsidies can support the transition to a low-carbon economy and establish a level playing field in critical industry sectors. Of the 750 companies represented in our survey, 41% cited fossil fuel subsidy reform as critical to furthering investment in climate solutions.

The IEA's latest estimates indicate that subsidies for fossil fuel consumption worldwide amounted to \$548 billion in 2013, more than four times the value of subsidies to renewable energy and more than four times the amount invested globally in improving energy efficiency.<sup>5</sup> Consumer and producer subsidies toward

fossil fuels keep prices to consumers and costs to producers artificially low, disadvantage clean energy sources and divert public resources.

While subsidy phase-out demands careful design and implementation, they can offer significant benefits to transformative businesses and can redirect consumption and investment to clean energy sources. The IEA forecasts that accelerated action toward a partial phase-out of fossil fuel subsidies would create fiscal space for investment in efficiency and clean energy, and reduce CO<sub>2</sub> emissions by 360 megatons by 2020.

Figure 8: Business leaders across geographies see five critical policy measures to unlock private-sector investment climate solutions



Note: data represents the proportion of respondents selecting each factor among their top three choices.

## COP21 in Paris will be a critical juncture in international efforts to combat climate change

While companies are beginning to seize low-carbon opportunities and are already reaping the reward, the majority of business leaders in our survey agree that a long-term agreement in Paris will be critical to unlocking further private sector investment in climate solutions.

The extent to which the agreement enables companies to scale innovative climate solutions will hinge on its ability to effect predictable, robust policy at both the national and international levels and send a clear and credible signal to business that low-carbon policies will endure. To truly create value for business, the agreement should reduce uncertainty, ensure competitiveness and build confidence in comparable implementation at the national level. In responding to our survey, business leaders identify four key elements in an agreement:

### 1. Ambitious national targets by all countries in line with climate goals

Nearly three-quarters (73%) of business leaders surveyed believe that ambitious national targets in line with climate goals will be an essential factor influencing their company's strategy and investments in addressing the climate challenge. Companies that have seized low-carbon opportunities are increasingly seeing rewards, but to go further, business leaders need an ambitious agreement that sends a clear and credible signal to business that climate policy will drive the world toward a low-carbon future.

## IDEAcarbon: Corporations in Action on Carbon Pricing

Over the next 15 years, unprecedented levels of investment will be required to enable the transition of the global economy toward a 2C pathway. Green bonds are a new financing instrument aimed at funding environmental investment, from upgrading building energy efficiency standards to expanding operations in renewable energy. But to mobilize funds quickly, credible and transparent project assessment standards are required to boost investor confidence.

Since the market came to life in 2007, green bond issuance showed strong growth, reaching over \$36 billion in 2014, and is expected to rise to \$100 billion this year. Borrowers include municipalities as well as companies such as Toyota, Unilever, Vestas, Taiwan's technology company ASE, and Thai oil major, Bangkok Petroleum. With rising investor interest, further growth from corporate and municipal bond issuers is expected, particularly as China increases its antipollution and renewable energy investments (\$7.8 billion in Chinese corporate bonds are already connected to environmental projects).<sup>6</sup>

Since green bonds are an emerging asset class, credible standards for what constitutes an "environmental project" have not yet been developed, raising the risk of "greenwashing" bonds. To ensure

transparency in this developing market, in 2007 IDEAcarbon established the Carbon Asset Rating Agency (CARA), which provides ratings, research and strategic advice in the area of carbon finance. CARA's objective is to provide credible analytical tools to measure and predict asset returns in carbon and energy efficiency denominations.

CARA is the world's only rating agency focused on carbon and energy efficiency asset ratings. Its Carbon Bonds Rating methodology assesses the quantitative level of "greenness" of a bond (its Environmental Rating) and the quantitative amount of carbon returns it is likely to produce (its Carbon Rating). Such standardization is intended to increase investor confidence in the market and therefore attract private capital. In particular, environmental ratings of cities and regions will allow them to more quickly and easily raise capital for environmental projects and acquire the funding needed to execute INDCs.

In May 2015 the UN Global Compact joined the IDEAcarbon consortium representing the global corporate communities' participation in an important initiative to value carbon and climate action comparatively and consistently.

The UN Global Compact sees the IDEAcarbon global pricing product initiative as the most credible path

to delivering a geo sector carbon pricing product suite, and eventually a global price on carbon. By joining the IDEAcarbon consortium the UN Global Compact supports the creation of a focused unit within the UN Global Compact umbrella to enable engagement of leading corporations and IDEAcarbon to develop and test geo sector carbon pricing. The UN Global Compact is committed to accelerating the development of these products for its members through a fundraising exercise. As a member of the IDEAcarbon consortium the UN Global Compact will be the umbrella organization for current and new members of the Caring for Climate initiative to engage with IDEAcarbon.

IDEAcarbon, through CARA, develops the tools needed to value carbon and climate action comparatively and consistently, create a global index price on carbon, and enable credible collateralization of environmental assets for debt capital markets. As a result, developing economies may experience increased capital flows, allowing them to invest in the technologies and infrastructure needed to both mitigate and adapt to climate change.

The UN Global Compact and IDEAcarbon will continue to work with all parties in an inclusive and focused manner to help achieve merit-based outcomes we all seek.



**Murilo Ferreira**  
CEO, Vale



Vale believes that development can only be sustainable when our company and society grow together, sharing the value generated through our success. In setting and achieving ambitious goals on sustainability, we seek to establish strong and open relationships with our host communities, contributing to the development of the regions where we are present. We believe that relationships based on ethics and transparency with communities are essential to the sustainability of our business. In order to operate safely and work well alongside communities, we seek to manage and mitigate risk and social impacts and understand their needs and demands, collectively building sustainable solutions for all involved.

Vale recognizes climate change as a major environmental issue that demands urgent and sustained action. We recognize its criticality to our operations, and we are already monitoring climate phenomena: weather and tide changes, for instance, have a significant effect on our day-to-day operations, and potential shifts in disease vectors could also impact the communities in which we operate. The mining sector by its very nature involves long-term investment projects in locations outside of our direct control, making a global commitment to addressing climate change, and widespread participation in initiatives such as Caring for Climate, essential to the success of our business and the prosperity of host communities.

As we approached COP15 in Copenhagen, Vale was one of the first Brazilian companies to publicly set out commitments to action on climate change,

in an open letter published in 2009 with the Ethos Institute, the Sustainable Amazonia Forum and thirty of our industry peers. The Letter also indicated ways for the country to transition to a low-carbon economy, enabling Brazilian business to take advantage of new opportunities and increase its competitiveness. Vale's Global Climate Change Mitigation and Adaptation Policy incorporates the commitments of the Open Letter, establishes a Carbon Goal to reduce direct greenhouse gas emissions and encourages our value chain to do the same.

In addition to our commitments to manage the climate impact of our operations, we focus on both the risks and opportunities for business, with the goal to minimize our vulnerability while maximizing climate opportunities. In particular, Vale supports the development of innovative technologies to reduce greenhouse gas emissions and increase carbon sequestration, and to develop cost-effective regional climate change mitigation and adaptation solutions.

Both through my position as CEO of the Vale Group, and in a personal capacity, I believe that governments and policymakers must play a critical role in creating competitive conditions for all sectors, while encouraging innovation and making the transition towards a low-carbon and resilient economy more effective. At COP21 in Paris this December, we need business, governments and civil society to come together to set a global framework that enables greater international ambition while securing justice and prosperity for all.



Current national pledges are falling short of the action required to stay within the 2C limit, and coalitions of business leaders are calling for greater ambition from national governments, declaring they will actively support leadership from policymakers who set clear frameworks to accelerate investment and deployment of climate solutions.<sup>7</sup>

Business leaders are looking for governments attending the Paris conference to stimulate private sector investment by demonstrating ambition in national commitments, setting long-term goals, and establishing regular review periods to increase ambition over time. The level of ambition will reflect the impact it can have on the long-term plans and investments for business.

## 2. Transparency and accountability of national obligations

Some 70% of business leaders see the transparency and accountability of national obligations as an essential part of a climate agreement in Paris. Leaders of companies headquartered in Africa (83%) and Asia (83%) place particular emphasis on national obligations; those in Europe (67%) are less likely to prioritize this element of an agreement.

Business leaders are seeking transparency and rules related to how the national commitments will be enforced. A clear and standardized systems for measuring, reporting and verification (MRV) of national emissions would build confidence in business that progress will be tracked and contributions fulfilled. A clear work plan would further enable companies to adjust their strategies and investments to align with international and national policy measures.

In particular, business is seeking clarity from governments on what to expect in the implementation of carbon markets: 82% of Caring for Climate CEOs believe that business needs a clear roadmap and timeline from governments on policies related to future carbon pricing mechanisms.

## 3. Equitable global participation to create a level playing field

Business leaders perceive equitable global participation to be central in encouraging competitiveness and creating a level playing field for their industries: 66% of business leaders believe this component will be very important to their strategies and investments.

To reduce disparities in the impact COP21 will have on business globally, the agreement should involve all major global competitors, comparable national commitments, and common rules for measurement and verification. An agreement that drives governments to introduce policy and frameworks equitably will reduce uncertainty for business: enabling global linkages among carbon pricing systems, for example, could avoid carbon leakage and ensure competitiveness across industries and regions.

Notably, companies in the utilities (82%), mining and metals (80%) and chemicals (77%) sectors, industries that rely on global commodity markets, felt most strongly about this aspect of the agreement.

## 4. Support for the creation of effective carbon pricing systems and policies

The majority of CEOs (61%) believe carbon pricing systems and policies will be very important to driving their strategies and investments. Asset-intensive industries are striking in their belief that carbon pricing outcomes will be particularly important to their strategies: respondents from the chemicals (81%), mining and metals (79%) and energy (70%) industries identify carbon pricing as a core element in any agreement.

This past year, in the lead-up to COP21, business leaders across industries have stepped up in support of effective carbon pricing systems: at the Business & Climate Summit in May, an unprecedented 25 worldwide business networks representing companies

across 130 countries were mobilized. The group pledged to lead the global transition to a low-carbon, climate-resilient economy, outlining three central proposals from the private sector, asking governments to: introduce a fair and reliable carbon pricing system; create an alliance with businesses to support the private sector's efforts against climate change; and establish a public fund to support the financial sector's investment in a decarbonized economy.



**Zenji Miura**  
President and CEO, Ricoh

With our environment undergoing tremendous change, we are faced with problems on a global level, including an increase in the number of disasters related to climate change, water and food shortages, and decreasing biodiversity. As a society, meanwhile, we are also dealing with expanding economic disparities and poverty, human rights issues, and rising pollution levels, as we struggle to decouple growth from environmental impact.

Given the urgency of the situation, business must take on a greater role and responsibility in providing the solutions to the climate challenge, and seek a greater impact on societal outcomes. Companies with sufficient capital, talented human resources, innovation-producing technologies, and the ability to conduct business on a global scale can bring business-led solutions to accelerate the world's progress toward a low-carbon economy.

The Ricoh Group has been ahead of its peers in prioritizing environmental, climate and social initiatives to contribute to the sustainability of society and the environment, and in 2002, Ricoh joined the United Nations Global Compact. Based on the principles of this international initiative and our CSR Charter and Code of Conduct, we conduct corporate social responsibility activities across our value chain, in line with the themes: Integrity in Corporate Activities, Harmony with the Environment, Respect for People, and Harmony with Society.

In particular, with respect to the theme of Harmony with the Environment, we launched our Sustainable Environmental Management program which aims to achieve environmental and climate goals while also improving profitability. Based on this concept, we have improved our production processes and developed new technologies within our core business domains as a global supplier of office equipment and solutions. As a result of these efforts, the Ricoh Group now provides products with the world's highest-level energy-saving performance while increasing the efficiency of our production processes, and contributing to reducing greenhouse gas emissions throughout the life cycles of our products.

While Ricoh is seizing the business opportunities, I believe international and domestic collaboration will be critical to more broadly commit the private sector to climate solutions. Ricoh proactively engages in collaborative networks and calls upon our peers to take a leadership position on climate change. For example, as a member company of the Japan Climate Leaders' Partnership (Japan-CLP), we seek to drive private sector activity for the creation of a low-carbon society and we participate in forums to foster dialogue among policymakers, the private sector, and the citizenry. Through this network, we also urge other Japanese companies to get more involved in the issues of climate change.

To help promote a low-carbon economy, we advocate a carbon price in the United Nations global climate agreement. We endorse the World Bank's initiative to support carbon pricing and we are a signatory to the Trillion Tonne Communiqué. We also agree with the coalitions advocating the importance of strengthening anti-climate change measures and limiting the rise in global temperatures to below 2C. We have joined We Mean Business ahead of the upcoming COP21 in Paris to amplify our support of ambitious action by governments.

In our long-term vision for 2020 and beyond, I set sustainable environmental management as a key priority for our company, with a focus on creating new businesses that will help solve climate change beyond the boundaries of our conventional businesses. In 2015, we opened the Ricoh Eco Business Development Center, in which we have made strategic investments for the development of new environment-related businesses. We seek to become a leader in releasing and spreading new low-carbon technologies, products, and business models around the world, which address the climate challenge while growing our business in new markets.







## Special Focus – Carbon Pricing

In the view of CEOs and business leaders across regions and industry sectors, carbon pricing is an essential tool for governments and policymakers in advancing progress on international climate goals and unlocking the potential of the private sector in addressing the climate challenge.

Business leaders see carbon pricing as a route to emissions reduction through incentivizing global markets to innovate the most efficient solutions to the climate challenge. By providing an economic signal to high emitters to decide whether to reduce emissions or to continue business as usual at higher costs, a carbon price can stimulate clean technology and market innovation, fueling new, low-carbon drivers of economic growth.<sup>8</sup> Through our research, it is apparent that many companies are seeking a carbon price to further stimulate and protect their investments in climate solutions: nearly two-thirds of business leaders in our survey believe that support from policymakers for the creation of effective carbon pricing systems will be critical to their company's future strategy and investments.

Private-sector support to put a price on carbon is growing and broadening. In 2014, more than 1,000 companies and investors spoke up in support of carbon pricing through a series of initiatives led by the World Bank. Similarly, the 2014 Global Investor Statement on Climate Change, signed by more than 360 investors with more than \$24 trillion in assets under management, included a call for "stable, reliable and economically meaningful carbon pricing that helps redirect investment commensurate with the scale of the climate change challenge."

This year, a broad spectrum of business leaders – both individually and in concert – have called for the wider use of robust, effective carbon pricing mechanisms to provide predictability and long-term signals that incentivize investment. Continuing the momentum of the Paris summit, in June a group of six major oil and gas companies announced a call to governments around the world to introduce carbon pricing. Our survey shows strong support for carbon pricing, even in sectors that might once have been considered resistant to such a development: 79% of business leaders in the mining and metals industry, and 71% in oil and gas, identify the creation of effective carbon pricing systems as critical to the development of their company's strategy and investments.

Our conversations suggest that business leaders are stepping up, both individually and collectively, because they believe a price on carbon can unlock investment in solutions that can build competitive advantage and tackle the climate challenge. A price on carbon is regarded as an effective way to incentivize low-carbon growth and lower greenhouse gas emissions: nearly half of all business leaders and Caring for Climate CEOs we surveyed believe that global, robust and predictable carbon pricing mechanisms will be critical to unlocking private investment in climate solutions. Caring for Climate CEOs further believe that carbon markets will drive low-carbon

innovation (84%), and that carbon pricing is an essential tool in accelerating action on climate change (75%).

Business leaders identify several pathways that governments can take to enable the development of a robust carbon price, providing varying levels of predictability and flexibility for business. An emissions trading scheme (ETS), also referred to as a cap-and-trade system, caps the total level of greenhouse gas emissions and allows industries with low emissions to sell their extra allowances, creating supply and demand for allowances and providing flexibility to larger emitters. Alternatively, a carbon tax directly sets a price on carbon by defining a tax rate on greenhouse gas emissions. A tax differs from an ETS in predefining a price rather than an emissions reduction target, providing cost predictability to business, and raising revenue that can be redirected toward low-carbon investment. The design and the policy details can vary within each; blended carbon pricing systems comprising both an ETS and a carbon tax could also be used to reflect the variety of national and economic circumstances among and within countries.<sup>9</sup>

Support for carbon pricing is growing around the world as governments acknowledge that carbon pricing can effectively reduce greenhouse gas emissions without harming economic prosperity. Today, nearly 40 national governments and 20 cities, states and



provinces, representing nearly half of global CO<sub>2</sub> emissions, are participating in or preparing for a carbon price. China, for example, has seven pilot carbon markets, and plans for a national emissions trading system; this past year, California and Quebec have linked their cap-and-trade markets, with neighboring areas planning to join. Altogether, the initiatives in operation today are valued at almost \$50 billion, and many are proving they can benefit both the environment and economies.<sup>10</sup> In the U.S., for example, the nine states that participate in the Regional Greenhouse Gas Initiative cut their emissions by 18% and grew their GDP by 9.2% in 2009–13; emissions in the remaining states fell by just 4%, with GDP growth of 8.8% over this same period.<sup>11</sup>

While market readiness is clear, global participation and international cooperation will be critical to ensure a level playing field for business. A framework for global carbon pricing could be implemented by bilateral and multilateral agreements to ensure global participation amid fears of weakening international competitiveness; greater international cooperation among national coalitions can help to minimize the perceived risks and accelerate action. The views of business leaders confirm that global participation will be critical: 79% of business leaders who support global carbon pricing frameworks believe that equitable global participation will be important to leveling the playing field in their industries.

A new study by the Global Commission on the Economy and Climate suggests that to “level the playing field” between countries of differing climate ambition, trading partners can coordinate the introduction of carbon prices of roughly comparable levels to overcome competitiveness concerns. By working together, countries can also benefit from knowledge sharing on best practice, greater transparency, and the opportunity to link trading schemes where appropriate. Business leaders are also seeking clarity from governments on what to expect: 82% of Caring for Climate CEOs believe business needs a clear roadmap and timeline from governments on policies related to future carbon pricing mechanisms.

Criteria	Business driver	Survey findings from C4C CEOs
<b>Internal Price</b> <ul style="list-style-type: none"> <li>Set an internal carbon price high enough to materially affect investment decisions to drive down greenhouse gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>Risk management and preparedness</li> <li>Finance investment in energy efficiency and renewable energy</li> <li>Innovation to meet customer demands and develop low-carbon products and services</li> </ul>	<ul style="list-style-type: none"> <li>72%: The use of an internal carbon price in business operations can help drive efficiencies and reduce costs</li> </ul>
<b>Public Support</b> <ul style="list-style-type: none"> <li>Publicly advocate policy mechanisms that take into account country-specific economies and policy contexts</li> </ul>	<ul style="list-style-type: none"> <li>Policies that reward climate performance</li> <li>Leveling the playing field and policy clarity</li> <li>Respecting and supporting UN goals</li> </ul>	<ul style="list-style-type: none"> <li>84%: Companies must step up their role in providing proactive, constructive input for governments to create effective climate policies</li> </ul>
<b>Reporting</b> <ul style="list-style-type: none"> <li>Communicate on progress over time on the two criteria above in public corporate reports</li> </ul>	<ul style="list-style-type: none"> <li>Continuously improving performance</li> <li>Measuring efforts and best practices</li> <li>Creating investor and societal trust and confidence</li> </ul>	<ul style="list-style-type: none"> <li>74%: My company is already seeing rewards from our investments in low-carbon solutions</li> </ul>

Note: survey data from Caring for Climate-Accenture survey of 75 CEOs from Caring for Climate participant companies

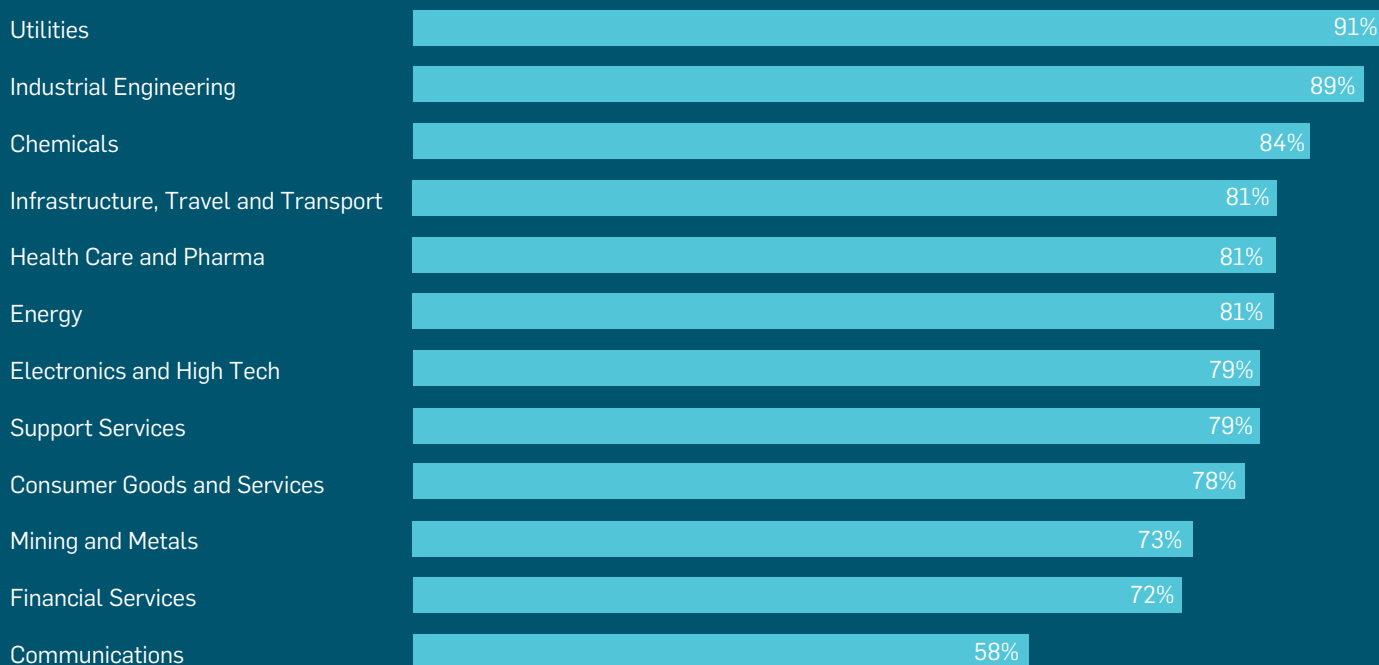
Companies are taking action to prepare for and promote carbon pricing policies. The Caring for Climate Business Leadership Criteria on Carbon Pricing, launched at the UN Secretary-General's Climate Summit in September 2014, comprises three distinct but overlapping dimensions for business action: integrating carbon pricing into long-term strategies and investment decisions; responsible policy advocacy; and communication on progress. All three dimensions of the criteria are aligned with limiting the increase in global mean temperature to 2C above preindustrial levels. Ahead of COP21 and beyond, Caring for Climate is calling for companies to become Carbon

Pricing Champions by aligning with the Business Leadership Criteria on Carbon Pricing: more than fifty companies from various sectors and regions have already become Carbon Pricing Champions.

Through such initiatives, governments and business alike will have considerable support available to deploy carbon pricing mechanisms. The Carbon Pricing Leadership Coalition, which brings together leaders from across government, the private sector and civil society, is working to increase knowledge on effective carbon pricing systems and helping to define the business and economic case for carbon pricing. The Caring for Climate Business & Investors

Working Group on Carbon Pricing has also been formed to mobilize business on a global scale to take a leadership stance on carbon pricing, contribute to building confidence on making markets work for the climate, and encourage policymakers to take proactive measures to develop and implement carbon pricing policies and mechanisms. At the Caring for Climate Business Forum at COP21 in December, Caring for Climate will issue an Executive Guide to Carbon Pricing Leadership, which will provide a framework for business leadership on carbon pricing, with practical guidance to inspire business to realize the business leadership criteria.

Figure 9: Business leaders in support of a global carbon pricing framework believe equitable participation can level the playing field











## Claudio Descalzi

### Chief Executive Officer, Eni S.p.A.

In the coming decades we expect the demand for energy in the world to grow. Meeting this demand in a sustainable manner, respecting a planet that now is home to seven billion people, is an enormous challenge that requires courageous decisions. But one thing makes all this urgent: we have to limit the rise in temperature to below 2C, otherwise the phenomena linked to climate change will become irreversible. And currently, we are not succeeding.

The scientific data collected by the International Panel on Climate Change (IPCC) leave no room for doubt. We need to reduce CO<sub>2</sub> emissions by 40-70% by 2050 and eliminate them by 2100. Instead, they are still growing: in 2010 emissions of greenhouse gases reached their highest level in history and their growth in the last decade, has been more rapid than in the previous three.

The world's energy companies are ready to do their part and, because of its history and corporate culture, Eni is in the forefront of this debate. For decades, we have been dedicated to find the most suitable methods of extracting the earth's natural resources in a way that makes it possible to support the growth and development of the countries in which we operate. Today, in which the need is more pressing than ever to re-think creatively about how to meet energy needs, we are working to put our experience at the service of the most important challenge facing our generation.

It is for this reason we have launched a series of new initiatives in collaboration with our industry peers. With a number of other large energy companies we have created the Oil & Gas Climate Initiative, an operational coalition that is working to find practical solutions to reduce CO<sub>2</sub> emissions and to lay the foundations for a future in which both natural gas and renewables will play a leading role. We were among the first to sign up to the Global Gas Flaring Reduction project, promoted by the World Bank, which has a very specific goal: zero routine gas flaring by 2030, i.e. to stop the burning of excess gas generated by extraction plants.

Technology can be of great help, if directed towards innovative choices that are able to drive the opportunities that exist in the field of engineering and in digital. For Eni, these opportunities could play a significant role to facilitate the reduction of emissions in our current activities and to innovate new climate solutions. Eni's technological platforms aim to unlock value in sustainable, low-carbon energy development. They include clean mobility solutions and products which have a low environmental impact, smart energy technology for energy efficiency, gas-electricity network integration and smart city solutions, and renewable energy technologies. Eni's R&D program on renewables, for example, launched in 2007, aims to develop breakthrough technologies for the effective and efficient exploitation of renewables, in particular solar energy and biomass.

The challenge of climate change requires all of the creativity of the new Thomas Edisons and Steve Jobs. But also, and above all, it requires the effort of governments, businesses, religious institutions, civil society and all people of good will, to "act together and agree" with the goal of the common good and the dignity of every human being. We need solutions that do not cause disparities and do not penalize countries that are still growing.

Moreover, along with the other five major groups in Europe in the industry (BP, Shell, Total, Statoil and BG), we invite the UN and Government leaders to work with us to define a clear line of global action on carbon pricing and the promotion of natural gas, in view of the Paris Conference on Climate Change. We believe that carbon pricing will discourage high emissions options and reduce uncertainty, while stimulating investments in low emissions technologies and the use of the right resources at the right time. We believe this is not the time for business as usual, but that we now need governments around the world to provide a precise, stable, ambitious regulatory framework.



# Annex – Beyond Incrementalism: Seizing Market Opportunities

In examining the opportunities presented by the climate challenge, Accenture research shows unequivocally that business leaders believe the climate challenge is significant and urgent, and a potentially lucrative source of future opportunity and competitive advantage.

As our survey of 750 companies demonstrates, more and more business leaders are vocal in their belief that bold action makes business sense, with leading players moving beyond incremental reduction to approach climate change as a driver for growth and innovation. Significant investment is being made globally toward transforming the most critical sectors—energy, agriculture and the built environment, for example—to low-carbon growth and is already delivering significant economic value and major reductions in CO<sub>2</sub> emissions.

This investment, coupled with rapid advancements in technology, is creating opportunities in new markets with a clear business case for investment and innovation in climate solutions. Business leaders recognize an epochal shift toward a low-carbon economy: companies across industry sectors are moving to innovate climate solutions and adopt low-carbon business models.

Policy support has long played a critical role in the ability of key sectors in the global economy to preserve resilience and future-proof communities for the needs of tomorrow. As leading companies look ahead to the challenges and opportunities of the coming decades, business leaders are clear that government and policymakers will need to play a smarter role at this pivotal juncture to support business in seizing market opportunities in the transition to a low-carbon economy.

## Business is moving beyond incremental initiatives to bring about a transformation to a low-carbon economy

As scientific certainty on the causes and potential impacts of climate change continues to grow, business leaders are increasingly viewing climate change as a critical challenge to address, not only for global development and resilience but also for the future success of their companies.

Our survey of 750 companies worldwide demonstrates that business leaders recognize the importance of climate change to their business: in the last UN Global Compact-Accenture CEO Study in 2013, 29% of CEOs—and fully 41% of their investors—saw climate change as a top three challenge for future success. The 2013 Study showed how CEOs were already seeking to move from incremental improvements in brand, cost and risk toward a new, transformational approach driven by growth and innovation. Asked how their businesses could address global challenges, business leaders saw equal impact through inward-focused, operational initiatives—such as extending the principles of sustainability through their supply chain—and outward-looking, market-based solutions, such as deploying their core products and service offerings to address sustainability challenges.

In this year's study, we can clearly discern a shift in business leaders' attitudes: more than half of business leaders we surveyed now believe that climate change will create opportunities for growth and innovation for their company by 2020.

One stimulus for this shift is the striking rise in demand for investment in the low-carbon economy. Evidence suggests that greening global economic growth is the only way to satisfy the needs of a worldwide population that is likely to exceed 9 billion by 2050, driving development while reducing greenhouse gas emissions and increasing natural resource productivity. Innovative businesses will create and capture market share in the low-carbon economy by providing the products and services to the sectors that have the greatest carbon abatement potential and require significant levels of investment: energy; agriculture, land use and forestry; and city infrastructure, transport and buildings.

Accenture analysis, based on the work of the World Economic Forum, the Food and Agriculture Organization of the United Nations, and the International Energy Agency (IEA), among others, estimates that investment between \$69 trillion and \$131 trillion will be required by 2030 under a baseline scenario. However, an added investment of between \$13 trillion and \$35 trillion would enable a low-carbon transition and yield operating savings of between \$39 trillion and \$45 trillion by 2050, offsetting the additional cost.



## Eldar Sætre President and Chief Executive Officer, Statoil ASA

Before government officials and business leaders gather in Paris to negotiate an ambitious agreement, I would like to take this opportunity to articulate Statoil's positions on the climate challenge.

The starting point for Statoil is that we unequivocally accept the findings of the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report on human-induced climate change. Climate change is serious and is to a large extent being caused by human-induced greenhouse gas emissions. We embrace the need to limit the global temperature increase to 2C and we support the efforts of the United Nations to agree on necessary actions to achieve this goal.

Statoil is already taking a number of actions to limit emissions: prioritizing energy efficiency improvements in our own operations, such as flaring and methane reduction; growing the share of gas in our production and investing in renewable energy and other low-carbon solutions, especially offshore wind and carbon capture and storage.

However, we realize that making the transition to a low-carbon economy is a bigger task than any single company alone can achieve. For us to contribute more and faster, we need urgent action from policymakers to enable clear, stable and long-term regulatory frameworks to channel investments and technological advancement in the right direction.

Statoil, together with many of our peers in the oil and gas industry, believes that putting a price on carbon is a fair, effective and cost-efficient way to reduce emissions widely. Carbon pricing reduces demand for the most carbon-intensive fossil fuels, and promotes greater energy efficiency, use of natural gas to replace coal and increased investment in low-carbon technologies.

On 29 May, Statoil, together with five other leading oil and gas companies, BG Group, BP, Eni, Shell and Total, announced our call to governments around the world and to the United Nations Framework Convention on Climate Change (UNFCCC) to introduce carbon pricing systems where they do not yet exist at the national or regional levels. The call was largely welcomed by the UN and civil society. In her reply to the six CEOs, Christiana Figueres, the Executive Secretary of the UNFCCC, wrote "... I am confident that your assertion that you want to be part of the solution to climate change is genuine."

However, some questioned whether it was a tactic for oil companies to delay action, suggesting that we are counting on the world not being able to agree on a global price on carbon. A single global price on carbon is not what we seek. Rather, we are calling for national governments to introduce carbon pricing and for the UNFCCC to provide a framework that allows the use and linking of various carbon pricing schemes.

It is achievable to start working on common monitoring, reporting and verification procedures that enable carbon pricing schemes to be linked as they emerge across the globe.

Statoil believes in a price on carbon because we know it can work. In Norway, we have had a high CO<sub>2</sub> tax for more than 20 years. Currently, it is about \$65 per metric ton. It has helped reduce emissions to less than half of the global average while the Norwegian Continental Shelf remains an attractive oil and gas basin financially. According to the World Bank, over 40 national and 20 subnational jurisdictions, representing half of global greenhouse gas emissions, have either implemented or are in preparation for carbon pricing.

Statoil wants to be a constructive partner in addressing the climate challenge. With COP21 scheduled for Paris in December, now is the time for us to engage with policymakers to enable the right kind of regulation and with civil society to create trust and support for our contributions. We look forward to working together with you.

## New technologies and business models are demonstrating the business case for investment

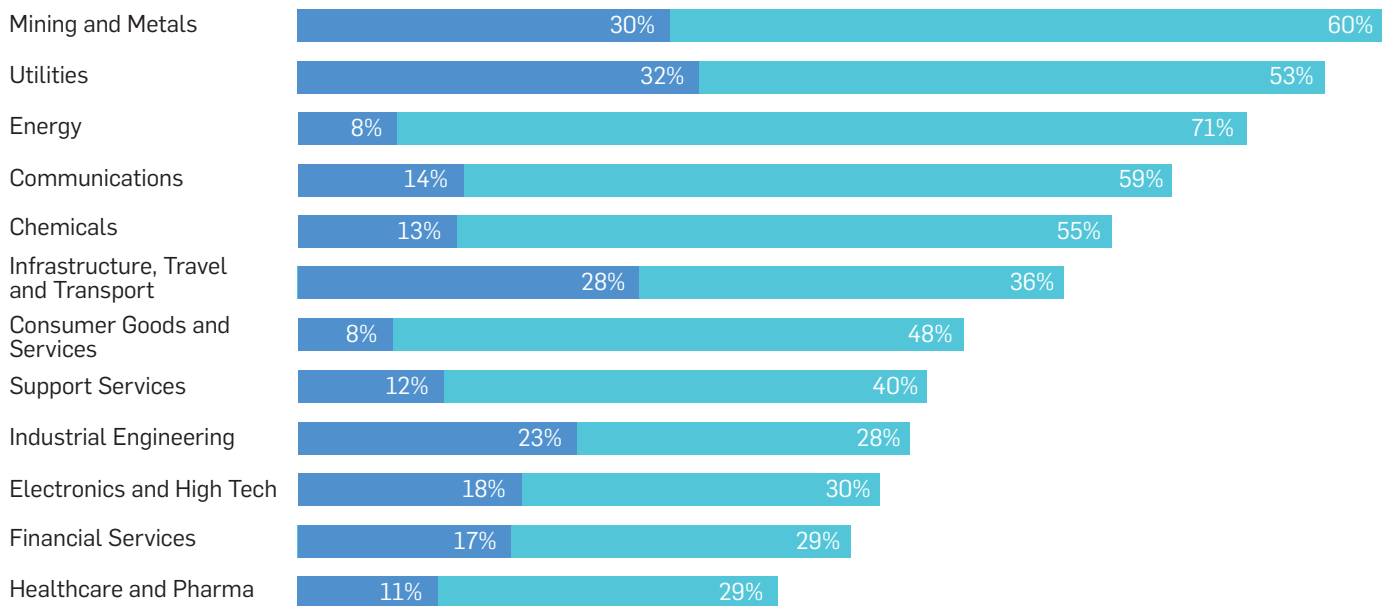
Technology breakthroughs and disruptive new business models are radically changing the economics of climate solutions, making the business case for broader industry investment and low-carbon growth. Advances in digital technologies and materials science are driving rapid efficiency gains and supporting the diffusion of climate solutions. Digital innovations and information and communication technology (ICT), such as the internet of things, machine-to-machine communication, sensors, social media, big data analytics and end-user devices, are being leveraged across sectors to develop new revenue streams, improve

productivity and achieve a competitive advantage – from mobile-enabled car sharing to GPS-enabled precision agriculture and big data-enabled smart grids. As companies continue to integrate climate change and innovation in their business strategies, digital solutions will become more accessible, driving greater connectivity and innovative business models, with the potential to generate over \$11 trillion in economic benefits per year by 2030.<sup>12</sup>

Digital and technology-enabled new user-centric, circular business models are shifting profit pools across industries, with a potential reward of \$4.5 trillion in the next 15 years;<sup>13</sup> energy storage, big data analytics and advances in renewable energy technology, for example, are driving utilities to shift away from centralized high emission fossil fuel energy production to more service-oriented business models

supporting decentralized energy production and connected electric cars. A transition in the way businesses view markets, customers and natural resources are eliminating the very concept of 'waste' and capturing its value across sectors: from reutilizing biomass waste to enter the \$80 billion market for advanced chemicals and energy, to creating a stronger connection with customers through product returns and pay-for-use arrangements. The convergence of the digital revolution and innovative businesses models are reducing asset, capital, and energy intensity, transforming mainstream industries and putting traditionally protected industries at risk. The transition to low-carbon, climate-resilient economies is not only feasible, both technically and economically, but also already underway. The challenge is the ability of companies to go further, faster in scaling investment and growth.

Figure 10: Business leaders believe that investing in climate solutions will be critical to competitive advantage in their industry



■ "Strongly agree": Investment in climate solutions will be critical to achieving a competitive advantage in my industry

■ "Agree": Investment in climate solutions will be critical to achieving a competitive advantage in my industry

Percentage represents the proportion of selecting 'Strongly agree' and 'Agree'; data based on survey responses from 750 Business leaders.

## Policy and regulation will help business reshape the sectors most critical to low-carbon growth

The private sector is driving transformative investment in the low-carbon economy. Investments in areas such as clean fuels, low-carbon and low-energy buildings; smart cities using intelligent urban public transport and traffic management; and the harnessing of digital, technological and data revolutions are all being driven first and foremost by the private sector, reshaping the sectors most critical to low-carbon growth:

- **Energy:** The energy sector is the engine of global growth and the major source of CO<sub>2</sub> throughout the economy, representing approximately 30% of emissions worldwide. To date, government and regulatory policy has played an intermittently enabling role in the green growth agenda for the energy sector; the transition to a lower-carbon energy system is already underway, with leading companies investing in energy efficiency, renewable energy and smart energy solutions.
- **Agriculture, land use and forestry:** Agriculture, land use and forestry are responsible for 30% of energy-related CO<sub>2</sub> emissions globally and will face rising pressure for productivity amid growing constraints, creating a significant challenge and opportunity for business. Innovation is driving companies to invest in climate-smart solutions such as data analytics, sensors and mobile information services, but they face barriers to uptake in the absence of supportive policy and incentives for farmers.

- **City infrastructure, buildings and transportation:** Responsible for 40% of global energy-related CO<sub>2</sub> emissions, cities will increasingly be the hubs of economic growth. Demand for efficient infrastructure, supported by regulatory incentives, has created opportunities for business to invest in smart solutions for buildings and transportation where new technologies and connectivity are driving efficiency and enabling low-carbon business models.

While new technologies and business models are demonstrating a clear business case for investment and prompting companies to invest in low-carbon opportunities, significant barriers exist to securing the required scale and speed of progress. New climate solutions require industries to rethink their business models, develop new competencies, and invest significant capital up front. For instance, a step change in investment in research and development (R&D) will be required to tackle the climate challenge: while 29% of companies in our survey report that they are already allocating a significant proportion of their R&D investment to low-carbon technologies, less than half (38%) believe they already have the technological solutions to solve the climate challenge.

Policy support has long played a critical role in influencing the direction of these sectors, but in some areas has failed to provide clear incentives to business to invest in climate solutions, and the current landscape may limit the scale and speed of transformation to a low-carbon economy. Legacy fiscal measures such as fossil fuel subsidies, combined with the slow progress of international climate negotiations, have weakened market signals that might otherwise incentivize green investment: in our survey, nearly one-third of business leaders believe policy is hindering their investment plans, and almost three-quarters say policy and fiscal mechanisms are needed to stimulate further investment.

## Energy—on the brink of transformation

The transition to a lower-carbon energy system is already underway, with leading companies investing in energy efficiency, renewable energy and smart energy solutions to achieve cost savings and revenue growth. Across the sector, advances in digital technologies and materials are supporting the development and adoption of smart energy solutions including smart grids, connected end-user devices and energy storage, driving the transition to decentralized energy generation and a new, smart energy landscape. In turn renewable energy quotas, coupled with technological advances, are driving rapid efficiency gains, putting renewable energy sources at increasing cost parity with conventional fuels, and prompting fossil-based industries to rethink their investments.

The policy landscape may be understood to have had a mixed impact on this transition. Regulation has in some cases prompted transformative investment across energy-intensive industries, cutting energy-related costs and developing opportunities for new revenue; elsewhere, business leaders perceive barriers to growth in the uncertainty of future policy development. While technological progress is building momentum as a driver of change, regulation may need to further push industries to seize opportunities: supportive, predictable policy measures and frameworks could unlock further private sector investment and enable the transformation of the global energy system.

### Investment in energy efficiency and new energy sources will be critical to global economic resilience

Investment in low-carbon energy infrastructure will be critical to meeting future demand while decoupling growth from environmental impact. The energy sector accounts for approximately one-third of global greenhouse gas emissions and is estimated to grow by at least 20% by 2030.



Already, there are clear signs that economic growth and energy-related emissions have started to decouple. The global patchwork of emerging carbon pricing systems, together with the impact of national and sub-national policies, is changing the economics of climate action. In the European Union (EU), for example, the Climate Energy Package mandated a 20% improvement in energy efficiency and increase in renewable energy compared to 1990 levels.<sup>14</sup> Such efforts are contributing to a decoupling of economic growth and

energy-related emissions: in 2014, the global economy grew by around 3%, while energy-related CO<sub>2</sub> emissions remained constant for the first time in 40 years.<sup>15</sup>

Leading companies, too, are investing in energy efficiency measures that can cut costs while reducing environmental impact. A recent study by the World Wide Fund for Nature (WWF, also known as World Wildlife Fund) and the Carbon Disclosure Project (CDP) found that companies with greenhouse gas

reduction targets achieved an average of 9% better return on investment than those without targets, and 80% of companies achieved higher returns on their carbon investments than on their average investment portfolio.<sup>16</sup> The Danish shipping conglomerate Maersk, for example, has developed super-efficient Triple E class container ships that have increased capacity by 16% and resulted in savings of \$1.6 billion in 2012, while cutting fleet CO<sub>2</sub> emissions by 50%.<sup>17</sup>

## Tata Group: Leadership in climate action opens new investment opportunities

Accounting for 6% of global emissions and 8.5% of global coal consumption in 2013, India is one of the world's largest greenhouse gas emitting countries, with environmental pressure expected to increase as the country's population rises from 1.2 billion to 1.6 billion by 2050. Recognizing the need to take a leadership role in combating climate change, the Indian government has set an ambitious objective of becoming a leader in renewable energy, requiring investment of \$200 billion by 2022. Strong incentives and policies will be critical to harness investors' interest and reach the market potential.

The Tata Group, a global enterprise with more than 100 companies operating across multiple industries, including the power, automotive and steel sectors, stepped ahead of national regulation in 2009 with its group-wide climate policy. Tata Group began by cutting its own emissions, and soon realized that low-carbon initiatives also made good business sense. Tata Steel, for example, has implemented its climate change strategy by adopting lean carbon and energy-efficient processes and technologies for steelmaking at Jamshedpur Steel Works, which have resulted in estimated savings of \$22 million per year over the last six years.

Tata Group's climate initiatives have not only generated efficiency benefits,

but have also created opportunities to grow new low-carbon markets through innovation. Tata Motors, India's largest commercial vehicle manufacturer, set up a "Recon" business to recondition used aggregates and extend vehicle life, generating revenue of \$19.6 million in 2014. This year, Tata Motors announced it is exploring an electric version of its popular light truck, which would be India's first battery-powered commercial vehicle and marks the company's foray into the electric vehicle market.

Tata Capital is capturing a piece of the country's growing clean energy market, by establishing Tata Cleantech Capital Limited (TCCL), driving investment into low-carbon technologies by financing innovation in industries from steel and power to chemicals and hotels. To date, the group has invested \$120 million mainly in renewable energy projects but going forward it has plans to expand to energy and water efficiency projects in key sectors such as smart agriculture, smart grids and transportation. The fund has grown rapidly and expects to register business capital of \$750 million within five years. This growth is accelerated by the government's capacity targets and tax incentives, which have boosted India's attractiveness in the renewable energy market, with investments in clean energy increasing 59% in the first quarter of 2015 alone.

To further market growth, TCCL believes, policy support will be needed to address three major challenges that hinder current investment: cumbersome legal procedures for investors, the high risk profile of investments, and a lack of incentives for financing projects. The company recommends the standardization of power purchase agreements (PPA) to eliminate the ambiguity that deters investors, and asks for exemption of stamp duties on PPA assignment, reducing the time and cost of investment. To lower the risk involved, TCCL encourages the transparent and credible assessment of credit worthiness and the development of innovative insurance products for renewable energy producers. Finally, to incentivize the flow of credit, TCCL recommends that PPAs match international standards. These measures will accelerate investments in its target sectors.

As a publicly-committed leader on climate change, Tata Group has been proactively engaged in promoting new and innovative solutions to the global challenge. An ambitious national regulatory agenda for clean energy solutions and aggressive goals for reducing emissions will not only unlock business opportunities for investment and growth but also accelerate India's trajectory toward a low-carbon economy.

Although leaders are already realizing the benefits of investment, the IEA estimates that a lack of structured incentives may have left the global energy productivity market untapped by 50–80%.<sup>18</sup> An additional \$12 trillion invested globally could yield nearly double that amount in savings over 20 years and could boost global GDP by an additional \$18 trillion.<sup>19</sup> The resulting gains for the climate are also significant: reducing energy consumption in one-third of the top 1,000 corporations by 10–20% would save approximately one gigaton of CO<sub>2</sub> per year by 2020.

### Technological innovation and globally-enforced regulation are driving the growth of renewables

As the sector continues its efforts to meet future demand, the IEA estimates that the sector will require more than \$23 trillion in new infrastructure investments. The nature of these investments will determine the future prospects of major players across the sector and chart a pathway for the global economy: investment in low-carbon energy growth could reduce greenhouse gas emissions by up to 7 gigatons.<sup>20</sup>

Globally-enforced regulation on renewable energy quotas are driving private sector investment and technological advances, bringing renewable energy sources toward cost parity with conventional fuels. In 2014, global investments in renewable energy rose to \$270 billion, a 700% increase within the past decade,<sup>21</sup> driving rapid efficiency gains and dramatically bringing down costs: the cost of wind energy has fallen 60–75% over the past 25 years, and solar costs have fallen 50% since 2010.<sup>22</sup> A new analysis by Bloomberg New Energy Finance indicates onshore wind power is fully competitive with gas and coal in a number of countries, with solar closing the gap.<sup>23</sup>

Alternative energy companies are driving efficiency gains in the price-to-performance ratio and realizing rapid growth: Vestas, for example, is investing to advance the efficiency of wind energy through design innovation to reduce material use. Since 2002, Vestas revenue

has grown more than fourfold,<sup>24</sup> and the company is on track to reduce the carbon footprint of wind energy turbines by 15% over five years to 2015.<sup>25</sup>

Given the right policy landscape, the IEA estimates that investment in new energy sources could reach \$400 billion by 2030.<sup>26</sup> Despite such apparently positive forecasts, it is striking that 100% of business leaders surveyed in the alternative energy sector believe current policy and regulation is hindering their ability to invest in climate solutions. Specifically, 80% of these respondents in our survey call for the removal or phasing out of fossil fuel subsidies and for the imposition of legislative and fiscal mechanisms that can level the playing field and increase investment in climate solutions.

### Advances in digital technologies and materials are supporting the development and adoption of smart energy solutions

The transformation toward a low-carbon energy system may be furthest advanced in the electricity sector, where technological breakthroughs such as smart energy solutions, energy storage and distributed generation are disrupting the conventional utility model and benefiting multiple industries. In our survey, business leaders in the utilities industry are optimistic that climate change will create opportunities for their companies by 2020 (85%) and most already see a clear business case for action (79%).

Smart energy solutions such as advanced analytics, digital interconnectivity and big data are enabling utilities to manage demand and supply dynamically and optimize load management: in Colorado, for example, data transmitted from wind turbines is analyzed with data from weather stations, satellites and other wind farms. As a result, utilities are able to make accurate forecasts of wind speed and electricity generation, more effectively integrating variable wind electricity into the grid. Smart energy solutions have the potential to abate 2.5 gigatons of CO<sub>2</sub> emissions by 2030 and bring business benefits to multiple industries: smart grids, for example,

could create more than \$800 billion in revenue for renewable energy companies and \$2 billion for the ICT sector.<sup>27</sup>

While conventional grid networks often waste excess electricity or fail to balance demand and supply, smart grid solutions and energy storage are enabling the integration of intermittent energy, improving grid stability and efficiency, and reducing overbuilt capacity. Tesla Motors' high-profile launch of the Powerwall battery is an example of innovative technology that is shaping and enabling more efficient energy usage and unlocking barriers to decentralized energy generation and micro-generation. Such energy storage solutions support the integration of intermittent renewable energy sources with the electric grid by storing excess electricity produced for later use, smoothing the variability of energy generation to better balance with demand.

LG Chem, Aquion Energy and LightSail Energy are all innovating storage solutions, and traditional power companies are also looking to enter the market: Australia's AGL, for example, owner of Victoria's brown coal generator Loy Yang, the largest power station in Australia, announced it will develop its own battery package and enter the solar plus storage market, forecast to grow to \$1 billion by 2018.<sup>28</sup> Advances in renewables, smart energy solutions, and energy storage are driving the power sector to transition to decentralized energy generation and requiring conventional utilities to transition from linear electricity production to user-centric, service-oriented models.

Government programs are in some cases accelerating the transition: the United Kingdom's plan, for example, to introduce smart meters in 30 million homes and businesses by 2030 led National Grid to invest more than \$40 million to install smart meters in 15,000 households, providing digitized real-time electricity usage information to help consumers monitor their consumption. The company estimates that consumers will reduce monthly bills by \$16 on average.<sup>29</sup>







### Governments are enabling companies to seize opportunities that can increase energy access

Advancements in distributed generation, coupled with growing demand, have strengthened the business case for renewables in developing markets. Today 1.3 billion people have no access to electricity, and 2.6 billion lack modern cooking facilities; more than 95% of this unmet need is in sub-Saharan African and Asia, and 84% is in rural areas.<sup>30</sup> Power generation capacity is expected to quadruple in these areas by 2040, and almost half of the growth will come from renewables, with mini-

and off-grid systems offering a solution where grid infrastructure is unavailable or expansion costs cannot yet be justified.<sup>31</sup>

Companies are already tapping into these markets and seeing business results: M-KOPA Solar, a for-profit social enterprise, provides an off-grid, decentralized generation solution in Africa at costs between 11% and 60% less than kerosene or batteries. The company achieved revenues totaling \$10 million in the first year of operation, and is projecting \$50 million in 2015 and \$100 million in 2018, with more than 180,000 units currently installed in Kenya, Tanzania and Uganda.<sup>32</sup>

Adoption of decentralized energy in developing countries can create significant social value, and in many cases governments are playing an active role in supporting expansion. Providing distributed renewable energy solutions in remote areas where grid infrastructure is lacking saves infrastructure costs and enables developing nations to leapfrog from conventional electricity to advanced renewables. Several African countries have recognized the need to support renewable energy access: Kenya, for example, has funded the solar for schools program while also introducing feed-in tariffs, 0% import duties, and VAT exemption for renewable energy companies.<sup>33</sup>

## Siemens: Early investment is bringing top-line growth, but smart policy can accelerate the expansion of renewables

The global energy landscape may be profoundly altered in the coming decades, with the rise of energy efficiency—a market already valued at \$310 billion and steadily growing—as the “fifth fuel,” and the rapid growth of renewable energy generation.<sup>34</sup>

Siemens, a German industrial conglomerate and one of the world's largest technology companies, has been quick to act on the opportunity. In 2007, the company developed its Environmental Portfolio (EP) of products, technology solutions and services that contribute to environmental and climate protection. The portfolio incorporates products that offer a 20% energy efficiency increase over comparable alternatives or 100,000 metric tons of carbon emissions reduction; renewable energy technologies such as wind turbines and smart meters; and environmental technologies such as pollution controls and water treatment systems.<sup>35</sup>

Since the launch of the Environmental Portfolio, Siemens has steadily increased its R&D allocation to this share of the portfolio. In 2012, \$1.9 billion was invested there. The company is already realizing the benefits of its investment: Environmental Portfolio revenue grew from \$34 billion in

2010 to \$42 billion in 2014. The carbon impact of the Environmental Portfolio has also been significant: in 2014 alone, Siemens products helped customers avoid 428 million metric tons of CO<sub>2</sub>, equal to approximately 50% of Germany's annual emissions.<sup>36</sup>

A key driver of Environmental Portfolio growth has been the company's wind power business. Siemens identified renewable energy – and wind power in particular – as a growth area in 2004. Despite the relative immaturity of the wind market and a small installed base at the time, Siemens acquired Danish company Bonus AG, a pioneer in offshore wind energy. In the years since the acquisition, the wind power market grew rapidly, with annual growth reaching above 40% and generating impressive financial results for Siemens: the company's wind power division has grown from a \$300 million to a \$6 billion business, with over 25,000 megawatts of installed wind power capacity in operation globally.<sup>37</sup>

The power industry is heavily regulated, and Siemens' decision to be an early investor in renewables was influenced by regulatory incentives, which have been essential to growth and enabled the quick and efficient scale-up of the

sector. Although renewable energy technologies are becoming increasingly cost competitive, Siemens believes the next great challenge for its wind business will be the transition from growth to optimization, as the company and its peers seek to reduce average electricity production costs. Sustained market growth will rely on achieving cost competitiveness, and will require efficiencies throughout the value chain as well as increased investment in technical innovation.

These developing markets are creating significant opportunities for businesses that invest early, but future prospects, and the scale and speed of development, will depend in large part on the attitude and actions of policymakers. Inconsistent policy may have presented a hindrance to companies' efforts to invest in technology and innovation: the sporadic nature of the U.S. Production Tax Credit (PTC), for example, created an unpredictable environment for investors. To create a level playing field that provides companies a clear, coherent and predictable investment case, policy needs to be smart, stable and transparent to business; with an ambitious deal in Paris, and greater clarity in regulation and standards, companies like Siemens can power the next wave of innovation.



### While oil and gas leaders are also investing in lower-carbon solutions, many seek regulation to move the industry forward

Unlike the utilities industry, oil and gas companies are finding it less clear how to fit low-carbon business opportunities into their current models. Over the past decade, the oil and gas industry has shown bursts of investment in alternatives to fossil fuels: BP, for example, invested \$8 billion in alternative energy between 2005 and 2013,<sup>38</sup> and four years ago Total made a \$1.4 billion purchase of a 60% stake

in large U.S. solar player SunPower.<sup>39</sup> Nevertheless, low-carbon business and technologies remain well outside the core competencies of oil and gas majors, and many have struggled to integrate these businesses.

With the decline in oil and gas prices, the industry has become more selective in investments, as it balances the potential opportunity to invest in a business that may eventually replace fossil fuels, and justifying such investment when it is increasingly challenged in the core oil and gas industry. Many are looking to technology innovation and solutions that

could reduce costs and improve labor efficiency, from virtual warehouses to radio-frequency identification and drones and robots.

Despite low crude prices, global investment in renewables has continued to grow, and industry leaders are bringing clean energy back in focus: Statoil, for example, has created a new division to drive business growth in renewables and new energy solutions, stating that the transition of the global energy systems to a low-carbon society will create new opportunities in these areas. The larger oil companies are starting to reassess

## Statoil: Shaping a complementary low-carbon business to drive profitable growth

Attention on the climate challenge and the emergence of new policy frameworks are creating new business opportunities for low-carbon energy. Growing demand, increasing investment, and advances in technology are opening up markets in new energy solutions: in 2014, global investments in renewable energy rose to \$270 billion, a 700% increase in the past decade.<sup>42</sup> Investment in carbon capture and storage (CCS)-equipped facilities averaged \$2 billion per year between 2007 and 2012, with further investment of \$30 billion per year required by 2020 under the 2C scenario.<sup>43</sup>

Statoil is well-positioned to seize these opportunities by utilizing its long-standing core capabilities in the oil and gas industry. In May, Statoil created a new business area, New Energy Solutions, which will seek opportunities to deliver attractive returns through technology and business innovation in low-carbon solutions. The new business builds on Statoil's existing offshore wind portfolio, and reflects the company's aspirations to complement its oil and gas portfolio with profitable growth in renewables and new energy.

Statoil sees no contradiction between oil, gas and renewable energy; the company pursues an all-of-the-above strategy. Statoil began its renewables business in 2003 when the industry was young, and in 2009 decided to

focus on offshore wind, an industry with a promising outlook for technology advances and one in which the company could apply its core competencies in offshore engineering, marine operations, HSE standards and project execution. Statoil's current offshore wind portfolio is located in the United Kingdom, the world's leading offshore wind market; Sheringham Shoal has been in operation since 2012, while Dudgeon is planned to be in full operation by the end of 2017. Together, their 155 turbines and 719 megawatt capacity will generate an estimated 2.8 terawatt hours annually, roughly equivalent to the annual electricity consumption of 630,000 average homes in the United Kingdom.

Over the past decade, Statoil has proved it can generate value throughout the asset development, construction and operation phases. Building on these achievements, the company seeks to further develop industrial solutions, reduce costs and increase competitiveness to grow a profitable offshore wind portfolio. Statoil is innovating new offshore wind solutions: the cutting-edge Hywind demo, located off the coast of Norway, features the world's first full-scale floating offshore wind turbine, a technology that Statoil may use for future wind farms elsewhere.

Beyond growing its renewable energy business, Statoil is a champion for the development and use of CCS. CCS is the only technology currently available that can achieve deep cuts in CO<sub>2</sub> emissions across fossil-fired production and many carbon-intensive industries. Statoil engages in CCS because it is a tool to reduce the company's CO<sub>2</sub> footprint and also enhance its competitive position as a carbon-efficient oil and gas producer. CO<sub>2</sub> utilization can be an opportunity to increase field recovery, and industrial CCS could address the CO<sub>2</sub> emissions resulting from the use of oil and gas products and protect long-term demand.

The main barrier to wind power and deployment of CCS is the lack of a viable price on carbon. Many of these projects are large in scale, and there is currently no pricing signal that gives sufficient comfort to investors. The development of low-carbon solutions, therefore, will depend on suitable support mechanisms, and for the time being, only strong public-private partnerships will allow projects to move ahead. Statoil makes active advisory contributions to the European Union, national governments and international organizations advocating the development of an expedient regulatory and commercial framework.

their portfolios in the context of the energy transition, with the most concrete action being taken through a focus on cleaner fossil fuels, natural gas in particular. Almost all majors are focusing on gas and see it having the fastest rate of primary demand growth among hydrocarbons: BP is forecasting 1.9% annual growth of natural gas in primary energy through 2035,<sup>40</sup> and ExxonMobil anticipates 1.5–1.6% annual growth through 2040.<sup>41</sup> Natural gas production currently accounts for approximately half of production for Total, Shell, BP and ExxonMobil.

Business leaders believe broader industry action can accelerate investment: in our survey, just one-quarter of business leaders in the oil and gas industry (28%) believe their peers are doing enough, while approximately half (48%) agree that broad action by business in their industry will immediately accelerate market opportunities for their companies. Although the industry has been divided on climate action, companies are beginning to collaborate in their approach to clean energy and emissions reduction.

In April, oil companies and governments came together and signed an agreement that will, for the first time, end the practice of routine gas flaring at oil production sites by 2030. Italian multinational Eni, for example, has already made significant progress on the commitment, reutilizing the gas to benefit local populations: after investing in new infrastructure and processes, the gas that would have been flared is now utilized to provide 60% of total power generation installed capacity in the Congo and 20% in Nigeria. Such actions, which benefit the environment and strengthen the company's license to operate, could be accelerated by policy mechanisms that will incentivize technology transfer for low-carbon development.

While several oil and gas companies and emerging collaborations are leading the way through investment in low-carbon solutions, they acknowledge that regulation is needed to move the industry forward. Our survey suggests that while the industry is considering the opportunity in these businesses, many are unable to deliver given market challenges and the current policy landscape: 60% of oil and gas producers believe investing in low-carbon solutions is critical, but only 48% are actually allocating significant investment. Similarly, extractive industries are being held back: leaders of mining companies, for example, also feel they are underinvesting, with 73% believing they should, versus only 55% already doing so. Specifically, the issue of carbon pricing remains key to unlocking potential profits from renewable energy: earlier this year, a group of major European oil companies signed a public letter backing carbon pricing as a means of reducing emissions and transitioning to a lower-carbon economy.

#### Across industries, technological progress is building momentum as a driver for change

While technological progress is building momentum as a driver of change, governments and policymakers may need to further push industries to seize opportunities at greater scale and speed. Business leaders believe regulation, financial mechanisms and deployment incentives are essential to remove barriers to developing clean energy technologies; one-third of respondents to our survey report that policy and regulation is hindering their investment, with 68% of utilities companies, and 76% of oil and gas producers, calling for legislative and financial instruments to unlock further investment in climate solutions.

Business leaders note the importance of political leadership to support the development of new technologies. More than half of business leaders surveyed in the utilities sector, and fully 80% of those in the alternative energy industry, call for the removal or phasing out of fossil fuel subsidies, leveling the playing field for renewable energy sources with conventional fossil-based industries. Business leaders in those industries believe the most important policy steps need to be taken at the global level: a strong carbon price, for instance, could redirect funding for research and development in a wide range of technologies and support the installation of new infrastructure. Supportive, predictable policy measures and frameworks could unlock further private sector investment and enable the transformation of the global energy system.

## Vale: Innovating low-carbon processes in the mining and metals sector

The global mining industry is a significant contributor of energy-related greenhouse gas emissions, with iron and steel manufacturing the largest industrial source of greenhouse gases, contributing approximately 7% of the world's emissions.<sup>44</sup> Demand for steel, driven by the automotive and construction industries, is expected to increase by approximately 80% by 2030, from 1.3 billion metric tons to 2.3 billion metric tons, with demand also growing for the mining and processing of iron ore, its principal metal component.<sup>45</sup> While the mining and metals industry has significant environmental impacts on food, energy and water systems, it is also one of the sectors that has the most potential for innovation and technological solutions.

Vale, the world's biggest producer of iron ore and pellets – raw materials essential to the manufacture of steel – is making significant investments in technological innovations and initiatives to prevent and minimize the negative impacts related to mining. The Carajás S11D Iron Ore project, Vale's largest project to date, is focused on the opportunity to expand production while innovating low-carbon solutions. The project was developed using innovative mining technologies, such as the use of a "truckless" system in the mine. In a conventional open-pit mine, which uses mining trucks and shovels, 100 trucks of 240 metric ton capacity would be needed to handle the ore and the waste of the project.

Instead, the S11D project uses a pit crushing and conveying system with fully mobile equipment for mining, crushing, conveying and the disposal of waste via a spreader. The conveying system occupies 37 kilometers of belt conveyors to transport the material inside the mine to waste piles and to the processing plant, reducing fuel consumption by 70%, and eliminating 50% of associated greenhouse gas emissions.

A second new solution being deployed is the Dry Processing of the ore: Vale has developed new equipment, a modular screen, for the Carajás ore, which has a naturally high moisture content. Instead of using high pressure water to help the screening process, this new type of screen avoids the use of water altogether, and reduces water consumption by 93% compared to conventional wet processing. The dry process also eliminates the need to store water and ultrafine ore in a tailings dam and eliminates dozens of pumps, pipes and motors, reducing energy usage by approximately 18,000 megawatt-hours per year, equivalent to the energy supply of 20,000 inhabitants in the region. Further, Vale's methodology aimed at incorporating sustainability factors into the standard economic valuation process of capital projects, the "Green IRR", reveals a saving of approximately \$30 million in projected operational expenses for the project.

Vania Somavilla, Executive Director of Human Resources, Health and Safety, Sustainability and Energy for Vale, told us that national governments and policymakers should encourage innovation to enable Vale and other players to continue making strides towards lower-carbon and more efficient processes, and is hopeful that governments in Paris will further unlock private sector investments and solutions: "We are really optimistic about the current scenario for Paris. The discussion is more mature than in the past, and governments are already discussing long-term solutions."





## Food, agriculture and forestry— Climate-smart solutions

### The agricultural sector is facing rising pressures on productivity amid growing constraints

Food, agriculture and forestry—a \$19.4 trillion sector responsible for 30% of global employment and approximately one-third of global greenhouse gas emissions<sup>46</sup>—has a significant economic, social and environmental footprint. As the economy expands to meet the demands of a rapidly growing population, global food production must increase by at least 70% by 2050, while facing major resource constraints: one-quarter of the world's agricultural land is already severely degraded due to poor agricultural practices; agriculture is increasingly subject to water stress, consuming 70% of global freshwater;<sup>47</sup> and the sector is responsible for 70–90% of global deforestation.<sup>48</sup>

In a sector that is both accelerating climate change and becoming increasingly vulnerable to its impacts, pressure is growing for increased investment in productivity and resilience to meet rising global demand. Growing demand and resource constraints are already affecting production and are expected to have a severe impact on yields of major crops by 2030. A more productive and resilient agricultural sector requires a major shift in the way that land, water and soil nutrients are managed to ensure that these resources are used more efficiently.

As the sector faces fundamental disruption, business leaders are turning their attention to the climate challenge. In our survey, the majority of business leaders across the sector and in parallel industries—91% of food producers, for example, and 88% in the forestry and paper sector—believe that the climate challenge is significant and that action is an urgent priority for business.

Many companies are seeking out opportunities in the transition toward a more productive and resilient system that will meet the needs of a growing population while decoupling growth from environmental impact. In our survey, a majority of companies in the food production and forestry sectors believe that there is already a clear business case for action and that investment in climate solutions will be critical to achieving competitive advantage in their industries. Those companies that are able to find solutions to the challenges of productivity amid growing constraints can seize new opportunities for innovation and growth. The potential upside for companies able to adapt is significant: industry-wide investment of \$2–4 trillion in low-carbon solutions is expected to generate improvements of 11–17% in agricultural production volumes, and yield savings of up to \$14–15 trillion by 2050, while opening up new avenues for growth.<sup>49</sup>

### Climate-smart solutions can achieve climate and economic imperatives through enhanced decision making, lower inputs and higher yields

Innovation in climate-smart technologies is creating opportunities for business that may revolutionize the sector, combining climate impact with business success. The application of digital solutions and advanced data analytics, for example, is improving yields, cutting costs and increasing resilience: techniques such as precision agriculture use digital solutions to collect precise data about fields to improve monitoring and optimize inputs, in some cases boosting profitability by \$55 to \$110 per acre. The market for precision agriculture technologies, including machine-to-machine connections, sensors and satellites to monitor, track and provide real-time data, is expected to grow to \$4.6 billion by 2020.<sup>50</sup> The benefits to business are numerous, including the improved aggregation and deployment of information, and analytics that support reductions in agricultural inputs and their associated greenhouse gas emissions

while boosting outputs. The use of alternative technologies such as drones and robotics also has the potential to further reduce labor and energy intensity, replacing fossil fuel-driven vehicles with electric-driven systems.

Data- and analytics-driven solutions are being picked up by major agribusiness companies looking to expand capabilities and gain access to new markets by providing farms with the analytics to optimize inputs and improve yields and to optimize their supply chains. Across the agricultural value chain, promising technologies are already improving agricultural performance: mobile information services, when combined with cloud-based analytics, are helping farmers to improve agricultural techniques and resilience to deliver better results and are estimated to generate \$52 billion in incremental income for farmers by 2020, with nearly 175 million active users across the world.<sup>51</sup> Information technologies also have the potential to reduce food waste in transit and needless transportation of food products via better farmer intelligence on commodity, market and transportation costs.

Simultaneously, the same digitally-facilitated technologies and information flows are used to communicate quantified financial as well as non-financial performance improvements to customers and consumers, thereby furthering companies' ability to secure market rewards for the transparency and sustainability of their value chain. The Global e-Sustainability Initiative (GeSI) SMARTer2030 report estimates that smart agriculture solutions could boost yields by 30% and generate \$2 billion of additional revenue to companies.

Companies are further testing new ways to optimize resource use, reduce waste and cut CO<sub>2</sub> emissions, with leading businesses looking to their supply chains to introduce climate-smart business models and smart logistics. Currently, one-third of global food production is wasted, costing businesses and households an estimated \$750 billion every year.<sup>52</sup>



**Paul Bulcke**  
Chief Executive Officer, Nestlé

At Nestlé, we are determined to play a leading role in taking action for Climate Change. As the world's leading Nutrition, Health and Wellness company, we believe that to be successful over the long term we need to create value for our shareholders and for society at the same time. We call this Creating Shared Value (CSV), a way of doing business that has embedded sustainable development in our activities, brands and products.

Ultimately, our goal is for our products to be tastier, healthier and better for the environment. This requires protecting the future by making the right choices in an environment where water scarcity, natural resources constraints and biodiversity decline will be exacerbated by climate change. These resources are vital to feed a growing world population and the development of our company. The ability to source, manufacture and distribute our products may be compromised by extreme weather events, making climate change a material issue for our business. We are thus determined to take holistic actions along our value chain. We focus our actions on water preservation, natural resources efficiency, biodiversity conservation, air emissions reduction, climate change adaptation, and zero waste.

We are strongly committed to providing climate change leadership in the long-term. This goes far beyond reducing greenhouse gas (GHG) emissions, which we have halved per kilo of product in the last ten years and expect to further reduce by 35% in 2015 compared to 2005 levels. We apply a product life cycle approach involving our partners from farm to consumer and beyond.

We have also pledged to reduce food loss and waste, a major emitter of GHG emissions. We are striving for zero waste; using energy and resources efficiently; switching to cleaner fuels such as spent coffee grounds in 22 factories and wood boilers in factories in France, Brazil, and Chile; investing in renewable energy sources, such as in Mexico where wind powers 85% of our operations; optimizing distribution networks that include switching from long-distance road transportation to rail or short-sea shipping in Europe; and helping to adapt agricultural and production systems to the changing climate. In addition, we engage with our suppliers to ensure compliance with our Responsible Sourcing Guidelines and respect for pledges to preserve natural capital, such as the "No Deforestation" commitment.

We have continuously intensified our work with farmers and promoted more sustainable agricultural practices to help them manage resources more efficiently and adapt to environmental challenges. Our work to help cocoa and coffee farmers adapt to and mitigate environmental challenges has been recognized as a best practice example by the United Nations' Framework Convention on Climate Change (UNFCCC). We have also committed to designing products that help consumers lower their own greenhouse gas emissions, such as our new Nespresso or Nescafé Dolce Gusto machines.

We strongly believe that business is part of the solution and that industrywide, multi-agency, collaborative efforts are pivotal to scale efforts and make lasting change. This is why, during the

UN Climate Week 2014, we endorsed a series of ambitious initiatives on climate change, including the UN Caring for Climate Initiative. This Business Leadership Platform is fully aligned with our own explicit commitments, which reflect our respect for society in which we operate, respect for the environment, and respect for the future generations. We have also signed up to the Trillion Tonne Communiqué of the Prince of Wales Corporate Leaders Group; the New York Declaration on Forests; and the six climate action initiatives of CDP on science-based greenhouse gas reduction targets, renewable electricity, deforestation, climate change information and engagement, and carbon pricing.

We are convinced that different actors have different responsibilities and roles. We believe that governments have a crucial task in steering climate change action. We thus want to encourage country member states to make ambitious, time-bound commitments and set action-oriented targets during the COP21 meeting in December 2015 in Paris.

As a company, I am determined to accelerate our efforts to ensure the sustainable growth of our company and to contribute to the achievement of the UN Sustainable Development Goals.

Through addressing this wastage across the system, leading companies are looking to recapture value by deploying circular economy models that reduce resource use and reutilize waste. Climate-smart business models can be deployed across the range of industries

that rely on agricultural supply chains: consumer goods multinational, Unilever, is investing in knowledge-intensive approaches that optimize resource use and reduce waste throughout its supply chain. The opportunity for food waste reutilization, for example, is significant:

GeSI's SMARTer2030 report estimates that digital solutions could avoid 20% of food waste and deliver economic benefits worth \$1.9 trillion, while cutting approximately 5 megatons of CO<sub>2</sub> emissions per year by 2030.

## Nestlé: Reducing food loss and waste along the value chain

Approximately one-third of global food production is wasted or lost. The carbon footprint of food produced and not eaten is significant, estimated at 3.3 gigatons of CO<sub>2</sub>, with uneaten food occupying 1.4 billion hectares of land, equivalent to 30% of the world's agricultural land area.<sup>53</sup> In addition to its environmental impact, food wastage has social and economic implications for the availability and cost of food, and for farmers' incomes and livelihoods. In developed countries, food wastage is largely concentrated downstream between the retailer and the consumer; in the developing world, waste is often in the upstream supply chain.

Nestlé, the world's leading Nutrition, Health and Wellness company, has introduced a range of initiatives to help reduce food loss and waste at all stages of the value chain. At the R&D stage, for example, Nestlé's plant science initiatives support the development of varieties of coffee and cocoa plants that are higher yielding and more drought- and disease-resistant, reducing the number of plants lost to disease or climate-related issues. Similarly, at the agriculture stage, Nestlé provides assistance to farmers to tackle food wastage at source, and invests in programs to train farmers on best practices for reducing food waste. In 2014 alone, the company trained more than one-third of a million farmers around the world, and in Panama, for example, initiatives to avoid losses have helped save 1.9 million kilograms of milk, boosting farmers' incomes. At the consumer stage, Nestlé wants to help consumers make informed choices through credible, substantiated communication and by providing tips and recipes that can help them avoid food waste.

In factories and distribution centers, Nestlé has set a goal of zero waste for disposal by 2020. Since 2004, the company has made significant progress towards the target: waste for disposal per metric ton of product has reduced by nearly 70%, and manufacturing emissions have been cut in half per metric ton of product; already, 15% of Nestlé's 442 factories have achieved the zero waste goal. Nestlé's waste reduction in factories is enabled by the worldwide implementation of Nestlé Continuous Excellence practices, which translates into doing more with few resources and less waste. In the production of Nescafé in the Philippines, spent coffee grounds from the manufacturing process are recovered as a source of renewable energy and fertilizer inputs. The process has two components: the coffee grounds, along with sawdust and cocoa shells from local industries, are used to produce steam for heating; and the production of ash, a by-product of the process, is combined with wastewater sludge and turned into an organic fertilizer. The initiative's benefits include annual savings in avoided hauling and dumping costs of 70,000 metric tons of waste, and the distribution of organic fertilizer to nearly 7,000 farmers to improve soil fertility and increase yields. By the end of 2014, 22 Nescafé factories were already using spent coffee grounds as a source of renewable energy, which has resulted in reductions of more than 230,000 metric tons of CO<sub>2</sub> per year.

Beyond the scope of its own production operations, Nestlé has made significant investments towards sustainability and waste reduction in the supply

chain. The company is investing over CHF350 million in support of the Nescafé Plan between 2010 and 2020, and an additional CHF300 million for Nespresso coffee initiatives between 2014 and 2020. The Nescafé Plan is a global initiative that supports responsible farming, production and consumption, ranging from on-the-ground support for farmers to the application of plant science to improve yields and quality. In 2014, the company invested CHF40 million in financial services and assistance for over 83,000 farmers worldwide. This type of agricultural support has helped to further reduce food losses.

Nestlé also steers on behalf of the Consumer Goods Forum and together with the World Resources Institute (WRI), United Nations Environment Program, Food and Agriculture Organization, World Business Council for Sustainable Development, European Commission, Waste & Resources Action Programme, the development of a major global and recognized protocol to measure food loss and waste, in a coherent way throughout the food chain. Nestlé also sees governments playing a critical role in furthering progress by providing information and education to raise awareness among consumers on the issue of food waste, by implementing food-dating systems that prevent food waste, by engaging stakeholders and partnerships along the value chain from farm to consumer, and by encouraging public reporting on progress to reduce food loss and waste in a coherent way through the value chain using the WRI protocol to measure food loss and waste.



Niels B. Christiansen  
President and CEO, Danfoss A/S

N.B.C.

As world leaders prepare for the final negotiations of the global climate agreement at COP21 in Paris this December, we must remind ourselves of the prerequisite for a low-carbon economy: the implementation and adaptation of the best available technology.

We know we need to look at four main sectors: buildings, transport, industry and power. In the power sector, for example, we need to implement more renewable energy and ensure a more intelligent grid; in transport we have to continue to improve mileage, optimize collective transportation, and in the long run ensure a cost efficient fuel switch. But what is often overlooked is the need for energy efficiency, in buildings and in industry. The International Energy Agency (IEA) estimates that compared to renewables, fuels switching, and CCS, energy efficiency is the largest contributor to global greenhouse gas (GHG) reductions.<sup>54</sup>

From a financial point of view, increasing energy efficiency is an obvious choice. Not only is energy efficiency the most cost-efficient means to decarbonizing the global economy, but investments in energy efficiency also pay themselves back within a relatively short time.

Socially, energy efficiency also provides benefits, such as reduced energy demand and lower energy bills for consumers, increasing disposable income and leading to higher consumer spending. In developing countries, improved energy efficiency for utilities makes more energy available for distribution to a greater number of households. In this way, energy

efficiency policy measures provide affordable energy and access, and are an important tool to alleviating poverty while also improving productivity and competitiveness. In addition to these social and economic benefits, more efficient energy use can also significantly reduce greenhouse gas emissions.

Energy efficiency is not just a question of technology. It is a question of mindset, smart thinking, governance and cost-effective solutions. These solutions exist and can be adopted immediately.

One example is in the building sector. The building sector accounts for approximately one-third of global energy use<sup>55</sup> and is expected to account for 26% of all future energy efficiency savings,<sup>56</sup> primarily related to space heating and cooling, lighting and appliances. In new skyscrapers such as the Lotte World Tower in South Korea and in older hallmark buildings such as the Empire State Building, significant reductions in energy consumption and CO<sub>2</sub> emissions have already been achieved with the implementation of energy efficient solutions.

In industry, the energy efficiency potential is significant. In China, the industrial sector is today the largest electricity consuming sector in the entire economy, equivalent to more than two-thirds of total electricity demand. Electric motors account for 60-70% of the industrial electricity demand, which creates a strong case for optimizing electric motor systems—for instance, through variable speed drives which the IEA suggest are made mandatory. The situation is very

similar when looking at India, where the industrial sector accounts for more than 40% of the total electricity demand.<sup>57</sup>

We have the products and technologies necessary to make significant changes in energy efficiency. Yet despite the strong business case and the ability to fast-track CO<sub>2</sub> reductions, the potential of energy efficiency initiatives is far from being met. A key question today and in the post-COP21 world remains: How do we accelerate the adaptation of the best available technology?

The potential climate impact from using less energy is significant and the world has an obligation to seize this opportunity. We need to create frameworks that make it easier to overcome barriers such as funding, policy incentives, knowledge sharing, and education. In short; we must make it easy to become energy efficient.

In Paris in December, world leaders should ensure that the new global agreement enables greater uptake of energy efficient solutions. According to the IEA, energy efficiency should deliver nearly 40% of the required transformation within a 2C scenario, bringing CO<sub>2</sub> reductions and significant financial savings.

Energy efficiency is an obvious solution to combating climate change, and we are on track when it comes to technology. But we absolutely need to speed up the implementation of low-carbon solutions, and a strong agreement in Paris could serve as a much welcome accelerator.



### Climate-smart agriculture presents a significant opportunity for business, but companies may struggle to scale without support

While potentially transformational, such innovations may face barriers to adoption. Although the cost of smart technologies and sensors is falling, the implementation and integration of climate-smart solutions may present significant challenges. Such barriers are even greater in parts of the world where farms are often small and fragmented and where access to affordable financing is limited. As a result, many smart agriculture solutions are currently only partially implemented, mainly in developed countries.

Many corporations and co-ops are overcoming the challenges of scale through the implementation of climate-smart solutions to drive up production across supplying farm networks. Making a broader shift, however, will require national and local governance, legislation, restructured incentives and financial mechanisms to drive the uptake of new solutions and enable implementation at greater scale and speed. While subsidies are the most common form of incentive in the agricultural sector, many companies believe they reward overuse and waste, creating a significant barrier to the adoption of new technologies and techniques.<sup>58</sup> At the other end of the regulatory spectrum, regulation to enforce anti-deforestation practices, for example, or measures that focus on recultivating degraded agricultural land and improved soil management can further enhance resilience, yield and the livelihoods of farmers.

Despite the well-understood impact that global farming has on climate change and food security, agriculture has largely been neglected in the international climate negotiations. This year the sector is gaining in profile in the lead-up to Paris; business leaders in the sector see an opportunity for world leaders to direct greater attention to the challenges and opportunities of agriculture, forestry and land use. Business leaders believe that greater consistency between agriculture,

food security and climate change policymaking must be achieved at national and international levels.

Global adoption of climate-smart agriculture will require governments to align subsidies with climate-smart practices: in our survey, fully 82% of food producers, and 71% of companies in the forestry and paper sector, believe that new legislative and fiscal mechanisms will be essential to increasing investment in climate solutions. Scaling climate applications will require national and local reforms to advance local financing systems, develop targeted capital support schemes and align farmer incentives: nearly three-quarters of business leaders across the sector believe that ambitious national targets in the Paris agreement will be critical to their company's climate strategy and investments.

### City infrastructure, buildings and transportation—the future of urban development

Cities are drivers of global consumption and emissions, representing 80% of global GDP and more than 40% of global energy emissions. Global population growth is forecast to continue to concentrate in urban areas through mid-century, with 70% of the world's population expected to live in urban centers by 2050. This unprecedented growth will place new demands on urban infrastructure, driving demand for new solutions that can meet the needs of a growing population while managing the impact on the world's scarce resources.

As drivers of global consumption and emissions, cities will require significant low-carbon investment in the coming decades. The Organisation for Economic Co-operation and Development (OECD) estimates that to accommodate forecast growth, more than \$40 trillion in investment for urban infrastructure will be required over the next 15 years; under a “green investment” scenario, an additional \$8 trillion to \$26 trillion could drive efficiency and low-carbon innovation.<sup>59</sup>

This demand for resource-efficient infrastructure, supported by regulatory incentives, is already creating opportunities for innovative companies to invest in urban centers, through the development of smart solutions in which new technologies and connectivity are driving greater efficiency and enabling the roll-out of new, lower-carbon infrastructure. While leading businesses see opportunities in directing investment toward low-carbon products and services, the scale and speed of development and implementation may be hindered without clearer and more consistent policy support investment that drives adoption of new solutions and accelerates the low-carbon transition.

### Climate-smart buildings: low-carbon products and services with clear payback

Leading companies in sectors critical to the development and transformation of urban infrastructure see significant opportunities for growth and innovation. The opportunity for business is particularly apparent in buildings and transportation, where new technologies and connectivity are driving greater efficiency and enabling the growth of new, lower-carbon business models. Demand for efficient infrastructure has created opportunities for business to invest in urban solutions and technologies, with demand often driven by regulatory incentives.

One of the clearest and most immediate opportunities for companies seeking to address the climate challenge lies in the provision of new technologies that can boost energy efficiency in the built environment.

Investing in energy-efficient and low-carbon building solutions offers great potential for emissions reduction: household appliances and equipment are responsible for approximately 40% of residential energy use, and residential and commercial buildings contribute over 6% of greenhouse gas emissions.<sup>60</sup>

Due to advances in mobile technology and the growing penetration of machine-to-machine connections, ICT-enabled smart building solutions are quickly gaining ground as enablers of energy and resource efficiency.

The global smart building market is expected to grow from \$7.3 billion in 2015 to \$36.4 billion by 2020,<sup>61</sup> and GeSI's SMARTer2030 report estimates that the construction of new ICT-enabled smart buildings, improvements in the efficiency of existing buildings, and the installation of energy-efficient products and services could cut 2 gigatons of CO<sub>2</sub> emissions from the sector, reducing costs

and creating revenue opportunities of \$400 billion.<sup>62</sup> Leading companies are innovating low-carbon products and services to capitalize on the opportunity: Schneider Electric, for example, is deploying ICT solutions using web and wireless technology to control HVAC, lighting and metering, reducing efficiency-related retrofit costs by 50%.<sup>63</sup>

Investment in innovative solutions and their adoption is often supported by regulation. Cities are introducing efficiency standards in public procurement contracts, driving demand for innovation. Findings by the United Nations Intergovernmental Panel on

Climate Change (IPCC) identify well-designed building codes and appliance standards as one of the most cost-effective ways to unlock investment: in the United States, the 2005 Energy Policy Act required all new buildings to achieve increased efficiencies of 30% by 2015; the British government announced its ambition that all new homes be zero carbon by 2016; and the EU has set a target for all new buildings to be carbon neutral by 2020. These regulations, in tandem with consumer awareness, are fueling demand for energy-saving solutions and driving innovation and advantage for those companies able to expand into these new markets.

## BT Group: Applying communication technologies to enable smart and resilient infrastructure

Information and communications technologies (ICT) have a vital role to play in reducing demand for resources and cutting carbon emissions. Internet access and smart phone ownership are at much higher levels than ever before and the number of connected devices is expected to grow to 100 billion by 2030.<sup>64</sup> Enhanced connectivity through ICT could significantly increase efficiency while reducing congestion, emissions, and resource consumption. From making cities smarter and more sustainable to making resources easier to track and trace, the potential for innovation is huge.

BT Group, one of the world's leading communications services companies, is proactively investing in market-facing technologies that enable smart, resilient infrastructure and align with its business strategy. The BT network is in 178 countries, powering some of the largest companies in the world, and that network is becoming core to key business operations; today, most businesses are digital businesses and weather-related threats to network reliability present a significant risk to BT's business success. This risk is driving the company to design new, resilient networks and infrastructure with climate change in mind.

Niall Dunne, Chief Sustainability Officer, notes that there is also an upside to its investments, "As the world is asked to do more with less: technology is seen increasingly as part of the solution, decreasing the impact of networks while increasing the abatement potential." Looking to the future, BT believes that by offering more products that cut carbon and resource use, it can help customers and grow revenues. For example, BT is the major IT partner in the MK: SMART project, which gathers and analyzes real-time information from across Milton Keynes to enable much more efficient use of transport, water and energy, expected to cut the city's water use by 20% and traffic congestion by half. BT is also providing an online information hub of real-time transport data collected from sensors for the STRIDE project in the East of England, which aims to transform smart transport and logistics in the region, and to demonstrate the business opportunities presented by the Internet of Things technologies and services. Alongside this BT is developing new apps, enabled by a cloud based system, to create value for its customers by providing access to a wide range of real-time, accurate data from roads and vehicles for improved decision making.

The current policy climate in the United Kingdom has been favorable to such investments, and there is a role for government in providing incentives which promote investment in ICT, such as connectivity. Policy has worked best where governments set the overall vision and policy framework, and allow business to innovate and find the specific solutions: According to Dunne, "The beauty of connectivity is that you're delivering social impact as well as environmental impact; for the 4 billion people that are currently offline around the globe it can create huge empowerment and fundamentally transform lives by unlocking that creative, entrepreneurial spirit".

BT is already acting and making significant capital investments to decarbonize its operations and growth, but the company sees a need for greater urgency from business and governments in Paris. Dunne notes, "Companies are getting better at underlining the upside of government action and policy in visible forums, but there is also a need for very frank and honest discussions in private about the critical urgency of action – about how climate change is literally flowing through our network as we speak – and leaving no uncertainty about what we need from them."

Similarly, city infrastructure funding from central governments and banks is attracting a number of companies to direct investment toward urban development products, services and technologies. ABB, the Swedish-Swiss leader in power and automation technologies, has fully integrated urbanization and future contracts into its strategy; and Siemens, the German multinational electronics and electrical engineering company, has added a fourth priority sector—infrastructure and cities—to capture the opportunity of city growth and infrastructure investments.<sup>65</sup>

### Transportation: clean technologies and sharing models transforming transport

The rise of advanced mobility solutions and the sharing economy are disrupting global markets, creating new

opportunities to expand the penetration of electric vehicles and address carbon emissions in transportation. Smarter, cleaner vehicles, digitally-enabled car sharing and changing consumer expectations are pushing many traditional automotive companies to rethink their product lines. The electric vehicle market has grown at a compound annual growth rate of 90% between 2011 and 2015, with electric vehicle and hybrid repair costs falling dramatically to below those of conventional gasoline cars, prompting more consumers to see the economic benefit in purchasing efficient vehicles: Accenture research suggests that 53% of consumers in the U.S. are considering buying an electric or hybrid vehicle.<sup>66</sup> In response to consumer demand and changing standards, automotive companies are investing in

more efficient product lines: in 2014, hybrids were responsible for more than 20% of Honda's total sales, an increase of 50% over 2013;<sup>67</sup> and Toyota, which pioneered the first mass-produced hybrid, the Prius, has become a market leader, with hybrid sales representing 42% of total sales in 2013.<sup>68</sup>

National policymakers are encouraging investment in electric vehicle technologies. The Chinese government, for example, recently launched an initiative to provide incentives and financial support to non-automotive companies to finance electric vehicle startups. The initiative has spurred Chinese investors such as internet company Tencent and investment firm Hillhouse Capital to build the electric vehicle company NextEV.

## InterCement: Committing R&D towards innovative and disruptive cement production

Concrete is a key component for construction activity and the second most widely consumed substance on earth after water, with cement its primary ingredient. The cementing industry alone is responsible for 5% of global man-made CO<sub>2</sub> emissions, and has experienced massive growth alongside global urbanization: world production grew sevenfold from 133 million metric tons in 1950 to one billion metric tons in 1983 and has continued to rise to well over 4 billion metric tons since 2013.<sup>69</sup>

InterCement, one of the ten largest cement producers worldwide, is innovating solutions to reduce greenhouse gas emissions and grow new low-carbon business opportunities. By 2023, the company aims to reduce clinker in cement from 72% to 60%, reduce net-CO<sub>2</sub> emissions by 40% in cement and 50% in concrete, increase thermal substitution to 42% and replace 15% of natural raw materials with alternatives. To achieve these goals, InterCement focuses on R&D in new products and processes for cement production.

Approximately half of cement CO<sub>2</sub> emissions are produced from the chemical reactions during the production of clinker, the principal component of cement. To produce clinker, limestone is heated to 1400°C and its calcination emits CO<sub>2</sub> directly, making it a highly emissions-intensive process. For each ton of clinker production avoided, approximately 0.8 ton of CO<sub>2</sub> is not emitted. Using substitutes to reduce clinker production by 300 megatons, the global cement industry has the potential to reduce CO<sub>2</sub> emissions by approximately 240 megatons per year.<sup>70</sup> InterCement is investing in this opportunity, with plans to develop an eco-efficient concrete, which will use a new type of cement with a modified chemical composition. As a result, the company expects to reduce emissions by 17% with the added economic benefits of lower production costs, reduced water consumption and improved concrete performance.

Cement production is also highly energy-intensive, and the burning of fossil fuels to heat the limestone indirectly results in CO<sub>2</sub> emissions. To tackle this side of

production, InterCement is innovating in the areas of thermal substitution and CCS/U, with plans to invest \$1 million into experimental crops, thermal biomass treatment technologies and the cultivation and production of renewable energy, which all aim to replace the fossil fuels traditionally used in cement production. The company is further innovating the carbon capture process by deploying microalgae with an investment of \$2.3 million over four years.

While recognizing potential economic benefits, the company seeks policy support to accelerate its efforts. Since the current scale is not large enough to cover the significant costs of capital investments, low-cost financing is a key requirement to enable further progress. Policies that stimulate circular economy could also aid more rapid development and adoption of new, low-carbon products.

The company is focused on e-vehicle innovation, with plans to build a powerful electric super vehicle in 2016 and eventually roll out high-performance electric vehicle sedans. Other Chinese manufacturers, such as Alibaba and Xiaomi Technology, are also responding to government incentives and looking to grow the electric vehicle market.<sup>71</sup>

These companies continue to pioneer new models, such as point-to-point car sharing, which allows users to pick up and drop off cars in any legal parking space, and on-demand taxi-like services such as Uber and Lyft are disrupting sectors and transforming consumer attitudes toward car buying.

Though aspects of car sharing have existed for decades, in the past 15 years the concept has grown into a rapidly spreading mobility market, dominated by traditional car rental companies and manufacturers entering the market through the acquisition of fast-growing

companies such as Zipcar (owned by Avis Budget Group) and Car2Go (Daimler AG) or the development of new sharing capabilities and business units. As the car sharing and electric vehicle markets grow, opportunities in electric mobility are attracting the attention of investors: Morgan Stanley recently doubled its price target for Tesla based on the potential for smart technology to speed the development of self-driving cars.

### Innovative businesses are disrupting traditional models to seize opportunities, but they need policy support

Across the infrastructure and transportation sectors, leading companies are investing in new circular business models to reduce their asset, capital, and energy intensity. Circular business models, enabled by advances in materials recovery and product design, reuse products and materials, using fewer virgin materials and generating additional

revenue from extended use. Disruptive business models can also reduce or eliminate the up-front costs of low-carbon products and propel the growth of new markets. Many companies are shifting to product-as-a-service models to drive adoption of low-carbon technologies.

The arrangement eliminates the up-front costs of the conventional “buy and own” business model; instead, customers pay for the time or usage of products through a lease, rental or pay-for-use arrangement. Philips Electronics, for example, signed a ten-year contract with the Washington Metropolitan Area Transit Authority to provide LED lighting and controls for 25 parking garages (13,000 fixtures), enabling the company to capture share in the market for LEDs, which is expected to grow 12-fold to \$25 billion over the next decade. This project could provide energy savings of 68%, or \$2 million per year in costs and avoid 11,000 metric tons of CO<sub>2</sub> emissions.<sup>72</sup>

## Braskem: Pioneering positive-carbon plastics for everyday applications

The global polyethylene (PE) market is the largest polymer business worldwide in terms of volume, with PE representing 40% of resins used in a variety of applications from refuse bags to automotive parts. Each metric ton of conventional PE produced releases approximately two metric tons of CO<sub>2</sub> into the atmosphere, creating a challenge for global players seeking to grow market share while reducing their environmental impact.

Braskem, the leading thermoplastics resin producer in the Americas, aims to outperform the world's largest chemical companies by 2020, providing innovative climate solutions. The company's strategy is three-pronged: to use more sustainable resources and processes; to have a more sustainable product portfolio; and to offer value chain solutions for a more sustainable life. Braskem spends more than \$90 million annually in innovation and technology and one main area of focus

has been innovating with renewable raw materials and green plastics, including the development of green polyethylene. “Green PE” is 100% recyclable and is produced from renewable sugarcane-based ethanol: importantly, because the sugarcane captures CO<sub>2</sub>, each metric ton of Green PE produced removes more than two metric tons of CO<sub>2</sub> from the atmosphere which means a contribution toward climate change mitigation.

Green PE has potential for significant business benefits for Braskem. Because sugarcane has the highest energy productivity compared with other ethanol sources, chemical products that use it as a raw material have great potential to be part of the solution. The product is identical in its potential applications to conventional PE: Braskem's “I'm Green” seal is being applied by manufacturers and retailers, such as Johnson & Johnson, Kimberly-Clark, Bimbo and Tramontina among others, which are looking for sustainable solutions.

Despite the potential for Green PE to capture new market share, the product faces significant barriers to scale up its adoption. Because it is a new process, its production process is more expensive than conventional PE, and it can grow only as much as the market accepts it, which requires increased interest and acceptance among end-users. As early movers in the market, Braskem has borne the risk of developing Green PE; as the company looks to scale production and evaluates new investments, it will seek partnerships with governments and business to share the opportunity. The company believes government needs to play a stronger role in supporting early movers by providing incentives that will reduce the cost of investment and engage consumers: carbon pricing systems, for example, can influence the price of these products, benefiting those with lower-carbon intensity and driving consumer demand for a product that supports development while decoupling growth from environmental impact.



A number of governments have recognized the benefits of circular business models and have begun encouraging companies to adopt circular practices. By increasing the cost of landfilling waste, for example, the competitiveness of circular products is enhanced, incentivizing companies to introduce reverse cycle options: the EU Waste Framework Directive increased landfill costs for construction and demolition waste, incentivizing recycling and reuse of construction materials and minimizing construction process waste.

Although leading businesses see opportunity in investing in low-carbon products and services, the broad transformation of urban centers may require clear and consistent policy support. Opportunities are evident across sectors, but business leaders see a need for regulation and standards to drive adoption: in the housing sector, low-carbon products and services are generating payback on climate-smart buildings, but policy is needed to support market uptake; in the transport sector, policy has started to drive the green growth agenda, as ambitious emission reduction programs continue to bolster the business case for the development and adoption of new solutions.



# Toward Transformation: Closing the Gap

Business leaders believe climate change is an urgent priority for their companies, but they are not doing enough to scale the solutions needed for a prosperous future. Our research shows that climate change is presenting both challenges and opportunities for business, as leaders recognize an epochal shift toward a low-carbon economy.

Business leaders are moving to innovate climate solutions and adopt low-carbon business models, and companies in every region and in every industry sector are already realizing opportunities for growth and innovation in addressing the climate challenge. However, even as leading companies seek competitive advantage in their industries, there remains a gap between ambition and execution.

Closing the gap will depend on unlocking further investment, and business leaders see a vital role for policy in enabling the innovative potential of the private sector. In the run-up to the Paris climate conference, leaders are calling for a clear, consistent policy landscape to overcome barriers and enable the scale up of investment in low-carbon technologies with greater confidence. Business leaders are looking to governments and policymakers to support their industries in their efforts to seize low-carbon opportunities, creating business value and laying the foundations of a low-carbon economy. Broad, transformative action will require greater collaboration, reduced uncertainty, and a level playing field – areas where business sees government playing a critical role.

This year, with the launch of Agenda 2030 and the global Sustainable Development Goals (SDGs), the United Nations has laid out a pathway over the next fifteen years to end extreme poverty, fight inequality and injustice, and protect our planet. Action by business will be essential to the success of the global goals, and the successful implementation of the SDGs will strengthen the enabling environment for doing business and building markets around the world.

For all companies, the SDGs provide a global aspiration and common direction that can stimulate innovation, investments and positive engagement. As companies look to grow and innovate low-carbon solutions to the climate challenge, they can lay the foundations of achievement across the individual SDGs. Climate solutions contribute to the global goal toward combating climate change, but they also offer opportunities for business to have a meaningful impact on the wider set of goals across sectors: new energy technologies are creating opportunities for companies to ensure access to affordable, reliable, sustainable energy for all; climate-smart agriculture solutions help to achieve food security and promote sustainable farming; and new low-carbon technologies for cities will build resilient infrastructure and promote inclusive and sustainable industrialization.

In the context of Agenda 2030, this year's CEO Study shows a striking shift in business leaders' attitudes and commitment, with a majority of companies now looking beyond an incremental approach rooted in corporate social responsibility to one motivated by the opportunities to scale innovative solutions. Many challenges lie ahead: in the assessment of business leaders themselves, companies are not doing enough to invest in the solutions of the future, and are not yet living up to their own expectations of corporate leadership on climate change.

To advance the role of the private sector in tackling the greatest challenges we face, we must forge a new compact between business, governments and civil society, to work together to unlock the potential of the private sector in delivering our shared vision for a prosperous future. This is a critical moment to work together and embrace business as a transformative force: together, we can build a better future for all.

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