



**WE MEAN
BUSINESS**

economic opportunity
through bold climate action

**THE
CLIMATE
HAS
CHANGED**

Why bold, low carbon action makes good business sense.

FOREWORD BY CHRISTIANA FIGUERES

Climate action was once perceived by many governments and many businesses as about sacrifice.

Today, the value proposition is very different. Today, it is the sacrifice economies and communities will increasingly have to make if the world fails to address climate change and the buildup of greenhouse gases.

This is why I welcome the way leading business groups have come together to establish WE MEAN BUSINESS. This unprecedented collaboration is a clear signal to governments that business is serious about tackling climate change and is ready to lead.

It is part of a growing momentum for change that is happening in every corner of the globe and across economies, sectors and communities—a momentum that can build the confidence of policymakers to ink a new universal climate agreement in Paris that is both meaningful and visionary.

This report demonstrates just how many **companies all around the world are embracing a transition to a low carbon economy by their commitment to decouple emissions from growth.**

These businesses, many of which are household names, are setting ambitious goals for reducing their carbon footprint, delivering on these targets and helping their suppliers and customers to do the same.

These companies are seizing the opportunity and developing a range of innovative products and services that can assist everyone to contribute to building a better future.

But we all know that the existing policies, actions and opportunities will only take us so far.

If the world wants to reach the goal of keeping a global temperature rise under 2 degrees C, emissions need to peak within a decade, a deep, decarbonization of the global economy must occur and we must achieve climate neutrality—also termed net zero emissions—in the second half of the century.

To realize that vision, **business needs more ambitious, clearer and longer-term policy frameworks** that enable bolder investments into a net zero carbon and resilient global economy.

Investments that flow—and flow at scale and with speed—into a transformation of energy, transportation and manufacturing; into the greening of cities and infrastructure and into our forests, soils and other natural systems—that will also be at the center of a sustainable century.

An international agreement in Paris that puts in the pathways and the policies that supports a true business transformation can be the catalyst towards our shared, long-term aims.

I would ask policymakers—both at the national and international level—to listen to those business groups in the WE MEAN BUSINESS coalition calling for forward-thinking policy to cut carbon.

The future will happen by default or by design. Over the next 16 months, governments and business alongside cities and citizens have the opportunity to be the architects of positive change that echoes to the needs and the aspirations of this generation and generations to come.



CHRISTIANA FIGUERES
Executive Secretary
UN Framework Convention
on Climate Change



United Nations
Climate Change Secretariat

FOREWORD BY WE MEAN BUSINESS

The climate has changed. Climate change is one of the planet's greatest risks, yet tackling it is also one of our greatest economic opportunities.

Today, we have the data to show that ambitious climate action makes business sense. And as we start to see the impact of unchecked climate change around the globe, the costs of inaction for businesses, policymakers and consumers continue to rise. Exponentially.

The evidence from CDP, on which this report is based, points to great opportunities for more companies to make emissions reductions in their own assets and operations. While this approach is important, we must recognize the additional need to completely transform industries and society. We must aim for a net zero emissions society in the long term, underpinned by a transformation of the energy system and many completely different products and services. The partners in WE MEAN BUSINESS are supporting companies in their long-term planning for this transformation, which recognize both the scale of expected demand increases and the trillion tonne cumulative carbon challenge.

The low carbon revolution already offers huge opportunities for business, the economy and society. Companies are saving billions by implementing energy efficiency measures and revolutionary low carbon technologies, and introducing new products and services at an extraordinary rate.

This innovation is generating employment, reducing carbon footprints and saving money.

But so much more can be done. We need more business leaders to lead and policymakers to put the right policies in place.

We ask for two things.

First, we call on the rest of the private sector to follow businesses that have taken the lead—and have positive results to show for it. The time for incrementalism is over. We need bold comprehensive action—by all companies—to embrace change and participate in this transition to a low carbon economy. Energy companies in particular have a crucial role to play.

Second, we call on policymakers to create policies that enable more companies to invest in a low carbon economy on a significant scale. They need legislative encouragement and market signals that only governments can provide. Businesses need policies that are forward looking, stable and long term. This will give them the confidence to commit significant capital to scale up clean energy and energy efficiency investments. Good-paying jobs and more resilient companies and communities will be an added benefit.

So we ask policymakers to recognize that investing in climate action is an economic imperative with enormous opportunities.

A new, cleaner-energy economy will improve public health, provide more energy security and help alleviate poverty for billions of people around the world. Many businesses are ready. Now governments must act.

As some of the leading business organizations on climate change issues, we work with thousands of businesses and investors managing trillions who are ready to accelerate the momentum on investing in a low carbon economy. Although we recognize that transitioning from a high carbon to a low carbon economy is more challenging for some sectors than others, WE MEAN BUSINESS represents an unprecedented opportunity for us—across all sectors of the economy—to work together, commit and act on climate action.

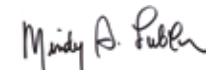
WE MEAN BUSINESS because #wemeanit.


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TABLE OF CONTENTS

| | |
|---|------|
| WE MEAN BUSINESS | vi |
| EXECUTIVE SUMMARY | viii |
| INTRODUCTION | xiv |
| SECTION ONE: Making Good Financial Returns | 1 |
| SECTION TWO: Maximizing Carbon Returns | 9 |
| SECTION THREE: How to Accelerate the Low Carbon Economy..... | 21 |
| TABLE I..... | 28 |
| ANNEX I: The Science..... | 29 |
| ANNEX II: Methodology and Data Sources..... | 30 |

WE MEAN BUSINESS

WE MEAN BUSINESS is a coalition of organizations¹ working with thousands of the world's most influential businesses and investors. These businesses recognize that the transition to a low carbon economy is the only way to secure sustainable economic growth and prosperity for all. To accelerate this transition, we have formed a common platform to amplify the business voice, catalyze bold climate action by all and promote smart policy frameworks.

LEADING BUSINESSES:

1 ACKNOWLEDGE THE SCIENCE.

The Earth is on a path to a mean temperature rise of 1.5°C to 4.5°C by the end of the century and governments have agreed that the global temperature rise should be kept to 2°C above pre-industrial levels to avoid the worst climate impacts.

2 ACT TO REDUCE CO₂e EMISSIONS AND ENHANCE RESILIENCE.

Companies should set ambitious targets to reduce carbon emissions across their value chain and plan investments and activities to deliver these targets. This may involve major improvements in energy efficiency, procuring renewably-generated electricity and other low carbon sources of energy, using an internal price on carbon for strategic planning, working with suppliers and other business partners to incentivize them to reduce their emissions and providing carbon-reducing options to others.

Companies should use ambitious targets to innovate and create new business opportunities—harnessing design and innovation to reduce the lifecycle impacts of products and services.

Companies should also take meaningful action to improve the resilience of operations, supply chains and communities in the face of an uncertain climate in the future—including full assessment of climate-related risks and adequate investment in infrastructures and capacity building to meet them.

3 ADVOCATE FOR A LOW CARBON FUTURE.

Companies should actively support public policy to bring about a low carbon transition and ensure that all public policy advocacy by the company (and bodies of which it is a member) is consistent on climate science.

Companies can demonstrate their dedication to the low carbon agenda by publicly sharing best practice examples that illustrate the feasibility of ambitious leadership. They can also communicate all of the above in a consistent and standardized way, using the CO₂e Protocol and a well-established process such as the annual CDP public disclosure process.

WE MEAN BUSINESS ASKS POLICYMAKERS TO HELP THE PRIVATE SECTOR GO FURTHER:

STABILIZE GLOBAL EMISSIONS BY 2020 AND SET AGGRESSIVE LONG-TERM GOALS

By 2015, we seek government action to increase the level of urgency and ambition to stabilize global emissions before the end of this decade.

We support continued implementation of domestic policies through to 2030 that support bold business action to cut emissions, including:

- eliminating subsidies that incentivize high carbon energy
- enacting meaningful pricing of carbon
- ending deforestation
- putting in place robust energy efficiency standards
- supporting the scale-up of low carbon energy
- ensuring that all policy regimes dealing with fiscal, energy, industry and trade-related issues provide actionable incentives for an early transition to a low carbon future

Establishing a clear long-term global goal will provide the necessary direction to business decision makers such as net zero emissions well before the end of the century.

IMPROVE TRANSPARENCY AND ENCOURAGE INVESTMENT

We support improved transparency and accountability in monitoring climate ambition and action. We want policy to help create a stable and predictable low carbon investment environment. And we need continued scale up of public finance to support resilience-building and accelerate low carbon investment by the private sector.

¹ BSR, The B Team, CDP, Ceres, The Climate Group, The Prince of Wales's Corporate Leaders Group and WBCSD

COMPANIES CAN BE CONFIDENT THAT CREATING A LOW CARBON STRATEGY MAKES GOOD BUSINESS SENSE

► **MANY COMPANIES ARE ACHIEVING AN AVERAGE IRR OF 27% ON THEIR LOW CARBON INVESTMENTS.**

The climate has changed.

A group of companies identified in this report are demonstrating bold leadership on climate action driven by the risks and opportunities they know climate change will bring to their businesses. Smart policy from leading governments at all levels is creating opportunities for low carbon innovation that is helping to drive the transition to a low carbon economy.

But with global emissions continuing to climb, we know that businesses and policymakers need to and must do more. And we must do this together.

To understand the low carbon business case in more detail, WE MEAN BUSINESS carried out a review of the actions and investments companies reported to CDP in 2013 and 2014.² We wanted to see how companies are currently acting on climate change. We looked at how corporate targets align with the science and what is motivating companies to develop low carbon business strategies. And we considered the role that policy is currently playing and how it can support further action.

The data provides compelling evidence that smart climate action makes business sense.

Between 2012 and 2013, almost 1,450 companies reported carbon savings³ of just over 420M metric tonnes per year through internal investment of more than US\$170B in low carbon projects. Within the six regions⁴ highlighted in the study, this included around US\$140B investment in nearly 5,500 projects that are delivering annual carbon savings of a little over 320M metric tonnes.

The low carbon investments highlighted in Section 1 of this report provide clear evidence that some measures simply make good financial sense and that businesses can do more now. **For example, the Internal Rate of Return [IRR]⁵ for process energy efficiency measures in South Africa is 46%. In the US, process energy efficiency measures get an even higher IRR of 81%.**

In other cases, it is clear that policy is a key driver for investment in low carbon action. Policy-driven action is successfully reducing carbon emissions in areas where a good financial return alone would not have justified the investment. For example, European renewable energy policy ensured that 72% of the continent's new power capacity came from renewable sources in 2013—just a decade ago, 80% came from fossil fuels⁶. However, the average IRR on low carbon energy installation in the European utility sector was 0%—an indication of the success and importance of policy in driving company action.

The most forward-thinking companies, those that have set targets that align with the science and have reduced their emissions intensity from 2012 to 2013, are achieving a better financial return on low carbon investment relative to their peers. These companies⁷ invested 7.5% of the global total investments made by companies in this study and reported an average IRR of 27% on US\$8.2B invested.

The reason they outperform others isn't because their attitude to climate change risks and opportunities is different, but because the way they act upon them is different. Forward-thinking companies are quicker to spot opportunities to make smart, cost-effective business decisions that align with a low carbon economy. They have made a strategic decision to set aggressive carbon reduction targets and to take low carbon actions that have high financial returns. But these actions will need to be balanced with an increasing number of investments that deliver bigger carbon reductions going forward. The processes, technologies and knowledge uncovered by taking these more challenging actions will in turn drive improved returns in future projects.

We also found that companies making the proportionately largest investments (relative to overall operating costs) in low carbon solutions get an equal if not higher rate of return than their peers in the same regions.

2 Analysis of CDP 2013 and CDP 2014 data - 2012 and 2013 company performance data, respectively. The data set used for this study includes 1,763 companies. Of this 1,763, 1,455 provided information that enabled further analysis of carbon reductions and investment in low carbon actions.

3 We use 'carbon' here as short-hand for 'carbon dioxide equivalent' or 'CO₂e'.

4 Brazil, China, EU, India, South Africa, US

5 IRR is a measure used by businesses globally to determine the internal financial return of their investments.

6 REN21, Renewables 2014 Global Status Report, 2014

7 Based on data from 85 of the 110 companies referenced in Section 2 who reported investments that passed the Investment and Carbon filters (see Annex II for more details of the methodology used for this analysis).

FORWARD-THINKING BUSINESSES TAKE A BALANCED APPROACH TO LOW CARBON INVESTMENT.

Overall, they achieve good financial returns and reduce their carbon emissions.

● PROJECTS

Earn back cost of capital above internally set hurdle rate.

↑ POLICY MEASURES

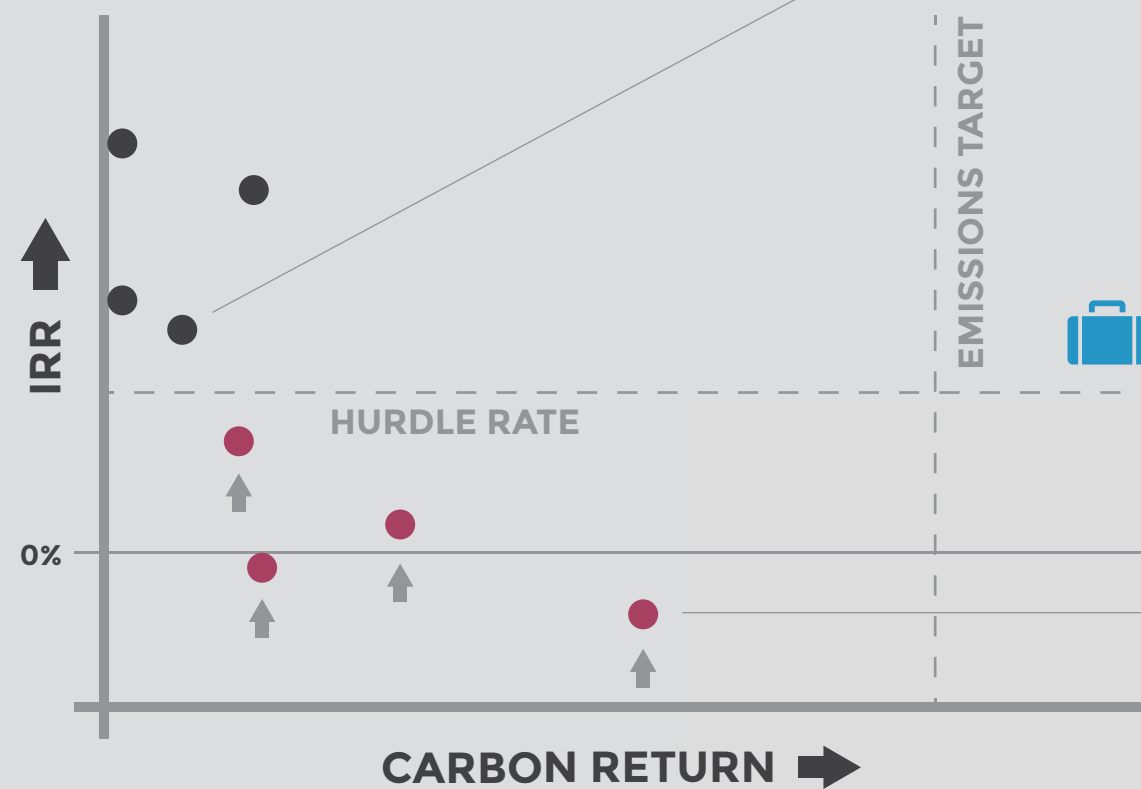
Increase the attractiveness of high carbon return measures.

● PROJECTS WITH MEDIUM TO LONG-TERM PAYBACK

Deliver processes, technologies and knowledge that reduce carbon emissions and can drive improved financial and carbon returns in future projects.

👛 LOW CARBON PORTFOLIO

Overall collection of projects deliver carbon emission reduction targets and meet an acceptable IRR.



SOME PROJECTS HAVE VERY ATTRACTIVE FINANCIAL RETURNS:

- Employee engagement program to raise awareness of how to save energy. Financial incentives and other benefits can help to maximize results.
- Investment in more energy efficient HVAC (heating, ventilation and air conditioning) units.
- Implementation of LED lighting and automated lighting control system.
- Capture waste heat for use in industrial processes and space heating.

SOME PROJECTS DELIVER SIGNIFICANT CARBON EMISSIONS REDUCTIONS WITH MEDIUM TO LONG-TERM PAYBACK PERIODS:

- Retrofit of older building stock including insulation and implementation of building services control mechanisms.
- Installation of geothermal power generation plant.
- Replacement of old, oil-fired boilers with new, energy-efficient biogas units.
- Replacement of light vehicle and company car fleet with electric vehicles.



IT'S CLEAR THAT THE BUSINESS CLIMATE HAS CHANGED

► **POLICY IS CREATING THE CONDITIONS FOR PRIVATE SECTOR INVESTMENT IN LOW CARBON ACTION, BUT MORE NEEDS TO BE DONE.**

The data also demonstrate that the majority of companies are not yet on a low carbon pathway. And even the most forward-thinking companies in this study are still only making short-term commitments to carbon reductions. For them to make more investments that achieve aggressive carbon emissions reductions, targeted policy support is needed.

We can do more and we must.

Businesses that are not already on a low carbon pathway can be confident that creating a low carbon strategy makes good business sense. Investment in the readily available options to reduce carbon and save energy will deliver tangible benefits. And by balancing those actions that have a high financial return with those that deliver significant carbon reductions companies can ensure that—across their range of low carbon investments—they are still achieving financial returns acceptable to the CFO. This can also act as a powerful driver of innovation for businesses in terms of the services or products that they provide.

Policy can help to incentivize companies to invest in measures that are more costly, but that result in higher levels of emission reductions. The key lies in three areas: 1) Setting smart regulations that create demand for low carbon products and services; 2) Developing policies and financial incentives to make the low carbon actions with the potential for the biggest carbon cuts more financially attractive; and, 3) Setting long-term targets that encourage companies to do the same and therefore enable more strategic business thinking about investment in low carbon action with a long-term payback.

While these kinds of policies are not new, the findings of this report make it clear that they drive and enable businesses to create the products and services that are achieving carbon reductions today. And by ensuring smart policies and measures are maintained and strengthened over time, policymakers can provide businesses with incentives and certainty to make deeper emissions cuts in the future. Overall collection of projects delivers carbon emission reduction targets and meet an acceptable internal rate of return.

Based on the findings in this report, it is also clear that different policy approaches may be needed to help businesses in different regions.

We found that in India and South Africa, companies are able to profit from early-mover opportunities and get more carbon return out of their investments than their peers. Support will be needed to make sure that these companies, and others, continue to have access to the capital and technology that will support a low carbon transformation.

In the EU and the US, even the most forward-thinking companies are finding it challenging to focus on the measures with higher carbon returns. Extra incentives might be needed in key sectors where the early win-wins are less available and for those measures that have the potential to reduce emissions on a transformational scale.

It's clear that the business climate has changed - companies around the world are making smart low carbon investments that make good business sense. The most successful companies are achieving this by taking a balanced approach to their low carbon investments – complementing projects with high financial returns and high carbon returns.

Policy has already encouraged businesses into a low carbon transition. **More aggressive policy is now needed to send the right signal to business about climate action that puts us on a low carbon path.**

THE TRANSITION TO A LOW CARBON ECONOMY IS ALREADY HAPPENING.

As the low carbon economy evolves, key questions need to be addressed:

- How does this transition impact on business?
- What actions are companies taking to reduce carbon?
- Which companies are providing the products and services that cut carbon?
- How can policy help?

Based on the information provided by 1,763 companies in their CDP 2013 and CDP 2014 responses, this report gives a global snapshot of what the low carbon economy looks like today and highlights key trends in six strategic regions—Brazil,⁸ China,⁹ Europe (EU),¹⁰ India, South Africa and the United States of America (US). It also looks at what the low carbon economy means for different industry sectors, all of which are responding to a variety of pressures and making the most of cost-effective opportunities.

MAKING GOOD

⁸ Limited company information is available from Brazil.

⁹ Limited company information is available from China. CDP's own China Report for 2013 explains that, although reporting is on the increase, there is still limited information available, particularly around emissions reporting (CDP, *China Report: Are Enterprises Ready for Carbon Trading?* 2013)

¹⁰ Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom

INTRODUCTION

The report explores how companies are helping to shape the low carbon economy in three sections:

FINANCIAL RETURNS

Section 1 looks at what low carbon actions can deliver a solid return on internal investment for companies. These are **easy wins in today's low carbon economy, actions that all businesses can take advantage of now.**

MAKING GOOD CARBON RETURNS

Section 2 investigates the actions companies are taking that deliver a good carbon return (i.e., deliver good carbon savings or reductions) but have longer payback periods. It explores why companies make these choices and whether it's enough to get us on a low carbon path—which means keeping temperature rise to within two degrees C.¹¹ The results show the limitations of today's low carbon economy but **demonstrate there's a business appetite to do more.**

A BALANCED APPROACH

Section 3 uncovers the benefits of balancing carbon and financial returns on investment. The conclusions highlight how more businesses can reap rewards by making smart investments today and also how government policy can help unlock more opportunities. **These actions will enable us to dramatically increase ambition and**

action, so transforming the planet's low carbon future.

There are already tangible opportunities for businesses to balance their internal investment and carbon returns in a way that will continue to develop the low carbon economy. But changes could happen much more rapidly and radically if government and business work more closely together to focus on the opportunities that have not yet been realized. The environment will benefit, consumers will benefit and the economy will benefit. But it needs concerted, collaborative action.

Constructive collaboration is the driving force behind the WE MEAN BUSINESS coalition.

¹¹ See Annex I for further explanation of the science.

A photograph of a modern office building at night. The building has a dark, multi-story facade with many windows. Some windows are brightly lit from within, showing office interiors with desks and lights. The overall scene is dark, with the building's lights providing the primary illumination. The text is overlaid on the left side of the image.

MAKING GOOD FINANCIAL RETURNS

Businesses must find responsible ways to deliver substantial returns for their shareholders. Low carbon investments give them this opportunity—and some are taking it. The key is to make sure all businesses reap these rewards.

SECTION ONE

Across the world, and in many businesses and sectors, companies are making investments to reduce their carbon emissions and they are, in many cases, achieving very high internal rates of return (IRR).

In some cases, the financial argument alone is worth the investment—the environmental benefits are a valuable bonus.

The figures below highlight the most financially attractive low carbon opportunities and the measures that have resulted in the highest levels of emissions saved across key regions and sectors.

LOW CARBON ACTIONS

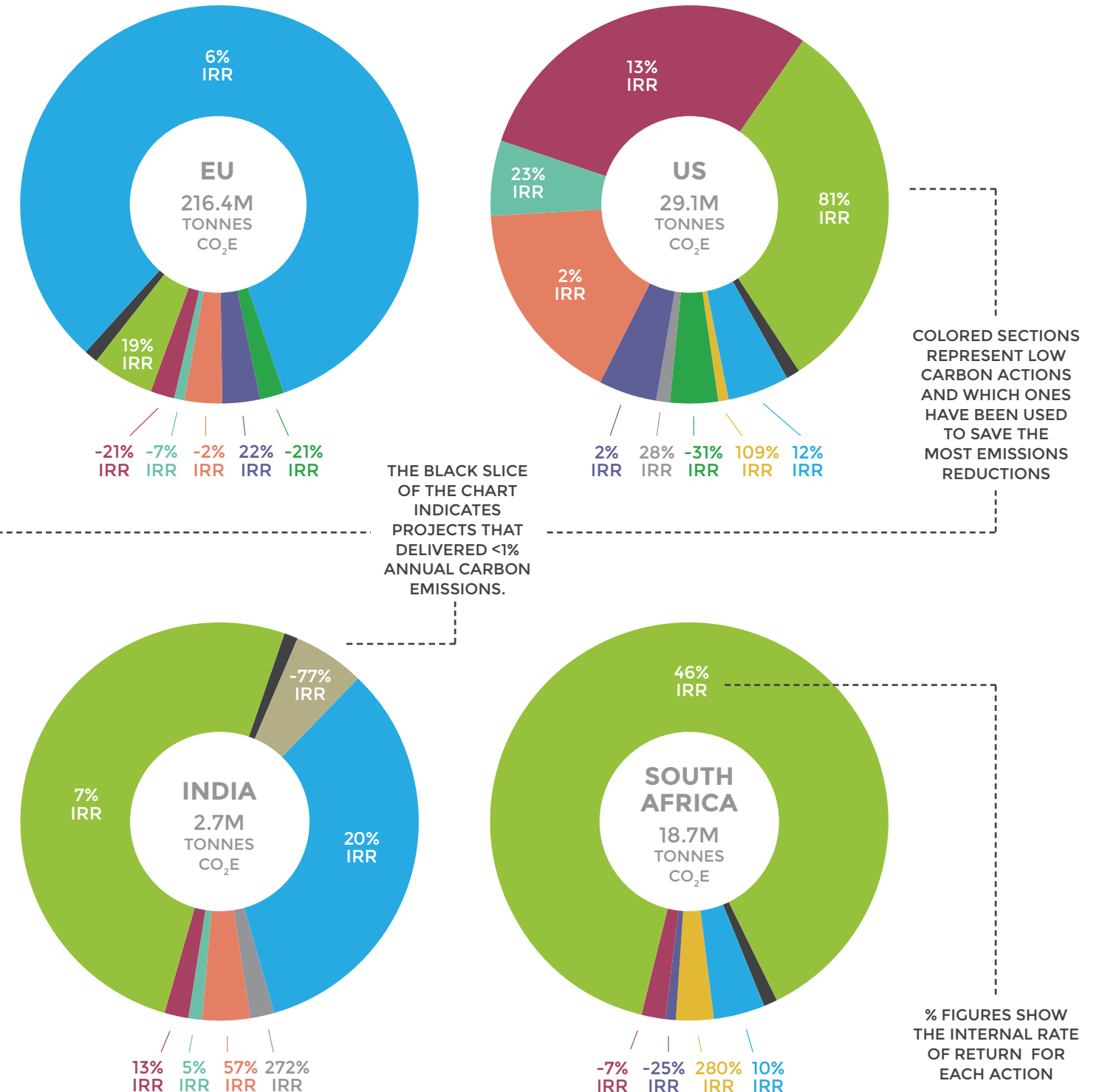
| | | |
|---|--|--|
|  | ENERGY EFFICIENT BUILDINGS | Measures to improve energy efficiency of buildings, e.g., insulation. |
|  | ENERGY EFFICIENCY IN BUILDINGS | Measures to improve energy efficiency of energy use in buildings, e.g., LED lighting, smart meter, efficient HVAC (heating, ventilation air conditioning). |
|  | PROCESS EMISSIONS REDUCTIONS | Measures to optimize energy and resource use in manufacturing and industrial processes, e.g., waste heat recovery. |
|  | ENERGY EFFICIENT INDUSTRIAL PROCESSES | Measures to reduce emissions in manufacturing processes, e.g., replacing equipment or changes to operating systems. |
|  | FUGITIVE EMISSIONS REDUCTIONS | Measures to reduce unintended industrial greenhouse gas leakages, e.g., natural gas pipeline leaks, CFC venting. |
|  | LOW CARBON ENERGY PURCHASE | Low carbon energy procured from the grid, e.g., renewable energy. |
|  | LOW CARBON ENERGY INSTALLATION | Low carbon energy installed on-site or off-site, e.g., solar panels installed on roofs. |
|  | FLEET EMISSIONS REDUCTIONS | Measures to reduce emissions from vehicles owned by the company, e.g., replacement of fleet with electric vehicles. |
|  | TRANSPORT EMISSION REDUCTIONS | Measures to reduce emissions from product transportation or employee travel, e.g., switching from air to rail freight. |
|  | BEHAVIORAL CHANGE | Measures to encourage changes in employee behavior that will reduce energy use or carbon emissions, such as switching off lights or cycling to work. |

LOW CARBON ACTIONS IN KEY REGIONS

The colored sections on the charts represent low carbon actions,¹² and the size of the colored section shows which actions have been used to save the most emissions reductions in key region and sectors. The % figures on the charts show the internal rate of return for each action. The chart tells us to what extent companies are investing in actions with the highest rate of return to reduce emissions.¹³ The figure in the middle of the charts indicates the annual carbon savings delivered by these climate actions.

¹² The list of low carbon actions presented here is not exhaustive, but it is based on the categorization used in the CDP questionnaire.

¹³ The sample is based on reported data from investments in 7,676 projects between 2012 and 2013. Of these, 2,530 were in the EU and 1,752 were in the US.



IMPROVING ENERGY EFFICIENCY MAKES GOOD BUSINESS SENSE

Globally, the average IRR for improving the energy efficiency of industrial processes is 23%.

In the US, where this is the biggest source of emission savings, companies make a much higher return of 81%.

Process efficiency has also resulted in the highest levels of emissions savings in India, South Africa and Brazil, and the second highest in the EU. The IRR rates for adopting these measures are high across many regions and business sectors.

It should be noted that although energy efficiency is crucial for reducing emissions in a cost-effective way, there is a limit to how far it can carry us relative to the emissions reductions that are ultimately needed.

HIGH EMITTERS SEE THE BUSINESS BENEFITS OF LOW CARBON ACTION

STEEL

Over the last 30 years, energy consumption per tonne of steel has reduced by 50%. Steel companies reporting low carbon investments between 2012 and 2013 gained an average IRR of almost 25% and average annual emissions reductions of around 7M tonnes CO₂e—in both developed and emerging economies.

In India, **JSW Steel's**, Vijayanagar Works in Bellary invested US\$11.6M in a waste heat recovery plant. This will reduce carbon emissions by approximately 140K tonnes each year for the next two decades—saving 2.8M tonnes CO₂e over the lifetime of the project and US\$4.5M a year. **Tata Steel** is also seeing the cost benefits of waste heat and gas recovery. Two projects at its Jamshedpur steel works saved an estimated 1.2M CO₂e tonnes and US\$750,000 per year, across direct operations and through the value chain.

ARCELOR MITTAL invested US\$207M in low carbon projects in 2013 to support its target of reducing CO₂e emissions by 8% by 2020, from a baseline of 2007. As well as finding ways of reducing its own emissions, it's also developing new products for electric vehicles, low carbon and more resilient buildings, and infrastructure like flood defense systems.

MINING

Mining companies are also making savings by improving energy efficiency, with knock-on benefits of reduced water use, too—a major advantage in areas where climate change has led to water shortages.

Of the mining companies reporting investment in low carbon projects between 2012-13, the average IRR was approximately 115%, achieving average annual carbon reductions of 34K tonnes CO₂e in developed countries and 160K tonnes CO₂e in emerging economies.

South African mining company **HARMONY GOLD** has a low carbon strategy that involves closing carbon-intensive deep mining operations, using more renewable energy and investing in energy-efficiency projects. It invested US\$22.5M in 2012-13, and forecasts annual emission reductions of 125K tonnes CO₂e.

SHIPPING

The shipping sector has also been focused on improving efficiency. **CARGILL**, along with 27 other major companies, actively prefer more efficient vessels when moving their goods by sea. As the cargo-owner pays for the fuel 70% of the time in the shipping industry, these companies have benefited from reduced fuel costs and reduced carbon—helping hit company sustainability objectives and improving the bottom line.¹⁴ The savings from choosing more efficient vessels are huge. The difference between a "B rated" and "F rated" vessel (scale goes from A to G) can result in US\$400,000 worth of fuel savings and 2,000 tonnes of CO₂e saved on a single journey from Brazil to China.¹⁵ At scale, the industry

¹⁴ The Carbon War Room, New Shipping Report: Hidden Treasure: New Models for Retrofits, 2014.

¹⁵ The Carbon War Room, Calculating and Comparing CO₂ Emissions from the Global Maritime Fleet, 2013.

could be saving US\$70B a year in fuel—with no change in policy and using currently available technology.

ENERGY

Carbon Capture and Storage (CCS) technologies have been used successfully within the oil and gas sector for decades and when used for enhanced oil and gas recovery can make economic sense. They have been identified by the International Energy Agency and the Intergovernmental Panel on Climate Change as critical technologies for a cost-effective transition to a low carbon economy. But to make it economically viable beyond the oil and gas sector, it will need policy support to drive deployment and provide the opportunity for research and development to improve the commercialization and scalability of the technologies.

Based on the data reviewed for this study, companies reported 19 CCS projects in 2012 to 2013. Half were in the oil and gas industry and half were in the utilities sector where government support has helped subsidize pilot projects.

One of the largest new projects reported is being led by **CHEVRON**. The Gorgon project plans to capture 3.4M tonnes CO₂e per year and store it underground. It is estimated to cost US\$37B for the first phase of development, which is now 60% complete.

SIMPLE CHANGES IN BEHAVIOR DELIVER EASY WINS

Simple energy saving steps like switching off lights and computers or limiting use of air conditioning and heating can deliver a massive return on investment across all business sectors and locations—often, in less than a year.

In some cases, there is no financial investment required. Many companies appoint internal 'energy management champions' who can motivate staff with strategies designed to reduce waste and use less water and electricity.

Care must be taken that potentially large cost savings from these simple changes are not reinvested in other activities that may undercut emissions savings.

THE SMALL THINGS ADD UP

Simple measures like switching off lights and computers at the end of the day, closing drafty warehouse doors and easing off on the air conditioning need little upfront investment and empower staff to look for ways to cut out waste and save energy.

Companies who said they had taken action to change behavior in 2012 and 2013 saved 2.7M tonnes CO₂e with an average IRR of 88%.

BT, a UK-based telecoms company with well-established employee engagement programs, indicates that 78% of employees were actively engaged in reducing energy consumption.

ALTRON, a South African information technology company, instigated its energy savings campaign by asking employees to take simple

measures like switching off lights and air conditioning. They estimate they cut CO₂e emissions by 230,000 tonnes per year, with investment recouped after less than a year.

BANCO SANTANDER has set an energy saving plan that targets employee behavior change to help reduce energy use. Employee engagement is key to driving behavioral changes and is helped via remuneration based on performance against sustainability objectives.

RENEWABLE ENERGY IS A SMART INVESTMENT

Based on the data used in this report, it was found that renewable energy investments resulted in the highest level of emissions reductions globally.

A great deal of this investment has been in the European utilities sector, but increasingly a broad range of companies are installing their own low carbon power. This is a trend also reported in Bloomberg New Energy Finance's, Global Corporate Renewable Energy Index (CREX).

A company's motives for investing in renewable energy vary. For instance, it may be to combat inflated energy prices or increasing uncertainty over supply. For others, there are reputational benefits. And for more and more companies, it simply makes good business sense.

Those companies whose best opportunity to reduce emissions is in their building stock (the finance and retail sectors, for example) saw a 29% IRR on renewable energy investments such as installing solar panels on the roofs of offices and warehouses. For those in the industrial sectors, where the scale of investment in renewable energy is significantly larger, the average return on renewable installations was 22%.

There are clear opportunities for companies in India and South Africa where renewable energy projects result in an IRR of 20% and 10%, respectively, and achieved the second highest level of emission reductions in both countries.

GOING 100% RENEWABLE

Three businesses that have put renewable energy investment at the heart of their business and energy management strategies are IKEA, Apple and BT.

IKEA is committed to getting 100% of its power from renewable sources by 2020. So far, it has installed 700,000 solar panels across its retail stores, offices and factories and more than 200 wind turbines have been built off-site. 1,425 GWh of renewable energy has been generated—equivalent to over a third of total consumption. IKEA plans to invest a total of US\$2B over the next five years.

APPLE has committed to power all of its offices, data centers and retail stores with 100% renewable energy. It is investing in its own renewable energy projects, including US\$128M in a 20MW solar array and a 5.2MW expansion of a biogas

generation facility in the US that will double capacity, as well as partnering with third-party suppliers to source renewable energy. Since 2013, all of its data centers have been powered by 100% renewable energy—so iTunes customers have been assured that downloading won't contribute to climate change.

BT has a contract to purchase 100% renewable electricity for all its UK operations, estimated to represent approximately 0.75% of all power use in the UK. They will purchase enough renewable energy from a Scottish wind farm to power its entire Scottish operations, which will equate to an investment of almost US\$0.5B over the next 20 years.



PRODUCT REGULATION HAS HELPED SUPPORT WIN-WIN STRATEGIES FOR BUSINESS

The strong financial returns from implementing low carbon solutions across sectors and regions are in part due to the decreasing cost of advanced low carbon technologies such as LED lighting and energy efficient IT equipment.

Product-based regulation has helped to drive this. This type of policy has multiple benefits: it responds to customer demands for ways to reduce the amount they are spending on energy and it creates opportunities in the marketplace for new products, without specifying the type of technology that needs to be used. This leads to product innovation and enables customers to select the win-win efficiency opportunities that best fit their needs.

Overall, companies see product efficiency regulation as an opportunity rather than a risk. (See Section 2 for further information.) It provides a useful 'carrot' for the most innovative companies that are set to thrive in the low carbon economy. They are able to allocate R&D spend to low carbon and energy efficient solutions, safe in the knowledge that there will be a market for their products.

PRODUCTS THAT ARE SHAPING THE LOW CARBON ECONOMY

LEDS

LED technology, which uses 50-70% less energy¹⁶ than conventional lighting, has enormous energy and cost-saving benefits for businesses, households and cities. Government regulations phasing out incandescent lighting gave this new low carbon technology a huge helping hand. In 2013, over 400 companies report implementing LED projects to support their low carbon commitments. Companies like **PHILIPS** and **OSRAM** have seized this market opportunity—worth US\$4.8 billion in 2012 and predicted to rise to US\$42 billion by 2019.¹⁷

potential for the grid to help store excess renewable energy. Regulations and financial incentives have helped to create market opportunities for car companies to develop EVs.

BMW, FORD, NISSAN, TESLA and **TOYOTA** are all carving a place in the US EV market that grew by 35% in the first half of 2014.¹⁸ Over 60 of the companies included in this study report investment in EVs in 2013. This involved switching fleet, encouraging EVs through company car schemes and providing charging stations for employees and customers.

SMART ICT

It is estimated that Information and Communications Technology (ICT) could enable a 15% reduction in CO₂e by 2020 as a result of improved energy efficiency of products and helping customers manage energy in smarter ways.¹⁹

Companies are responding to product regulation and energy efficiency standards such as the US EPA's Energy Star label. **APPLE'S** entire product range exceeds the Energy Star requirements and 98% of **LENOVO'S** notebooks meet the standards. **INTEL'S** fourth generation processors help PC manufacturers achieve this: they provide increased computer power, but require 50% less energy than first generation models.

IT leaders are also helping customers to reduce energy use in data centers. **HP** has just launched a new server that uses up to 89% less energy and costs 77% less than a traditional server.

Mobile phone giant **CHINA MOBILE** is reduced energy consumption of its networks by 38% each year, helping to reduce their customer's carbon footprint. And **WIPRO** has developed a number of energy management software tools in response to the increased demand from clients looking for data management tools that enable them to become more energy efficient.

¹⁶ The Climate Group, *Lighting the Clean Revolution: The Rise of LEDs and What it Means for Cities*, 2012

¹⁷ Winter Green Research, *LED Lighting: Market Shares, Strategies, and Forecasts, Worldwide, 2013 to 2019*, Researchmoz, 2013

¹⁸ Brad Plumer, *The Rise of the Electric Car in the US, in 6 Charts*, Vox, 2014

¹⁹ The Climate Group, *Smart 2020: Enabling the Low Carbon Economy in the Information Age*, Global e-sustainability Initiative, 2008

MAXIMIZING CARBON RETURNS

Companies don't only invest in the low carbon actions with the best financial return. They also invest in measures that have a good carbon return—those that deliver high levels of carbon emission savings.



SECTION TWO

MANY FACTORS MOTIVATE BUSINESS TO TAKE LOW CARBON ACTION

Financial returns are only one of the many factors that businesses consider when developing low carbon strategies.

Many companies are already factoring in the potential impact that climate change will have on their business due to changing weather conditions, resource scarcity, changing customer needs, potential legislation and the likelihood of a price on carbon. Although the payback periods for certain low carbon investments may not fit normal decision-making criteria, the wider benefits and long term value for shareholders means that smart businesses are investing in projects that will help them prepare for the future.

For example, in Europe, some of the most cost-effective measures to improve building efficiency may have already been seized. However, the findings in this study indicate that companies are still moving ahead and investing in more aggressive opportunities for cutting energy bills. Motivations for this include increasingly stringent building regulations and increasing demand for energy efficiency buildings to combat against rising energy costs. Across the value chain, the construction sector is taking action.

BUILDING FOR THE FUTURE

The construction sector is innovating to ensure new buildings have a smaller carbon footprint and are more resilient to changing climate conditions such as more extreme weather events and bigger temperature extremes. Building standards such as LEED (Leadership in Energy & Environmental Design) and BREEAM (Building Research Establishment Environmental Assessment Methodology) have helped to raise standards for new buildings and retrofitting existing ones.

SKANSKA has an ultimate goal for net zero primary energy in buildings and net zero carbon emissions in construction and has already built some of the world's greenest buildings.

Throughout the construction supply chain, companies are working to reduce carbon emissions. Cement producer **PRETORIA PORTLAND** in South Africa is reducing the carbon

intensity of its products through process efficiency technologies and using renewable energy. **ARCELOR MITTAL** is reducing the carbon intensity of steel used for buildings construction. And companies like **BROAD** are continuously innovating to provide more energy efficient technologies for heating, cooling and lighting that can dramatically reduce energy use over the course of a building's lifetime.

FOR COMPANIES ACROSS ALL SECTORS, ENHANCING REPUTATION AND ADAPTING TO CHANGING CUSTOMER DEMAND ARE IMPORTANT FACTORS INFLUENCING THEIR CHOICES.

Below we list a range of climate and low carbon drivers that impact on business decision making. Some key findings are as follows:

CORPORATE REPUTATION is a major motivation in all sectors, particularly for firms in the EU and US. Companies are also seeing and responding to the changing needs of consumers and B2B customers, for example, around products with improved efficiency.

VOLUNTARY AGREEMENTS are seen as an opportunity in all regions and sectors, although by a fairly small number of companies.

INTERNATIONAL AGREEMENTS, in general, fall very closely on the line between risk and opportunity for the majority of companies. In the Transport sector they are seen as slightly more as a risk, but for the utilities they are one of the top five opportunities. Compared to other regions, international agreements are seen as more of an opportunity in India, Brazil and also in the EU where companies would presumably benefit from a more level playing field, with caps being introduced across a greater number of regions.

POLICY covers a range of regulations and policy measures that create legal obligations for companies. Many businesses respond to the likelihood of more environmental regulation given the scientific evidence for the need to address climate change.

Product efficiency regulation and labeling requirements help businesses react to changing customer expectations and many reporting to CDP cite them as opportunities.

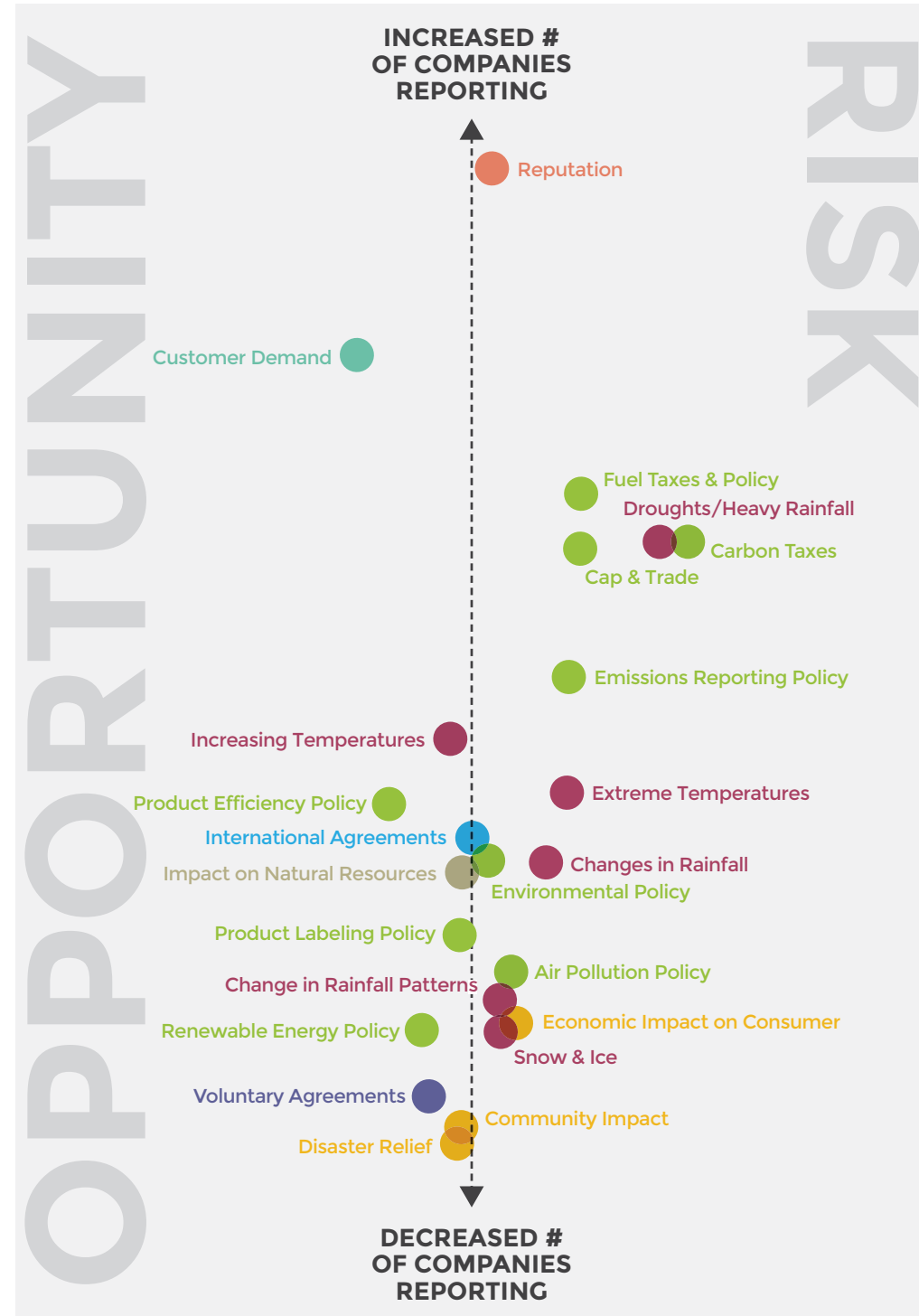
Market mechanisms, like fuel and energy taxes, carbon taxation and cap and trade schemes (carbon pricing) are generally seen as slightly more of a risk than an opportunity. However, in the utilities sector, where cap and trade has had arguably the biggest impact to date, the opportunity ranking for cap and trade is higher. This probably underlines how uncertainty around some of these measures is driving the risk perception in other sectors.

Renewable energy regulation (such as feed-in tariffs) also features as an opportunity driver for the utilities and we would expect to see more companies reporting this once feed-in tariffs are more widely used and better established. (Even in Europe, for example, the coverage for feed-in tariffs is mixed).

WEATHER IMPACTS like changes in rainfall and increasing temperature extremes are reported as significant risks across all sectors and regions, especially emerging economies where the allocation of natural resources is also a key factor.

SOCIAL CONSIDERATIONS such as increased risk of certain diseases and added strain on social conditions have an impact on people too. Businesses must be responsive, especially in those parts of the world most vulnerable to climate change.

MOTIVATION FOR BUSINESS ACTION



This chart shows various reasons for corporate climate action grouped into color-coded categories. It shows how many companies identified each driver as being important (the higher it is on the vertical axis, the more companies reported it) and the emphasis they placed on it being a risk (to the right of the broken line) versus an opportunity (to the left of the broken line). For further details on the categories of risk and opportunity, see Table I on page 28.

- INDICATES EQUAL RISK & OPPORTUNITY LEVELS
- REPUTATION
- CUSTOMER DEMAND
- POLICY
- INTERNATIONAL AGREEMENTS
- VOLUNTARY AGREEMENTS
- CHANGING WEATHER
- IMPACT ON NATURAL RESOURCES
- SOCIAL IMPACTS

ARE CORPORATE ACTIONS IN LINE WITH THE CLIMATE SCIENCE?

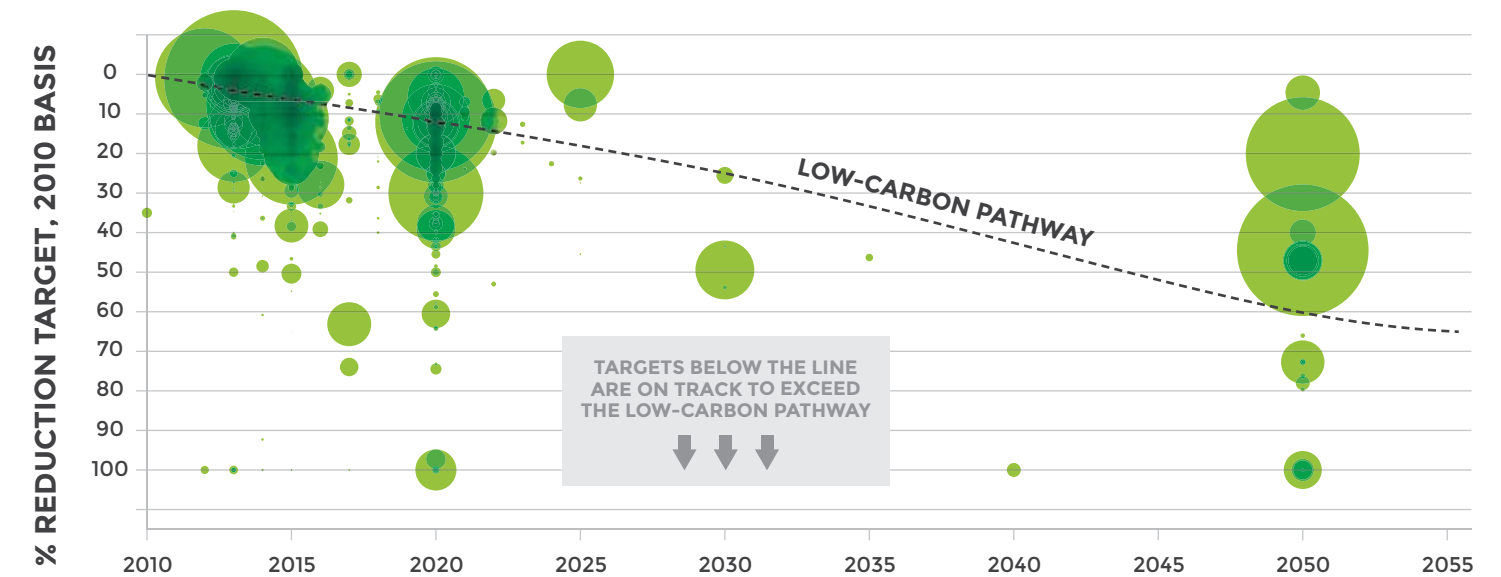
The risks and opportunities shown in the Motivation for Business Action chart influence how companies develop low carbon strategies, including investments they make and emission reduction targets they set. But if these companies are to meet scientific guidelines on carbon reductions to prevent dangerous climate change, are those considerations driving companies to be ambitious enough?

Most companies are not setting targets in line with the science.²⁰ More ambitious targets are particularly important in regions with high historic and projected future levels of carbon emissions (the EU, US and China) and within the high emissions business sectors (utilities and heavy industry).²¹

We compared carbon reduction targets set by the companies in the study with required reduction levels needed under a low carbon pathway to analyze whether corporate actions and ambition are on track.

²⁰ The scientific case is outlined in Annex I.
²¹ The IPCC briefings by the University of Cambridge, working with a number of partners including BSR and WBCSD give a concise overview of the challenges and opportunities associated with climate change in 11 key sectors. e.g. Climate Change: Implications for Transport—Key Findings from the Intergovernmental Panel on Climate Change, 2014; Climate Change: Implications for Extractive and Primary Industries—Key Findings from the Intergovernmental Panel on Climate Change, 2014.

COMPANY TARGETS AND THE LOW CARBON PATHWAY



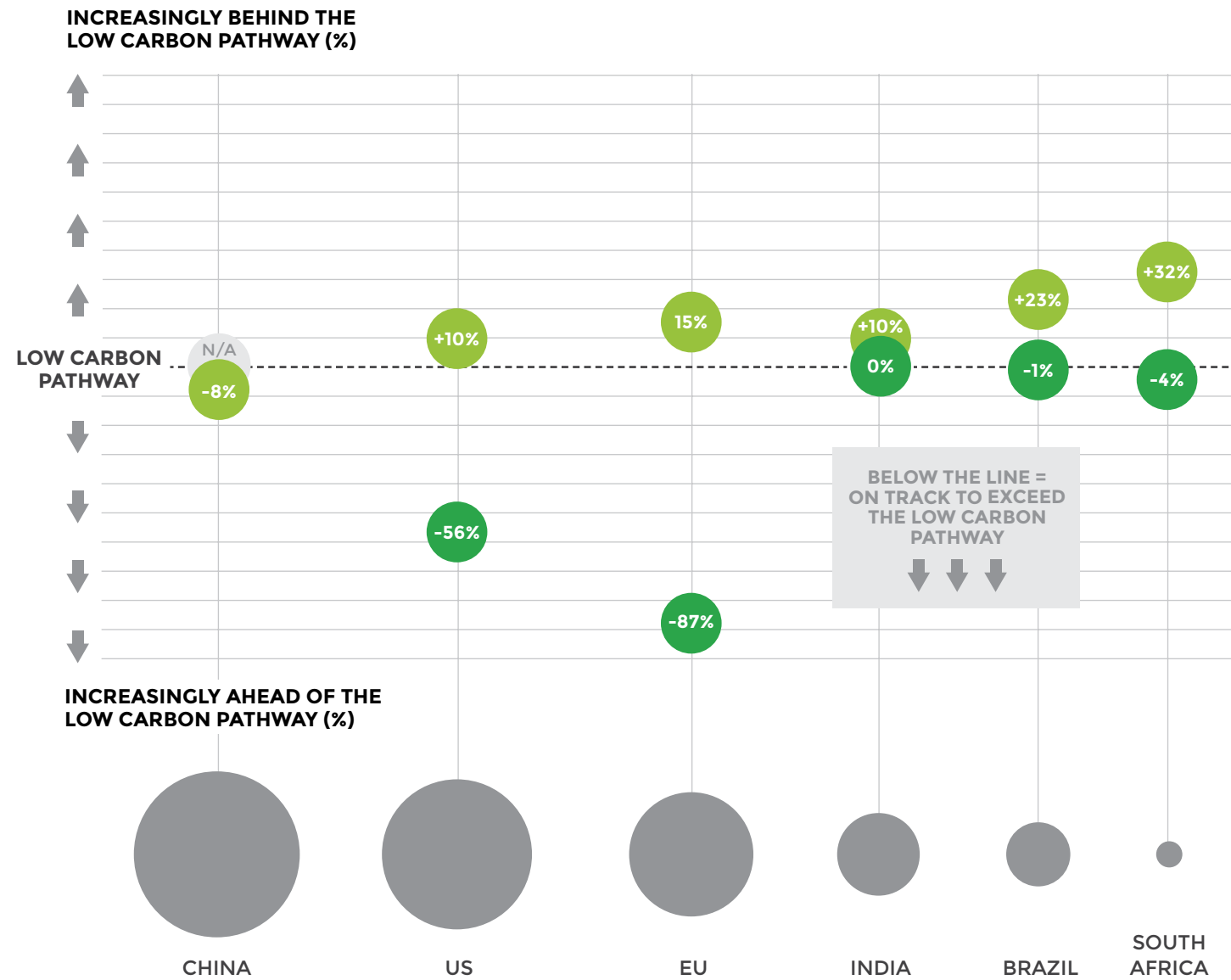
In this chart, the dotted line shows the minimum reduction targets companies must set to get onto a safe, low carbon pathway. (See Annex I for further details about the science.) Each bubble represents a company target; the size of the bubble shows the

amount of emissions the target covers; and the placement of the bubble in relation to the pathway shows how good the target is. If the bubble is below the line, the target is good—representing emissions reductions beyond the minimum requirements.

SIZE OF BUBBLE INDICATES RELATIVE SIZE OF EMISSIONS FOR THAT COMPANY²²

²² All emissions data is normalized.

COMPANIES SETTING THE BEST TARGETS IN THEIR REGION^{23 24}



This chart shows how, in six key regions, the targets of all companies—and those of the Top Ten target setters—compare to the low carbon pathway.

Size of gray bubble represents relative CO₂e emissions (excluding emissions from land-use changes) in 2010.

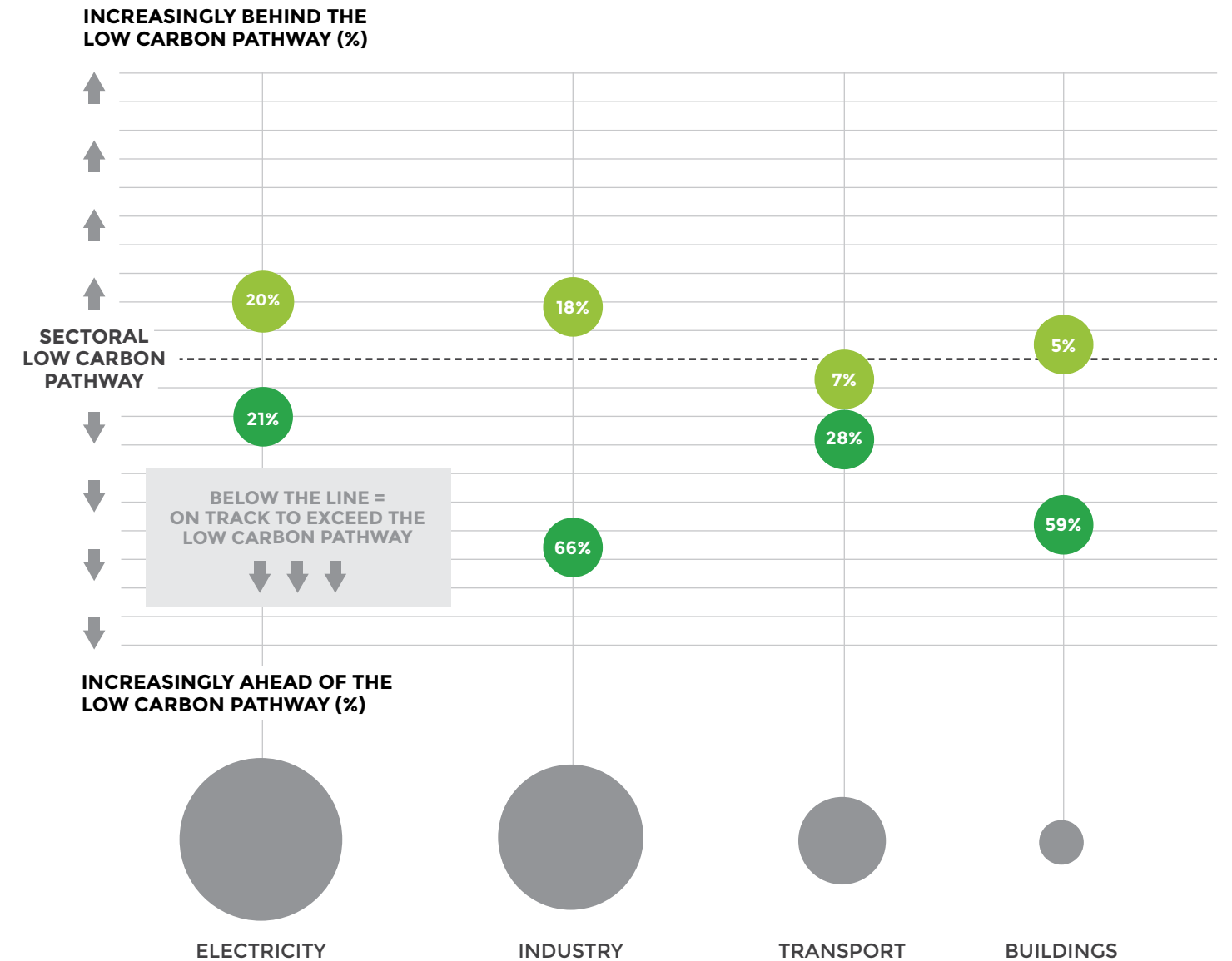
All reporters
Weighted average gap between emissions targets and the low carbon pathway

Top 10 Target Setters

²³ This sample includes 1,242 companies that reported meaningful Scope 1 and 2 targets in their responses to CDP in 2013 and 2014, either absolute or based on intensity reduction. An explanation of how absolute and intensity based targets were normalized can be found in Annex II.

²⁴ This report uses one overall low carbon pathway and compares company targets to that pathway in each region, as a simple way to gauge levels of corporate ambition. We acknowledge that the actual low carbon pathway will be different for each country, but defining these is outside the scope of this report.

COMPANY TARGETS IN FOUR KEY SECTORS



This chart shows how, in four key sectors,²⁵ the targets of all reporting companies—and those of the Top Ten Target setters—compare to the low carbon pathway.

Size of gray bubble represents relative CO₂e emissions (excluding emissions from land-use changes) in 2010.

All reporters
Weighted average gap between emissions targets and the low carbon pathway

Top 10 Target Setters

²⁵ Companies have been allocated to the most appropriate IPCC sector. See Annex II for further information.

MANY COMPANIES ARE SETTING THE BAR HIGH TO REDUCE EMISSIONS, AND IT'S WORKING

Based on the set of companies reviewed as part of this study, we can see most are setting targets behind the scientific guidelines. In addition to the Top Ten Target setters in each sector and region, we identified 110 companies who have not only set targets that match or exceed the scientific guidelines, but who have also reduced their

emissions intensity between 2012 and 2013.

But even among this group, there is a lack of post-2020 targets, which means there is little indication of what investments they will make to reduce emissions further. A positive indication that they will continue to set aggressive targets comes from a recent study of US businesses undertaken by Ceres.²⁶ They found

²⁶ Ceres, Power Forward 2.0: How American Companies Are Setting Clean Energy Targets and Capturing Greater Business Value, 2014.

that of the 20 Fortune 100 companies with targets that ended in 2012, 85% achieved their target and 80% have gone on to set greater targets, or still have ongoing targets in other areas. However, renewing short-term commitments gives us far less certainty than setting clear targets into the future. **Longer-term policy frameworks are essential to encourage more future thinking and ambitious commitments.**

WHEN IT COMES TO LOW CARBON INVESTMENT, LOCATION MATTERS

We can already see the impact that policy frameworks are having in some regions. Action in the EU and US varies considerably. For example, the average IRR in the EU for low carbon investments is substantially lower than for US companies. But the carbon returns are substantially higher in the EU for every US\$ invested. This is due to more stringent EU regulation which encourages investment in low carbon actions that will cut emissions.

This difference is particularly marked in the utilities sector. In the EU, previous action by utility companies means there are now fewer easy-win efficiency options available for coal and gas plants, so regulation is creating the drive towards renewables

(including conversion of conventional power plants to biomass). 96% of emissions reductions by European utilities came from low carbon energy installation, with an IRR of 0%. By comparison, in the US—where there's traditionally been less climate and energy regulation—90% of emissions reductions in the utilities sector come from process efficiency, which has the best IRR of 90%. Low carbon energy generation only accounts for 6% of carbon emissions reductions there.

The challenging financial returns that companies in the EU data-set are facing in many areas is an indication that the low hanging fruit that delivers quick financial returns has already been harvested. To continue to make cuts in carbon emissions, policy measures such as financial incentives, carbon pricing and

reduction in subsidies that incentivize high carbon energy, are needed to make low carbon investments more financially attractive. The business case for US investment in low carbon activities is clear but policymakers will need to encourage bigger reductions in emissions by promoting more effective, if more expensive, measures.

Finding a balance between the 'carrot' that incentivizes investment and the regulation 'stick' by encouraging close collaboration between a positively engaged business lobby and pragmatic policymakers is at the heart of the WE MEAN BUSINESS agenda.

DECARBONIZING POWER

IBERDROLA, a major Spanish electricity utility, has taken a strategic position to become a low carbon power provider. It has 14.4GW of renewable generation capacity installed with an average investment of US\$0.9B over 2012 to 2013 and has a further US\$3.2B of investment planned for 2014 to 2016. A focus on low carbon power has enabled the company to achieve a 28% reduction of CO₂e per MWh in 2013.

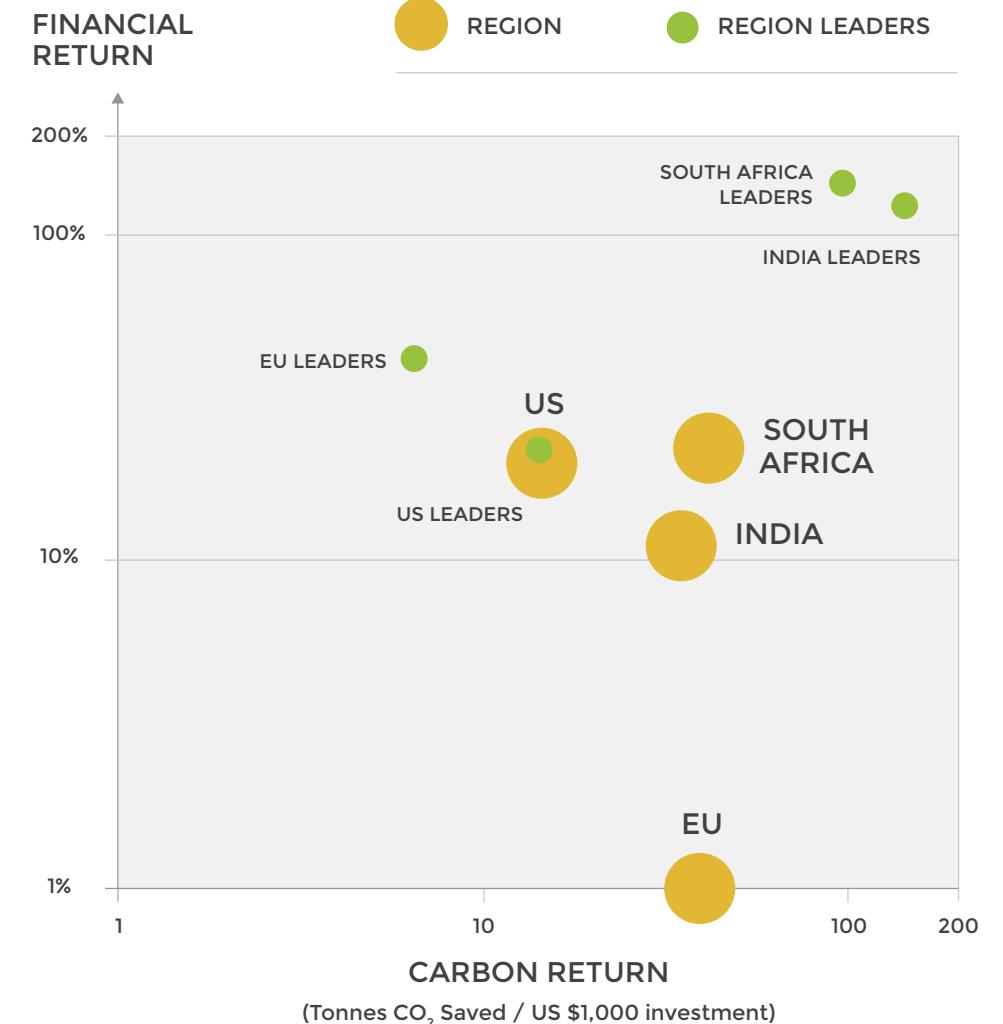
EXELON, a US power company, is one of only two power utility companies to set a 100% carbon emissions reduction goal and aims to achieve it by 2020 (**VERBUND AG**, an Austrian power company, has set a 100% target by 2050). The company's low carbon strategy is based on a combination of nuclear and renewable energy. In 2013, it retired two oil-fired generation units and increased its nuclear capacity through an investment of US\$45M. It also invested

another US\$680M in an 182MW solar generation facility in California. It will spend US\$15B over the next five years in transmission and electricity management systems.

Another important element of decarbonizing the power sector is to make sure the grid infrastructure can support the increase of renewable energy. **NATIONAL GRID** plays a major role in making this happen in the US and UK. In 2013, it started work on a 600kV subsea HVDC link from Scotland to England to support the export of renewable power. It successfully commissioned the first commercial biogas-to-grid project in Doncaster and introduced "Smart Energy Solutions" to 15,000 customers in the US, including advanced meters and communications systems, to help customers make more informed decisions, improve energy efficiency and reduce emissions.

FINANCIAL AND CARBON RETURNS ACHIEVED BY FORWARD-THINKING COMPANIES

This log scale chart shows how, in four key regions, the forward-thinking group of companies (those who reduced emissions intensity from 2012-2013 and have a target in line with the low carbon pathway) compare to their peers in terms of the overall internal rate of return on their low carbon investments (shown on the vertical axis) and the amount of emissions savings they achieve per US\$1,000 invested (shown on the horizontal axis).





EMERGING ECONOMIES REPORT

GOOD CARBON AND FINANCIAL RETURNS ON INVESTMENT

The companies in India and South Africa, in the sample reviewed as part of this study, show that businesses can make strong financial returns while achieving high levels of emissions reductions.

This is because these countries have more recently started out on their low carbon journey and have access to proven and available technologies to achieve reductions in carbon emissions.

But for these markets to keep enjoying financial and environmental success, they need affordable access to the growing range of low carbon technologies being developed and proven in other markets. This is one of the crucial responsibilities of both major exporters of low carbon technology and of the international climate process. Enabling low carbon markets to flourish is a potentially significant financial 'carrot'. Technology for reducing emissions needs to be commercially available to emerging markets at the same time policies can help incentivize companies in these regions to innovate and develop products and services that can be exported.

Companies in emerging economies will also be able to make the most of the low carbon opportunities on offer if they are supported by their international counterparts through supply chain initiatives and sharing of best practice.

LOW CARBON INNOVATION WHERE IT'S NEEDED MOST

For some companies, the biggest opportunity for managing climate change risks and making the most of energy efficiency opportunities lie beyond their own operations.

CDP's Supply Chain Program—which has 66 members with a combined spend of US\$1.3T—provides a platform for companies to help customers and suppliers reduce their emissions.

Eight companies in this program are part of the food and drink value chain and all recognize that future business success will rely on the ability of suppliers to tackle the physical impacts of a changing climate, as well as becoming more resource-efficient. Reputation is also a key driver for going the extra mile. All of these businesses have extremely visible and popular brands. Maintaining their value is of critical importance.

WALMART has set an ambitious target to eliminate 20M tonnes CO₂e from products it sells by 2015. **NESTLÉ** also recognizes the need to work with suppliers, in particular to support their coffee growers in tackling climate change impacts, as well as helping them to reduce emissions.

UNILEVER is a long-standing sustainability champion and has set an ambitious goal to cut carbon emissions across the lifecycle of its products by 50% by 2020. So it's working with suppliers to help reduce emissions and also helping consumers reduce their footprint by using Unilever products—by building on initiatives such as clothes detergents that work at low-water temperatures to reduce the energy used in a washing cycle.

MARFRIG, a food producer in Brazil, is collaborating with retailers to help reduce carbon. Meat farming requires different technologies for reducing methane, one of the most potent greenhouse gas emissions. Marfrig is finding ways to capture and process methane, as well as introducing more typical energy efficient technologies with payback periods of 1-3 years.



HOW TO ACCELERATE THE LOW CARBON ECONOMY

Bold, forward-thinking businesses are taking advantage of today's low carbon economy. They are balancing investments to maximize financial returns while delivering aggressive cuts in carbon emissions.

For businesses to take advantage of today's low carbon economy, they need to balance their low carbon projects to make sure some have a high financial return and others have a high carbon return.

The McKinsey cost curve²⁷ and, more recently, The New Climate Economy

study,²⁸ illustrate what a low carbon portfolio looks like at the global level.

Using macroeconomic analysis to illustrate the different costs associated with various low carbon solutions, they help inform a strategy for lowering emissions at the best price. They provide a top-down view. The analysis presented here shows how businesses are maximizing the potential of such carbon portfolios in different sectors and regions. It provides the ground-up view.

²⁷ McKinsey & Company, *Pathways to a Low Carbon Economy Version 2 of the Greenhouse Gas Abatement Cost Curve*, 2009

²⁸ The New Climate Economy, *Better Growth, Better Climate*, 2014

Based on our findings, in this final concluding section we address two key questions: First, how can more businesses make the most of their current low carbon investments? And second, how can policymakers support further investments which deliver beneficial carbon and financial rewards?

By answering both questions, we are able to draw significant conclusions as to how business and government can collaborate to ensure a low carbon future.

BOLD CLIMATE ACTION MAKES GOOD BUSINESS SENSE

1 BALANCED LOW CARBON PORTFOLIOS GIVE GOOD CARBON AND FINANCIAL RETURNS

By developing a portfolio of different projects, businesses can deliver good carbon returns at the same time as meeting conventional financial returns.

To make the most of the balance between high carbon and high financial returns, smart companies should look at the widely disparate IRRs available today—and they can do this in response to their own risk profile and appetite for seizing the opportunities.

For example, in the US, a typical company might only approve internal investment on projects delivering a financial return of 15% or higher (i.e., projects that have a hurdle rate of 15% IRR). The low carbon projects reported by companies included in this study that exceeded this hurdle rate achieved an average return on investment of 78%—significantly outperforming the financial criteria needed to go ahead. However, by evaluating projects on such a case-by-case basis, companies are missing out

on the chance of investing in projects that cut carbon significantly, but currently fall just below this hurdle rate.

If companies take a balanced approach to investment, not every low carbon project needs to achieve a high IRR because the portfolio as a whole will exceed this. Portfolio investing opens doors to investments that reduce emissions (i.e., have good carbon returns), but don't necessarily meet an internal hurdle rate on their own merit.

This approach also means businesses can make smarter, more strategic decisions about investments. For instance, they might choose to deliver more projects that just fall short of internal hurdle rates, or be more radical and concentrate on opportunities that bring more long-term financial benefits.



2 SMART BUSINESSES KNOW THE BENEFIT OF BALANCE

The 110 companies that have set carbon emission targets which align with the low carbon pathway—and who reduced emissions intensity during 2012 to 2013 (see Annex II for further details)—also benefit from a higher-than-average rate of return on their investments in most regions.

In the EU, although they perform well financially, the average tonne of CO₂e they reduce per dollar invested is less than the regional average. In the US, they are in line with the country average, where all companies achieve an impressive financial return but a less-good carbon return.

The reason that the forward-thinking group of companies outperforms others is not necessarily because their attitude toward low carbon risks and opportunities is different, but because the way they act on them is.

Forward-thinking companies (in these regions) are good at choosing cost-effective options for reducing emissions and at setting leadership goals, but they will need extra incentives and longer-term policy frameworks to develop strategies that include the more expensive internal investments with higher carbon returns.

In India and South Africa, where more easy-wins are still on the table, the top-performing companies pull away from the pack to achieve better-than-average results for both high carbon and financial returns.

Longer-term policy frameworks will encourage firms to plan and prioritize low carbon investments. Policies that make actions with high carbon returns more financially attractive will also help support business action.²⁹

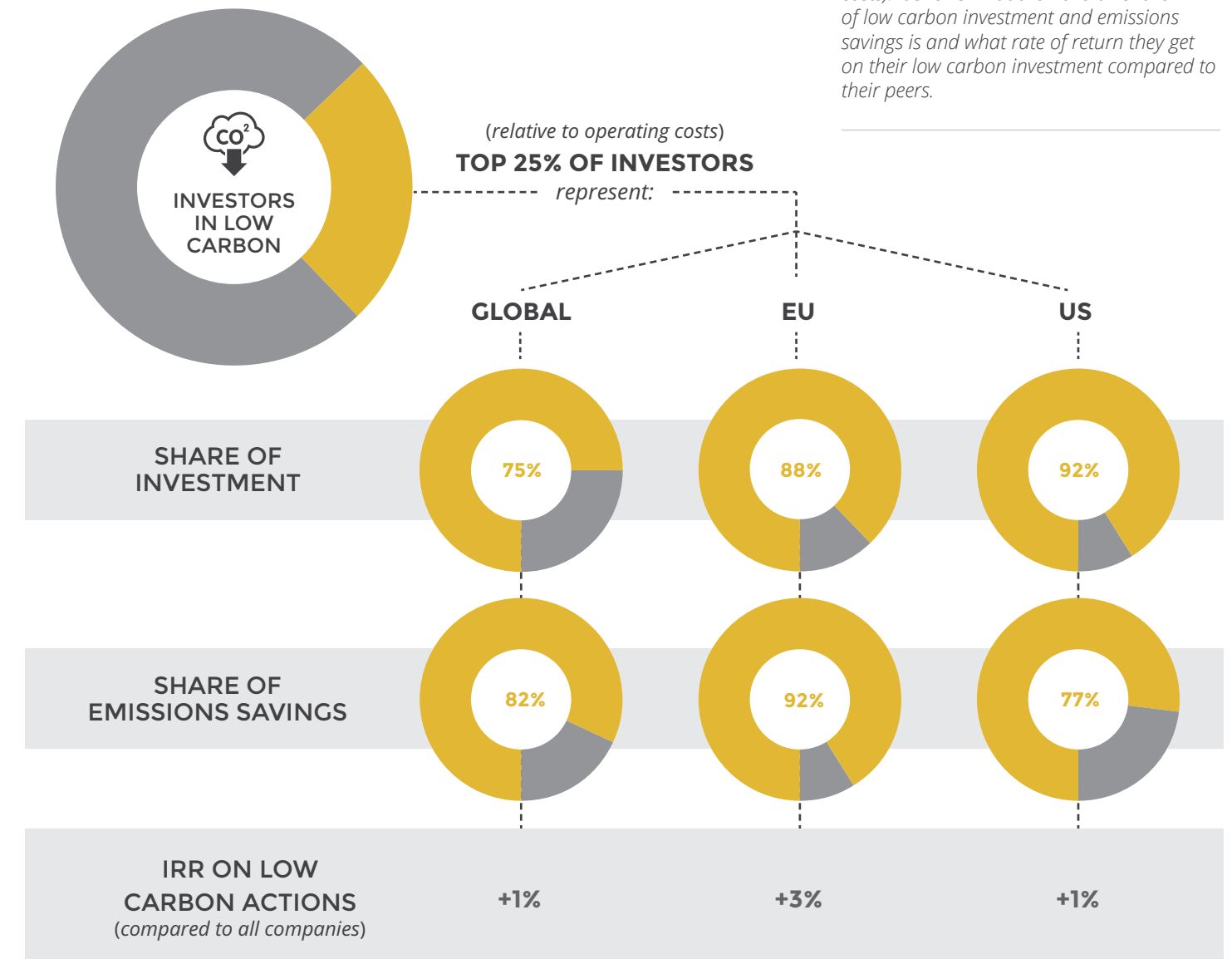
²⁹ Clear evidence of forward-thinking companies' appetite for new policy development on climate change can be seen in the various communiqués at www.climatecommuniques.com

3 THERE IS NO DOWNSIDE TO BIG INVESTMENTS

Companies that make the biggest investments (relative to their operating costs)³⁰ receive a slightly above-average IRR in all regions except South Africa and Brazil.³¹ Clearly, there's no apparent disadvantage to making proportionately large investments in low carbon solutions. In short, profitable low carbon investment appears to be scalable.

MAKING BIG INVESTMENTS MAKES BUSINESS SENSE

This chart looks at those companies who invested the most in low carbon solutions (top 25% by investment relative to operating costs). It shows what their overall share of low carbon investment and emissions savings is and what rate of return they get on their low carbon investment compared to their peers.



³⁰ The top quartile of companies based on total investment/operating costs

³¹ IRR study applied at the global level and in the EU and US only, where the IRR figures for the top quartile were 4% in the EU (compared to 1% for the whole EU sample) and 21% in the US (compared to 20% for the whole US sample). Globally the top quartile received an IRR of 12% compared to the average of 11%.



BUSINESS NEEDS BOLD POLICY

1 POLICYMAKERS SHOULD NOT DOUBT THAT THE LOW CARBON TRANSFORMATION IS AN ECONOMIC OPPORTUNITY

Between 2012 and 2013, some 1,450 companies reported saving just over 420M tonnes of CO₂e per year through internal investment of more than US\$170B in low carbon projects. Within the six regions highlighted in the study, this included around US\$140B investment in nearly 5,500 projects that are delivering annual savings of a little over 320M tonnes of CO₂e.

Forward-thinking companies invested 7.5% of the global total, achieved 3.3% of carbon reductions and reported an average annual return of 27% on US\$8.2B invested.

However, some low carbon actions that businesses need to take are not financially attractive. Often, the broader business case is not strong enough to shift transformational change—especially decarbonizing the power sector and finding low carbon alternatives to mass transit and aviation fuel. These are areas need policy carrots and sticks—and changes to subsidies that incentivize high-carbon energy.

2 BUSINESSES STILL NEED LONG-TERM CERTAINTY

A clear, long-term policy framework is essential if companies are to develop thriving internal portfolios of low carbon investment. Business has been asking for this for many years, and low-cost/high return measures should still be prioritized, but a more strategic approach will encourage businesses to focus on higher emission-reducing activities and longer-term gains.

This is why a clear and ambitious roadmap to 2050 is so essential—because it will mean that businesses will be persuaded to make necessary, transformational investments sooner rather than later.

And it would encourage the companies that can create low carbon products and services to direct more research and development funding into markets that could flourish in a low carbon economy. Many businesses have been calling for a long-term climate policy framework for some time, but this has not yet materialized. Business itself must up its game, stop negative lobbying, and work with policymakers to give them the confidence they need to make this a reality.

3 POLICY CAN MAKE HIGH CARBON RETURNS MORE FINANCIALLY ATTRACTIVE

Policy can unlock investment in low carbon actions that can have significant carbon returns, but aren't currently financially attractive.

To encourage businesses to include more high carbon return measures in their low carbon portfolios, policymakers can:

- eliminate subsidies that incentivize high carbon energy
- enact meaningful pricing of carbon
- put in place robust energy efficiency standards
- support the scale-up of low carbon energy
- ensure that all policy regimes dealing with fiscal, energy, industry and trade related issues provide actionable incentives for an early transition to a low carbon future.

These interventions are particularly important in high impact sectors—for example, decarbonizing the power sector and finding low carbon alternatives to mass transit and aviation fuel.

4 THE STRONG BUSINESS CASE SHOULD GIVE POLICYMAKERS GREATER CONFIDENCE

The business case for low carbon action in India and South Africa is striking. It is acknowledged that the companies included in the sample used for this study are likely to represent the most forward-thinking companies in these regions, but it provides a good indication of what is possible. With greater access to affordable capital and increased awareness about the potential business benefits of low carbon action, further projects can be encouraged. **When negotiating for an ambitious and fair global deal, officials from these countries can take confidence from their national low carbon opportunities.**

5 ONGOING PUBLIC SECTOR INVESTMENT IS NEEDED TO GET THE BEST FROM BUSINESS

While this report focuses on leveraging private sector action, the public sector also has a critical role to play. It can develop an infrastructure that supports a low carbon economy—in particular the scale up of mass transit, the development of super grids, smart grids and power storage. It also needs to consider investment in adaptation measures to protect those most vulnerable to rising sea levels, temperature extremes, flooding, droughts and extreme weather events. Securing investment from financial institutions is not covered in this report, but WE MEAN BUSINESS recognizes the importance that the investor community has to play.

Table I

| DRIVER NAME | CATEGORY NAME | DESCRIPTOR |
|---------------------------------|-----------------------------|---|
| REPUTATION | REPUTATION | The potential impacts of public, stakeholder and customer perceptions of a company's carbon performance/climate change position. |
| CUSTOMER DEMAND | CUSTOMER DEMAND | The change in demand for a product or service as a result of climate change. |
| RENEWABLE ENERGY POLICY | POLICY | Regulation, standards or incentives that promote investment in or use of renewable energy. |
| AIR POLLUTION LIMITS | POLICY | Regulation, standards or incentives that limit air pollution. |
| ENVIRONMENTAL POLICY | POLICY | Regulation, standards or incentives that address a range of environmental issues such as waste, water and natural resources. |
| EMISSIONS REPORTING POLICY | POLICY | Regulation, standards or incentives that require companies to report carbon emission data. |
| PRODUCT POLICY | POLICY | Regulation, standards or incentives that require products to meet certain low carbon requirements. |
| PRODUCT EFFICIENCY POLICY | POLICY | Regulation, standards or incentives that encourage low carbon and energy efficient products and services. |
| PRODUCT LABELING POLICY | POLICY | Regulation, standards or incentives that require products or services to meet specific set of requirements to obtain a low carbon or energy efficiency label. |
| CAP AND TRADE | POLICY | Regulation, standards or incentives that require companies to reduce carbon emissions to a set level or to purchase credits to compensate. These regulations also specify requirements for how companies may create carbon credits. |
| FUEL TAXES AND POLICY | POLICY | Regulation, standards or incentives directed at fuel products, mainly relating to fossil fuels. |
| CARBON TAXES | POLICY | Financial mechanism for allocation a cost to carbon. |
| INTERNATIONAL AGREEMENTS | INTERNATIONAL AGREEMENTS | Actions or targets for companies determined by internationally binding agreements within United Nations international conventions or any other internationally recognized protocol. |
| VOLUNTARY AGREEMENTS | VOLUNTARY AGREEMENTS | A contract agreed between a company and the state authorities, setting specific emissions targets. |
| SNOW AND ICE | CHANGING WEATHER | The effect of increased snow and ice on a company's operations. |
| CHANGES IN RAINFALL | CHANGING WEATHER | The effect of changes in rainfall patterns on a company's operations. |
| INCREASING TEMPERATURES | CHANGING WEATHER | The effect of increasing average temperatures on a company's operations. |
| EXTREME TEMPERATURES | CHANGING WEATHER | The effect of extreme temperatures, high or low, on a company's operations. |
| CHANGE IN RAINFALL PATTERNS | CHANGING WEATHER | The effect of increasing or decreasing rainfall on a company's operations. |
| DROUGHTS OR HEAVY RAINFALL | CHANGING WEATHER | The effect of droughts or heavy rainfall on a company's operations. |
| IMPACT ON NATURAL RESOURCES | IMPACT ON NATURAL RESOURCES | Changes in the availability of natural resources, e.g., water, foods, etc., due to the effects of climate change. |
| COMMUNITY IMPACT | SOCIAL IMPACTS | Changes to social order, culture and prosperity of communities as a result of physical climate or regulation change. |
| DISASTER RELIEF | SOCIAL IMPACTS | Changes to social order, population distribution and magnitude of disaster relief as a result of physical climate or regulation change. |
| ECONOMIC IMPACT ON THE CONSUMER | SOCIAL IMPACTS | Changes to the availability and affordability of products and services as a result of physical climate or regulation change. |

ANNEX I: THE SCIENCE

One thing we know for certain is that to keep temperature rise within two degrees Celsius, the world's emissions trajectory needs to change.³² Global emissions since industrialization need to be limited to 1,000 Gt CO₂e³³ but in 2011 we were already halfway towards that limit.³⁴ Although there are a number of safe pathways we could take, it is generally accepted that, by mid-century, greenhouse gas emissions need to be 40% to 70% lower compared to 2010, and near zero Gt CO₂e or below in 2100.³⁵

Recent analysis shows that under the current business-as-usual scenario, emissions will grow by another 12% to reach 58B tonnes of CO₂-equivalent per year by 2020. To remain on track for 2 degrees, we would need them to be 14B tonnes lower. This difference has become known as the 'emissions gap' and even if a range of government pledges (half of which are unconfirmed) were taken into account, the gap would still only be reduced by 6B tonnes.³⁶

The two-degree pathways used in this report (which we refer to as the low carbon pathway) are approximated from the analysis presented in the fifth IPCC report and are intended to give an overall sense of what business ambition looks like in comparison to what is required to stay within a temperature increase of 2 degrees Celsius. When looking at the focus regions, we do not attempt to model different pathways based on regionally attributed targets, as we see this as the responsibility of the international climate negotiations and know that there are many leading thinkers applying themselves to this problem in the run up to Paris in 2016. Instead, we simply use the overall global pathway to provide a comparison point and to put regional emissions by the private sector in context.

32 In December 2010, parties to the UN Framework Convention on Climate Change (UNFCCC) agreed to commit to a maximum temperature rise of 2°C above pre-industrial levels, and to consider lowering that maximum to 1.5°C in the near future. (Carolyn Symon, *Climate Change: Action, Trends and Implications for Business, Briefing*, Cambridge Judge Business School and Cambridge Programme for Sustainability Leadership, 2013)

33 Reduced to 790Gt when accounting for non CO₂ forcings (Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.), 2013: *Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, IPCC, page 27, 2013)

34 Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.), 2013: *Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, IPCC, page 27, 2013

35 Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlomer, C. von Stechow, T. Zwickel and J.C. Minx (eds.), 2014: *Summary for Policymakers, In: Climate Change 2014, Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, IPCC, page 13, 2014

36 UNEP, *The Emissions Gap Report 2012*, United Nations Environment Programme (UNEP), 2012

COMPANY DATA SOURCES

CDP data used in this report is based on company information provided in CDP 2013 and CDP 2014 responses. Financial data used in the analysis are those reported by *Yahoo! Finance* or *Financial Times* in August 2014.

CURRENCY CONVERSION

All currency data have been set to their equivalent \$USD using the average annual exchange rate for the year in which they were reported—2012 for CDP2013 and 2013 for CDP2014—as published by Oanda: <http://www.oanda.com>

GICS AND IPCC SECTOR MAPPING

Companies in the CDP database have been assigned to the sectors analyzed and presented in IPCC, Working Group III, Assessment Report 5, Technical Summary and the associated industry sector reports, chapters 7-11.

Companies classed as utilities in the CDP dataset counted under the IPCC Electricity sector. Those companies where the majority of their carbon footprint relates to buildings were included in the Buildings sector group. The Transport sector group contains those companies providing transportation services, for example, rail and logistics companies. The Industry sector group includes all industrial companies and also those in oil and gas. None of the reporting companies had ownership over emissions in land use and forestry, so that sector has not been included.

COMPANY EMISSIONS TARGET FILTERING FOR VALIDITY

A combination of mathematical filtering, category filtering and expert judgment is used to select a single best target provided by each company, prioritizing those that apply to the largest amount of Scope 1 and Scope 2 emissions. See *World Business Council for Sustainable Development* for definitions of Scope 1 and Scope 2 emissions.

TARGET 2010 BASE YEAR NORMALIZATION

To normalize all companies to a reduction target in relation to base year 2010, linear interpolation/extrapolation is performed according to the following formula for company i :

$$Target_{\%,2010\ base,i} = Target_{\%,\ base\ year,i} \times (1 - (2010 - base\ year_i)/(target\ year_i - base\ year_i))$$

This method is used to normalize both absolute and intensity targets to 2010-base year.

INTENSITY TARGET HARMONIZATION WITH ABSOLUTE EMISSIONS TARGET

For companies where the reported target that passes the validity filter is intensity-based, an estimated absolute emissions target (i.e., “harmonized”) is computed using the following formula, for company i :

$$Target_{\%,Harmonized,i} = Target_{\%,Intensity,2010\ base,i} - Growth\ Adjustment_{\%,i}$$

Where,

$$Growth\ Adjustment_{\%,i} = \text{Minimum of } (2015 - 2012, Target\ Year_i - 2012) \times CompanyGrowth_{\%,i} + \text{If } [Target\ Year_i > 2015, \text{ then, } (Target\ Year_i - 2015) \times RegionalGrowth_{\%,i}]$$

Company Growth for each company is given as the most recent analyst consensus expected annual revenue growth published in August 2014 by *Yahoo! Finance* or *Financial Times*. If not available, this value is set equal to the Regional Growth for that company.

Regional Growth is derived from International Monetary Fund 2015 growth projections for Advanced Economies or the Emerging Market and Developing Economies, 2.3% and 5.3% respectively.³⁷ Each company is assigned either Advanced or Emerging³⁸ growth rate according to the location of their headquarters as reported by CDP.

WEIGHTED AVERAGE GAP (WAG) TO IPCC 2°C SECTOR PATHWAYS (430-480 PPM)

To create an annual target pathway for each IPCC sector, we read the projected median point off the chart of absolute annual direct emissions in Gt CO₂eq/yr for each sector from the chart in IPCC, WGIII, AR5, Technical Summary, Final Draft that describe the 2°C pathways for each sector with Carbon Capture and Storage (Technical Summary, page 43). Linear interpolation is used to define annual targets for each year between the years presented. These are then converted to percent reduction for each year based on the sector total emissions estimated by IPCC in 2010.

³⁷ International Monetary Fund, WORLD ECONOMIC AND FINANCIAL SURVEYS World Economic Outlook (WEO) Recovery Strengthens, Remains Uneven April 2014

³⁸ Table 1.1, Overview of the World Economic Outlook Projections, International Monetary Fund, WORLD ECONOMIC AND FINANCIAL SURVEYS World Economic Outlook (WEO) Recovery Strengthens, Remains Uneven April 2014

In each sector, the normalized (2010 base) and harmonized (intensity) reduction targets for each company are compared to the percent target interpolated from the appropriate IPCC 2°C sector pathway for the target year. These two points define a positive gap (when the company target is too low to achieve IPCC 2° sector pathway) or negative gap (company target is set in excess of that required to achieve the IPCC 2°C sector pathway) between the IPCC pathway and the most comprehensive target reported by each company.

For any group of companies, i, the WAG is computed using the following formula:

$$WAG_i = \frac{\sum_i^1 Gap_i \times Company\ Emissions_i}{\sum_i^1 Company\ Emissions_i}$$

Where,

Company Emissions are the most recent Scope 1 + Scope 2 emissions reported in either the CDP 2013 or CDP 2014 datasets.

And,

$$Gap_i = Target_{\%,2010\ base,i} - IPCC\ Target_{\%,target\ year,sector}$$

CARBON INVESTMENT INDEX

This index is created by summing all investments by a company reported to CDP as being made in a given year that also pass a filter for validity, and dividing this value by company overall operating costs in that year as reported by either *Yahoo! Finance* or *Financial Times* in August 2014.

PORTFOLIO INTERNAL RATE OF RETURN (IRR)

Internal rates of return are computed for investments reported to CDP that include an associated annual monetary return and that also pass a filter for validity. Each investment is assigned a lifetime as noted in the comment field or using the default Measure Lifetime table below, according to the Activity Type designated for the investment.

| MEASURE LIFETIME | YEARS |
|--------------------------------------|-------|
| Behavioral change | 2 |
| Energy efficiency: building fabric | 10 |
| Energy efficiency: building services | 5 |
| Energy efficiency: processes | 10 |
| Fugitive emissions reductions | 10 |
| Low carbon energy installation | 15 |
| Low carbon energy purchase | 1 |
| Process emissions reductions | 10 |
| Product design | 0 |
| Transportation: fleet | 7 |
| Transportation: use | 5 |

INVESTMENT CARBON EFFECTIVENESS (ICE), TONNES CO₂E SAVED (LIFETIME) PER \$USD OF INITIAL INVESTMENT

All investments reported to CDP that include an associated annual carbon emissions savings that also pass filters for validity are pooled, set k, for a collection of companies and the ICE is calculated using the following formula:

$$ICE_k = \frac{\sum_i^k Annual\ CO2\ Savings_{t,y,k} \times Measure\ Lifetime_{y,k}}{\sum_i^k Initial\ Investment_{USD,k}}$$

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The WE MEAN BUSINESS partners work closely with thousands of businesses and other stakeholders. This report has benefited from the input of the organizations comprising WE MEAN BUSINESS, but does not represent the views or positions of the businesses with which these organizations work.

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