
Climate Week NYC
Briefing 2013

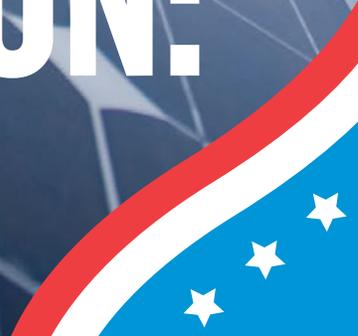
THE °CLIMATE GROUP



This is part of
THE CLEAN REVOLUTION

AMERICAN CLEAN REVOLUTION:

From dialogue to action



AMERICAN CLEAN REVOLUTION: FROM DIALOGUE TO ACTION

Briefing for Climate Week NYC 2013

INTRODUCTION

In the lead up to last year's Climate Week NYC, we made the case that a rapid transition to a clean economy was the only path to long-term prosperity for the United States. We supported our case with five reasons for an American Clean Revolution, including: 1) growing the economy, 2) boosting international competitiveness, 3) increasing security, 4) improving critical infrastructure and 5) avoiding the costs associated with more extreme weather. And we showed that this view is shared by a diverse cross-section of American society, including military officers, business executives, doctors, farmers, faith leaders and more.¹

Progress towards this transition has been made in recent years. Since 2005, US greenhouse gas emissions have fallen by 7% and US renewable energy capacity has more than doubled. Pioneering climate policies have been adopted at the US state level. And newly proposed greenhouse gas regulations at the federal level promise further reductions in the years to come.

But these actions won't be enough to meet the US' long term emission reduction goals. Despite the recent decline, US emissions are set to rise again this year and steadily in the future if further action isn't taken.

What actions can be taken in the coming years in order to set the US on the path towards a truly low carbon, resilient society?

This briefing explores this critical question, which will be the basis of the discussion among business and government leaders at this year's Climate Week NYC 2013.

CONTENTS

| | |
|---|----|
| I. Update on US GHG emissions | 4 |
| – Emissions to date | 6 |
| – Is the US on track? | 6 |
| II. Government actions | 9 |
| – Ideological divide on carbon pricing | 9 |
| – Increasing energy research and development | 10 |
| – Reforming energy subsidies | 12 |
| – National clean energy standard | 12 |
| III. Business actions | 13 |
| – Further emissions reductions | 13 |
| – Adoption of clean technologies | 14 |
| – Innovative low carbon products and services | 15 |

KEY POINTS

Below are key talking points on the state of emissions in the US today. These points are then reviewed in greater detail.

US GREENHOUSE GAS (GHG) EMISSIONS

- US GHG emissions have fallen 7% since 2005.
- Energy-related carbon dioxide (CO₂) has fallen 11%, but is expected to rise in 2013.
- US coal exports have doubled since 2009.
- Under ‘business as usual’, GHG emissions are expected to rise to about 7% above 2005 levels by 2040.
- According to WRI, federal GHG regulations could achieve anywhere between a 10% and 40% reduction below 2005 levels by 2035, depending on their stringency.
- Even in the best-case scenario, current actions do not have the US on track to meet its long-term emission reduction goals, meaning that more action by businesses and governments will be needed in the coming years.

GOVERNMENT ACTIONS

- An ideological divide prevents carbon pricing policies from being adopted by Congress.
- But more support exists generally for non-carbon pricing policies.
- The US invested \$4.3 billion in non-defence energy research and development (R&D) in 2012. Experts believe \$8–\$25 billion a year is needed to further drive down the costs of promising new clean technologies.
- Removing 12 unnecessary fossil fuel subsidies from the US tax code would save more than \$40 billion in government spending over the next ten years. Getting other countries to reciprocate could reduce global emissions by an additional 7% by 2020, and 10% by 2050.
- A national clean energy standard could reduce US CO₂ emissions by an additional 18% by 2035, with minimal electricity price increases before 2020.

CORPORATE ACTIONS

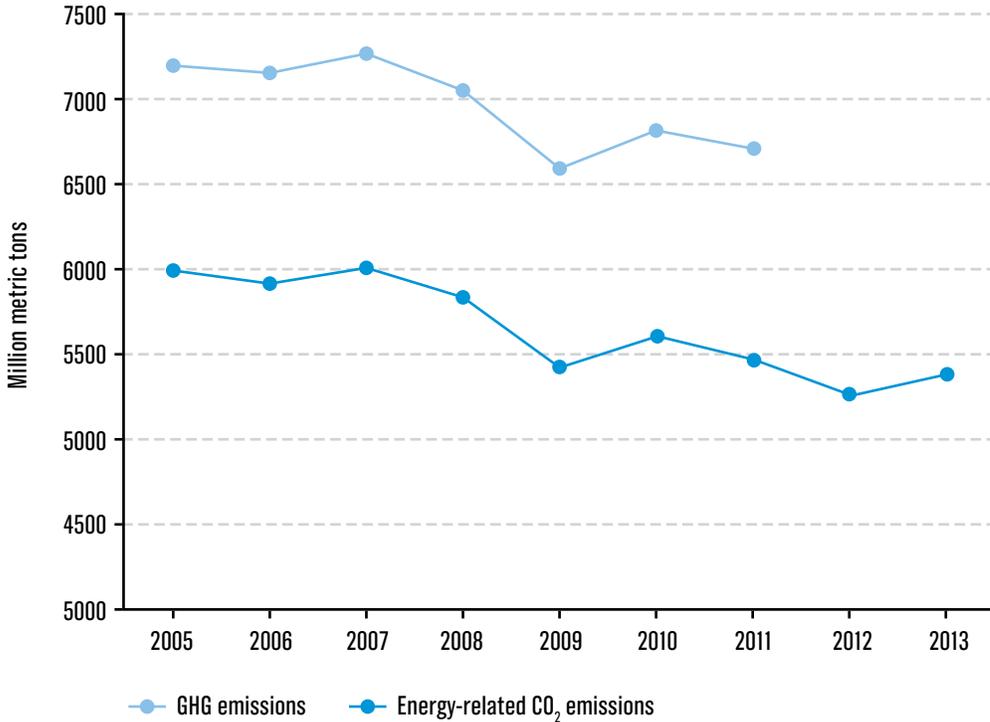
- According to CDP and WWF, additional corporate emission reductions could cut US emissions by more than 1 billion tons, and save companies \$190 billion in 2020, and \$780 billion over a 10 year period.
- Major cost reductions for clean technologies are creating opportunities for companies to adopt clean energy on a purely economic basis—a fact that many have been slow to recognize. Since 2008, the price of solar panels fell by about 80%; the price of LED lighting fell more than 50%; and the price of wind turbines and batteries for electric vehicles fell 30%.
- Going forward, companies are likely to have the greatest impact, not by reducing their own emissions, but by helping customers reduce theirs through innovative low carbon products, services and business models.

I. UPDATE ON US GHG EMISSIONS

US GHG EMISSIONS HAVE FALLEN 7% SINCE 2005.

In 2011, US GHG emissions fell to 6.7 billion tons of carbon dioxide equivalents (CO₂e). This represents a 7% reduction below 2005 levels, and an 8% increase above 1990 levels.²

FIGURE 1 US GHG emissions (2005-2013)

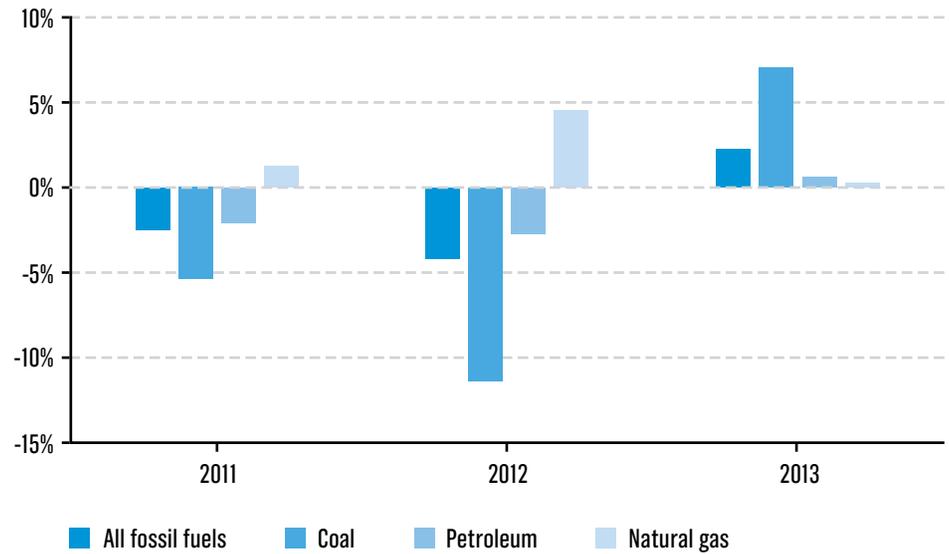


Source: US Environmental Protection Agency (EPA), US Energy Information Administration (EIA)

ENERGY-RELATED CO₂ HAS FALLEN BY 11%, BUT IS EXPECTED TO RISE IN 2013.

Energy-related CO₂—the most commonly cited emissions metric³—includes CO₂ emissions from energy use, production and distribution, and represents about 80% of total US GHG emissions.⁴

In 2012, energy-related CO₂ emissions fell to 5.3 billion tons—an 11% reduction below 2005 levels and, significantly, the lowest level since 1994.⁵ According to the EIA, the decrease was caused primarily by a combination of slow economic growth (2008–09), a reduction in petroleum use (2011–12), and a shift from coal to natural gas in the electricity sector (2011–12).

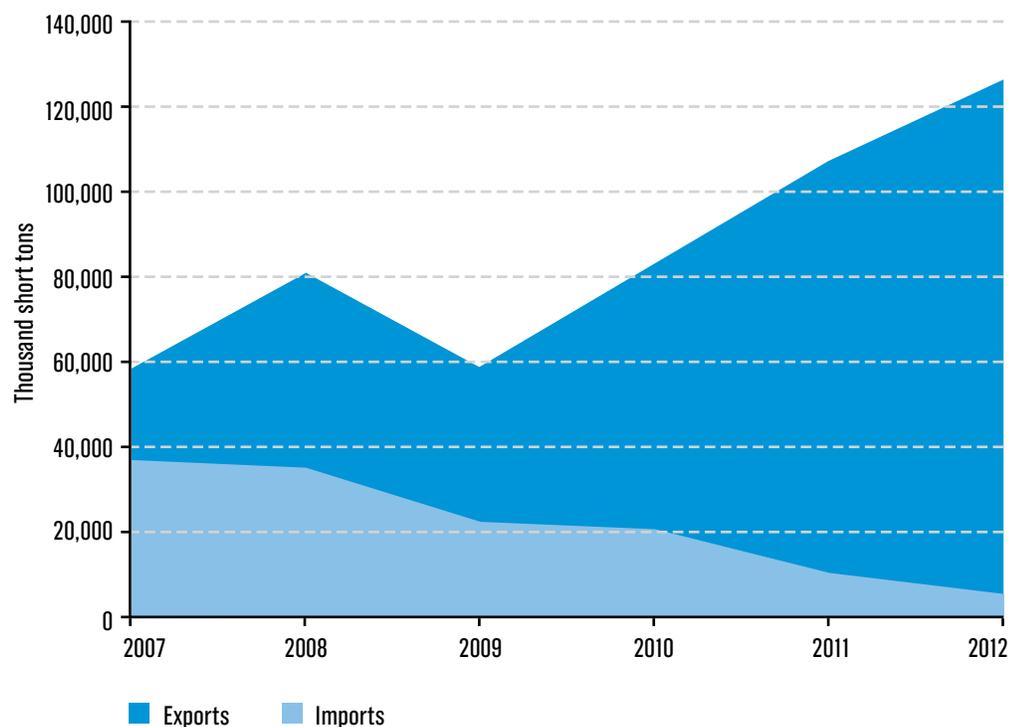
FIGURE 2 US energy-related CO₂ emissions growth (2011-13)

Source: EIA Short Term Energy Outlook

However, the natural gas-driven decline in emissions is not expected to continue. According to the EIA's latest Short Term Energy Outlook (August 2013), energy-related CO₂ is expected to grow by 2% this year, as coal use for electricity generation rebounds from its 2012 fall.⁶

US COAL EXPORTS HAVE DOUBLED SINCE 2009.

Another important trend not captured by the recent decline in US emissions is the subsequent rise in US coal exports, which have more than doubled since 2009.⁷ The growth implies that, while the US may be using less coal at home, it is simultaneously enabling more coal use abroad—possibly offsetting a portion of its domestic emissions reductions with emission increases in other parts of the world.⁸

FIGURE 3 US coal imports and exports (2007-2012)

Source: EIA Quarterly Coal Report

IS THE US ON TRACK TO MEET ITS EMISSION REDUCTION GOALS?

The trajectory of US GHG emissions going forward is difficult to forecast because it depends on a number of unpredictable factors including the rate of economic growth, the relative price of competing energy sources, and changes in government policy.

But recent projections give a general sense of the impact that different policy scenarios would have on future US GHG emissions. Below is a brief summary of four potential scenarios, compared against the emission reduction pledge President Obama made at the UN Climate Change Conference in Copenhagen in 2009.

FIGURE 4 US emission reduction targets

| TARGET YEAR | REDUCTION FROM 2005 LEVELS | REDUCTION FROM 1990 LEVELS |
|-------------|----------------------------|----------------------------|
| 2020 | 17% | 5.5% |
| 2025 | 30% | 21% |
| 2030 | 42% | 34% |
| 2050 | 83% | 81% |

Source: World Resources Institute (WRI)⁹

“THE QUESTION IS NOT WHETHER WE NEED TO ACT...THE QUESTION NOW IS WHETHER WE WILL HAVE THE COURAGE TO ACT BEFORE IT’S TOO LATE. AND HOW WE ANSWER WILL HAVE A PROFOUND IMPACT ON THE WORLD THAT WE LEAVE BEHIND NOT JUST TO YOU, BUT TO YOUR CHILDREN AND TO YOUR GRANDCHILDREN. AS A PRESIDENT, AS A FATHER, AND AS AN AMERICAN, I’M HERE TO SAY WE NEED TO ACT.”

US President Barack Obama, June 25, 2013

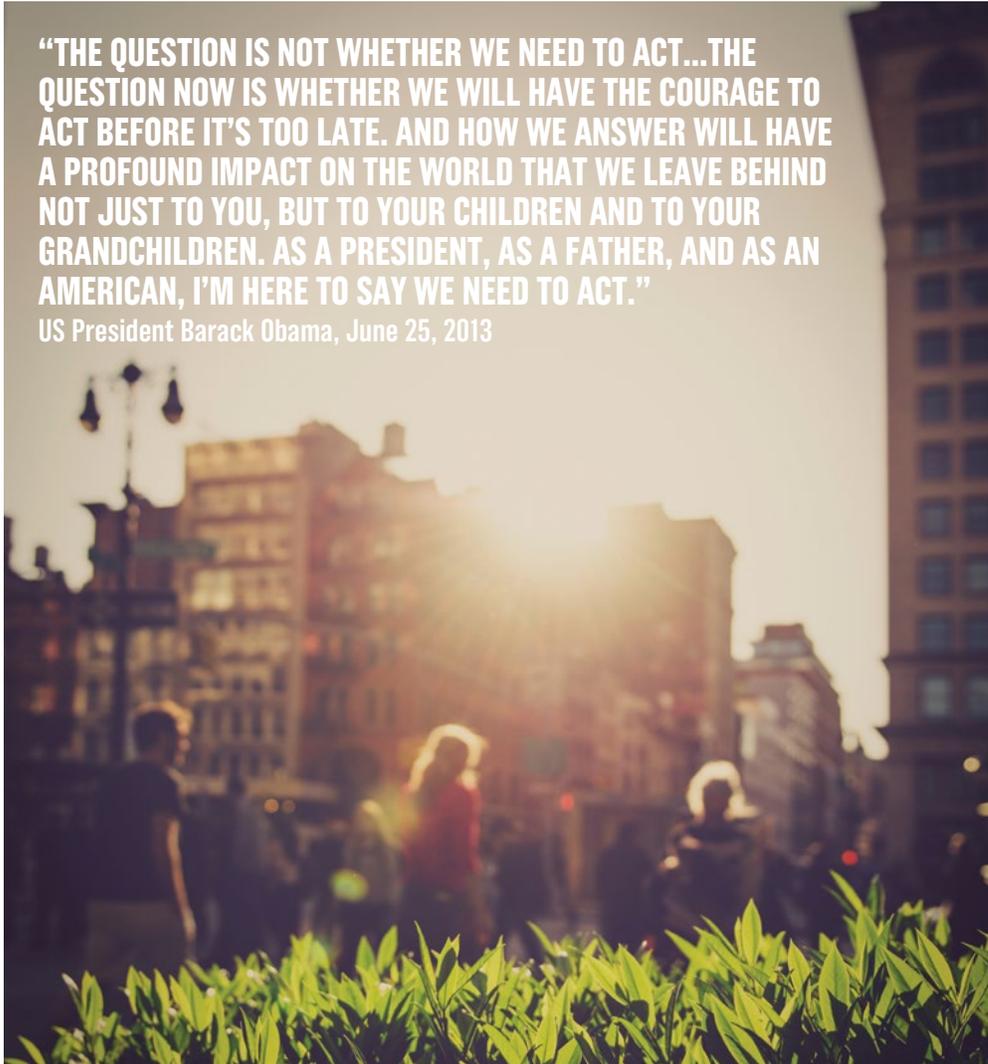
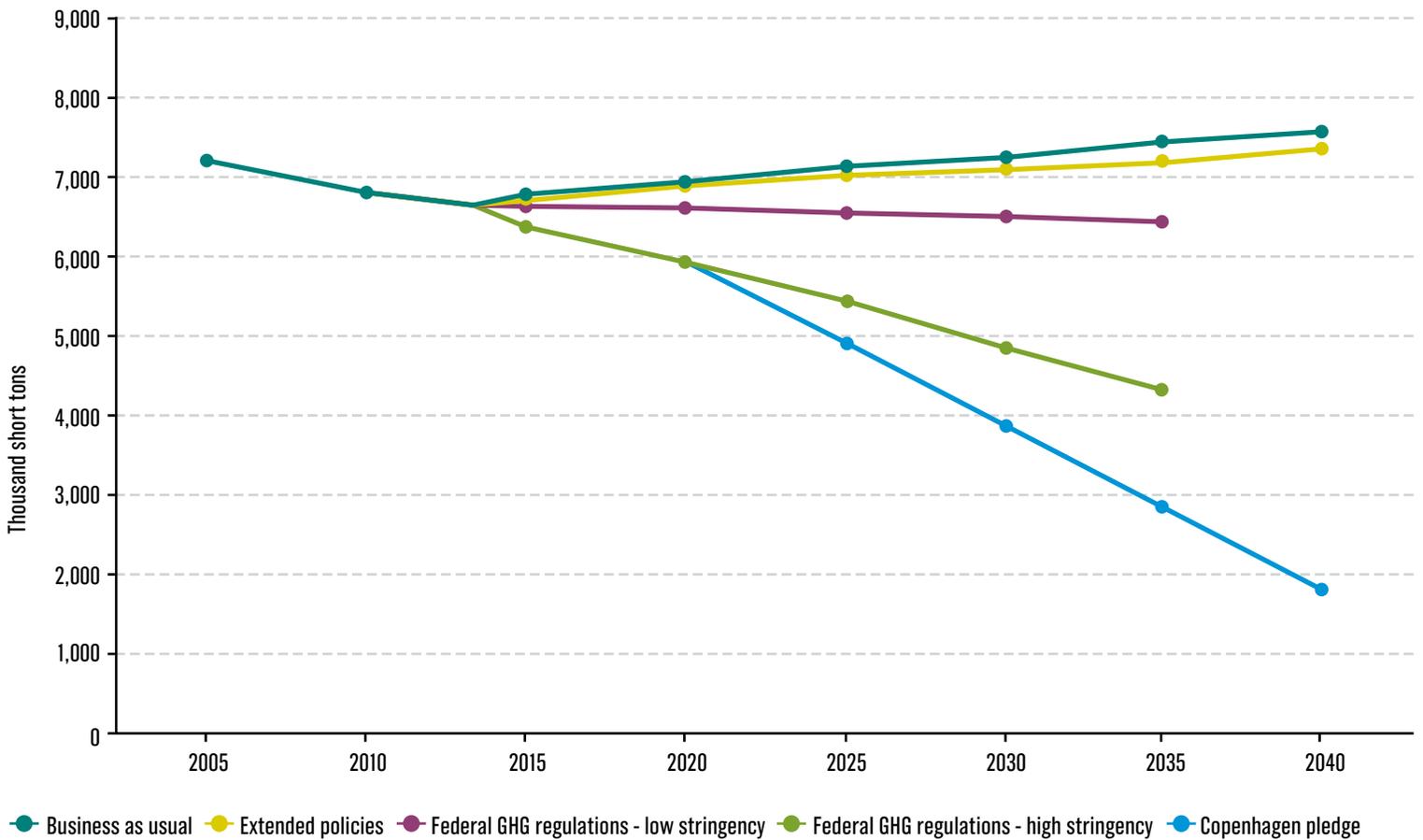


FIGURE 5 US GHG emissions scenarios



Source: EIA, EPA, WRI

POTENTIAL US GHG EMISSIONS SCENARIOS

- The 'business as usual' scenario assumes that current laws and regulations affecting the energy sector remain unchanged, and that policies that are set to expire, such as the Investment Tax Credit (ITC) and Production Tax Credit (PTC) for renewable energy, do so.¹⁰ It is based primarily on the 'reference scenario' in the EIA Annual Energy Outlook 2013.
- The 'extended policies' scenario assumes that existing tax credits (i.e. ITC and PTC) for renewable energy and energy-efficient equipment are made permanent, and that certain energy efficiency standards (including Corporate Average Fuel Economy (CAFE) standards) continue to gradually increase.¹¹ It is based primarily on the 'extended policies' scenario in the EIA Annual Energy Outlook 2013.
- The 'federal GHG regulations - low stringency' scenario assumes that federal GHG regulations, including those in Obama's Climate Action Plan, end up having a relatively low level of stringency. (It is also similar to a scenario in which successful legislative and legal challenges force the Obama Administration to scale back plans for more ambitious regulations.¹²) It is based on the 'lackluster' scenario in WRI's 2013 report: "Can the US Get There from Here? Using Existing Federal Laws and State Action to Reduce Greenhouse Gas Emissions."
- The 'federal GHG regulations - high stringency' scenario assumes that new federal GHG regulations end up having the greatest possible level of stringency. It is primarily based on the 'go-getter' scenario in the WRI report.

UNDER BUSINESS AS USUAL, GHG EMISSIONS RISE TO 7% ABOVE 2005 LEVELS BY 2040.

In the 'business as usual' scenario, US GHG emissions rise back to 2005 levels by 2025, and 7% above 2005 levels by 2040, because of a slight rise in energy-related CO₂ and a significant rise in non-CO₂ GHGs.

IF EXISTING POLICIES ARE EXTENDED, GHG EMISSIONS RISE TO 2% ABOVE 2005 LEVELS BY 2040.

In the 'extended policies' scenario, US GHG emissions reach 2005 levels by 2035 and increase by 2% above 2005 levels by 2040, with energy-related CO₂ emissions remaining flat.

IF FEDERAL GHG REGULATIONS ARE NOT STRINGENT, GHG EMISSIONS DECREASE SLIGHTLY TO 10% BELOW 2005 LEVELS BY 2035.

On June 25, President Obama unveiled his Climate Action Plan, which outlines a range of government programs and regulations intended to further reduce US GHG emissions.¹³ Because most of the Plan's details are still to be determined, there is limited analysis available on its potential impact on US emissions.

However, the WRI recently modeled a package of federal GHG regulations, including those in Obama's Climate Action Plan, such as: CO₂ emissions standards for new and existing power plants, regulations to improve energy efficiency in buildings and motor vehicles, and programs to reduce non-CO₂ GHGs such as hydrofluorocarbons (HFCs) and methane (CH₄)—based on different levels of stringency.¹⁴

In the 'federal GHG regulations - low stringency' scenario, US GHG emissions decrease to 8% below 2005 levels by 2020 and 10% below 2005 levels by 2035, as a result of the modest regulations.

IF FEDERAL GHG REGULATIONS ARE VERY STRINGENT, GHG EMISSIONS FALL TO 40% BELOW 2005 LEVELS BY 2035.

In the 'federal GHG regulations - high stringency' scenario, US GHG emissions decrease to 17% below 2005 levels by 2020—meeting the President's short-term emission reduction goal—and 40% below 2005 levels by 2035, as a result of the ambitious regulations.

This estimate is generally consistent with recent analysis by Resources for the Future, which found that stringent CO₂ emissions standards for new and existing power plants could enable the US to reach 16% below 2005 levels by 2020.¹⁵ Apparently, it is also consistent with the expectation of Obama Administration officials, who said they think the Plan can come "within striking distance of 17% [below 2005 levels by 2020]."¹⁶

THE US IS NOT ON TRACK TO MEET ITS LONG-TERM EMISSION REDUCTION GOALS.

A review of these scenarios makes it clear that, while GHG regulations in President Obama's Climate Action Plan have the potential to achieve America's short-term emission reduction target of 17% below 2005 levels by 2020, alone they cannot achieve the US' long-term emission reduction target of 83% below 2005 levels by 2050.

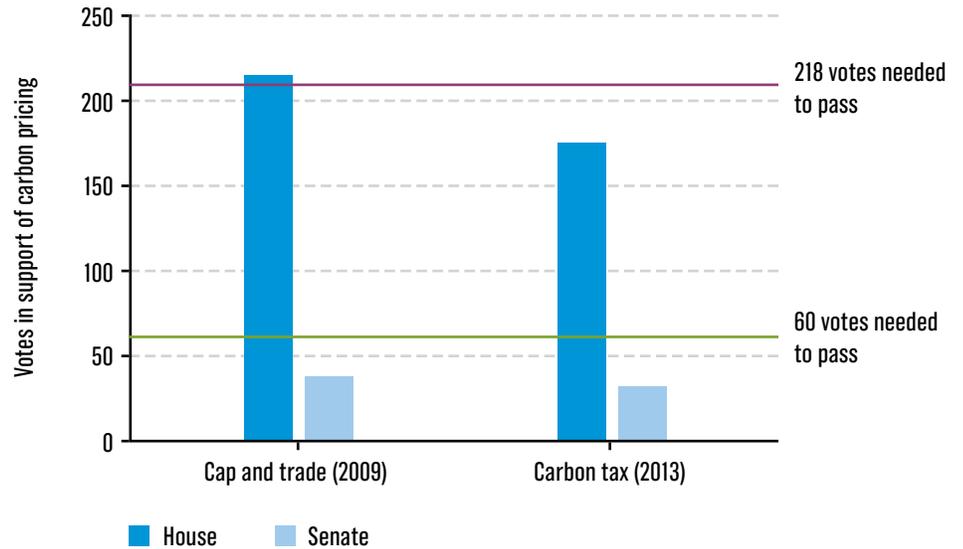
Furthermore, anything less than the best-case scenario would leave the US short of even its short-term target, suggesting that **more action to reduce emissions by both businesses and governments is needed in the coming years.**

II. GOVERNMENT ACTIONS

AN IDEOLOGICAL DIVIDE PREVENTS CARBON-PRICING POLICIES FROM BEING ADOPTED.

To meet its long-term emission reduction targets, the US will need to adopt new climate legislation. But to date, efforts to pass carbon pricing legislation have been unable to secure the needed level of support in Congress.

FIGURE 6 Support for carbon pricing policies (2009–2013)¹⁷



Source: Govtrack, E&E Publishing

Carbon pricing policies have not only had a difficult time securing support from Republicans, but also from Democrats in 'red' (i.e. conservative) states and districts who are worried about the backlash they might receive from conservative constituents if they support the policy.

For example, none of the 12 Democratic senators in states that Mitt Romney carried in 2012 currently support a carbon tax.¹⁸

FIGURE 7 Red-state Democrats oppose a carbon tax

| DEMOCRATIC SENATOR | 2012 ELECTION WINNER (MARGIN OF VICTORY) | CARBON TAX VOTE (2013) |
|---------------------------------|--|------------------------|
| Kay Hagan (North Carolina) | Romney (2%) | Nay |
| Claire McCaskill (Missouri) | Romney (10%) | Nay |
| Joe Donnelly (Indiana) | Romney (11%) | Nay |
| Mark Begich (Alaska) | Romney (14%) | Nay ¹⁹ |
| Max Baucus (Montana) | Romney (14%) | Nay |
| Jon Tester (Montana) | Romney (14%) | Nay |
| Mary Landrieu (Louisiana) | Romney (17%) | Nay |
| Tim Johnson (South Dakota) | Romney (18%) | Nay |
| Heidi Heitkamp (North Dakota) | Romney (20%) | Nay |
| Mark Pryor (Arkansas) | Romney (24%) | Nay |
| Joe Manchin (West Virginia) | Romney (27%) | Nay |
| Jay Rockefeller (West Virginia) | Romney (27%) | Nay |

Source: Govtrack

This suggests that an ideological—as opposed to strictly partisan—divide exists on the issue of carbon pricing, which prevents the policy from being adopted. And this is likely to remain the case unless the idea becomes more acceptable to conservative voters.

MORE SUPPORT EXISTS FOR CLIMATE ACTION IN GENERAL.

While support for carbon pricing remains low, support for general climate action in Congress is much higher. For example, all of the Democratic Senators above who oppose a carbon tax, support action to address climate change in principle.

Recently, some Republicans in the Senate have also signaled openness to non-carbon pricing climate policies. For example, Republican Senator Lamar Alexander of Tennessee recently gave a high-profile speech laying out a conservative vision for America’s energy future that includes a direct acknowledgment of the problem of climate change, and a clear focus on developing low carbon energy.^{20,21}

COULD NON-CARBON PRICING CLIMATE POLICIES PASS IN THE NEAR FUTURE?

The gap between support for carbon pricing and support for climate action in general raises the question: **could non-carbon pricing climate policies secure enough support to pass in the near future?**

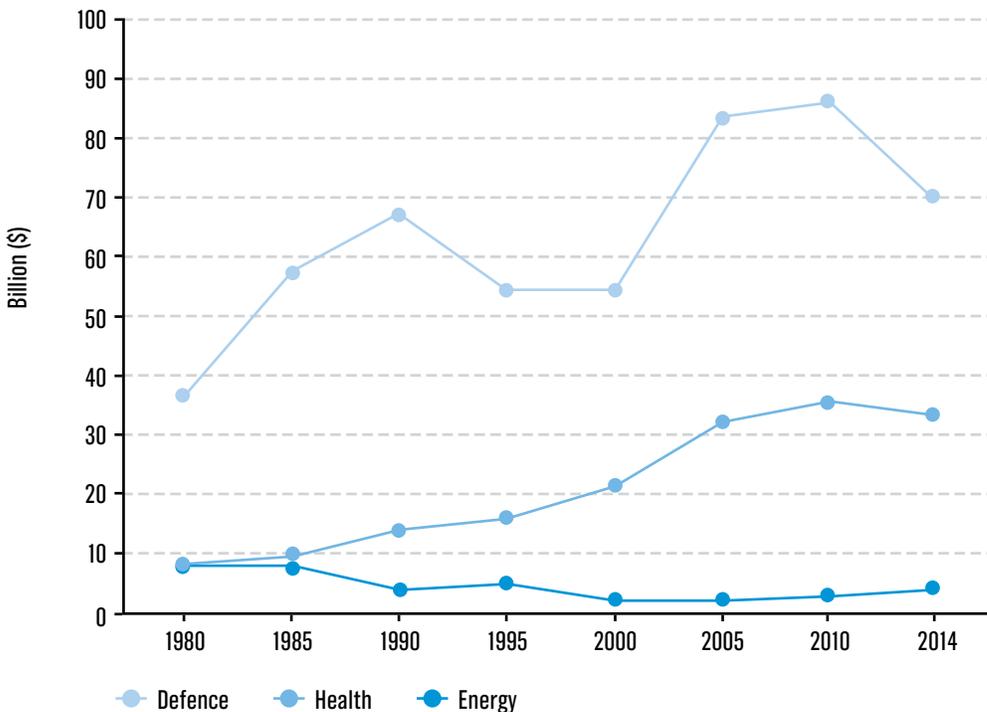
While any policy would have to overcome the “intense tribalism” that hinders most legislative efforts in Congress today, several have the potential to secure bi-partisan support in a slightly more cooperative environment.²² Below is a brief summary of three such policies.

1. \$8–\$25 BILLION PER YEAR IN ENERGY R&D IS NEEDED TO FURTHER DRIVE DOWN THE COSTS OF PROMISING NEW CLEAN TECHNOLOGIES.

Reducing the cost of non-commercial clean technologies requires further R&D investment. But several market failures prevent the private sector from investing the amount of capital needed to achieve such technological breakthroughs.²³

This creates an important role for the public sector in driving clean energy innovation. But currently the US government is not spending enough on energy research. In 2012, the US invested a total of \$4.3 billion in non-defence energy R&D (compared to \$35 billion invested in health and \$70 billion invested in defence), and this amount is set to decline even more in the coming years due to mandated federal budget cuts.^{24,25}

FIGURE 8 US federal R&D spending by function (1980–2014)



Several organizations, including the International Energy Agency (IEA), respected US think-tanks, and the business-led American Energy Innovation Council, have recommended that the US should invest much more in energy R&D—in the range of \$8–\$25 billion per year—in order to develop and drive down the costs of promising new clean technologies.

FIGURE 9 Expert recommendations for US energy R&D spending

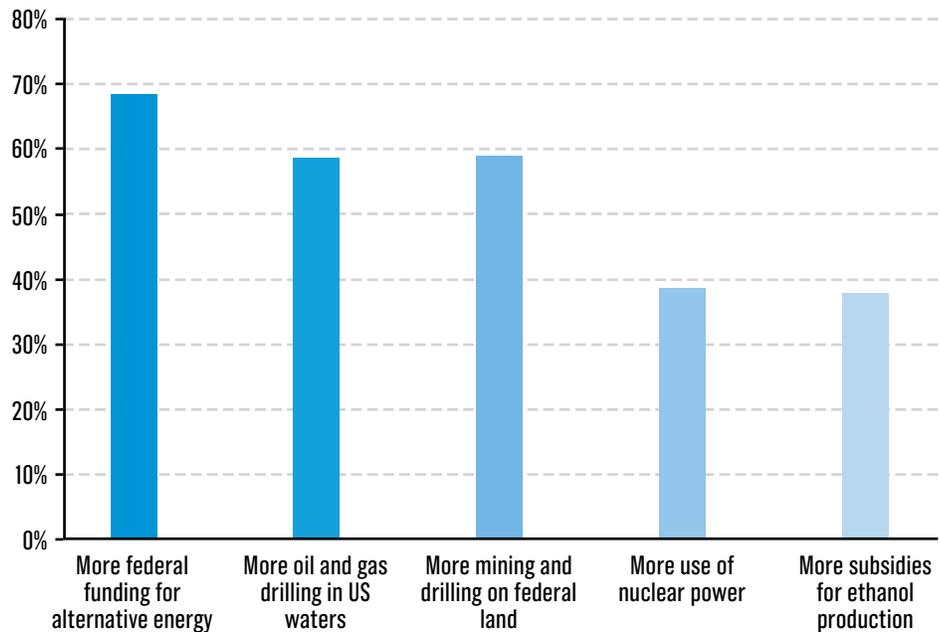
**“WE ARE UNDER-INVESTING
[IN ENERGY R&D] BY A
FACTOR OF THREE.”**
US Secretary of Energy Ernest Moniz

| EXPERT GROUP | ENERGY R&D (BILLION) |
|---|----------------------|
| International Energy Agency (2010) | \$8-\$16 |
| 34 Nobel Laureates (2010) | \$15 |
| American Energy Innovation Council (2010) | \$16 |
| Copenhagen Consensus (2009) | \$16 |
| American Enterprise Institute, Breakthrough Institute, Brookings Institute (2010) | \$25 |
| Consensus Range | \$8-\$25 |

Source: Energy Innovation Tracker²⁶

In addition, increasing government investment in clean energy is consistently among the most popular energy policies in polls of the US public, often receiving support from large majorities of Americans.

FIGURE 10 US public support for various energy policies (November 2011)



Source: Pew Research Center

The main obstacle to adopting this policy has been finding funds in an already tight federal budget. But some groups have been thinking of practical ways to either raise new funds, or reduce existing spending to support this goal.²⁷

2. REFORMING ENERGY SUBSIDIES COULD REDUCE EMISSIONS, DRIVE INNOVATION, AND CUT THE FISCAL DEFICIT.

Subsidies can be effective at encouraging the growth of new domestic industries.²⁸ But most energy subsidies on the books today are not designed to ensure these industries become self-sufficient over time, or to end government support once they do.

As a result, several US think-tanks have recommended reforming US energy subsidies, both for mature fossil fuels and emerging clean technologies.

For example, a 2013 proposal by the Brookings Institute found that removing 12 unnecessary fossil fuel subsidies from the US tax code would save more than \$40 billion in government spending over the next ten years.²⁹

Because these subsidies are ineffective (i.e. do not have much impact on production), their elimination would result in limited domestic emission reductions. However, if the move enabled the US to encourage other G-20 countries to follow their joint commitment to eliminate fossil fuel subsidies, it could help reduce global emissions by an additional 7% by 2020 and 10% by 2050, according to the IEA.³⁰

On the other hand, proposals from groups including the Brookings Institute and the American Enterprise Institute have also called for reforms to existing clean energy subsidies to make them both more predictable and more effective at driving innovation and cost-reductions.^{31,32}

Such a comprehensive approach to subsidy reform would reduce emissions by both bringing fossil fuel prices closer to their true cost and accelerating new clean technologies on the path to cost-parity.

Subsidy reform has been discussed in the US in the past with little results. But the combination of the recently launched bi-partisan tax reform effort in Congress (led by Senator Max Baucus (D-MT) and Congressman Dave Camp (R-MI)) and increasing concern over the federal budget deficit, could provide both the vehicle and motivation needed for action in the coming years.

3. A NATIONAL CLEAN ENERGY STANDARD COULD REDUCE EMISSIONS BY 18% BY 2035, WITH MINIMAL ELECTRICITY PRICE INCREASES BEFORE 2020.

In addition to investments and smarter subsidies that “push” clean energy into the market, many experts believe incentives should be coupled with policies that “pull” clean energy into the market as well, such as a national Clean Energy Standard (CES).³³

After the failure of cap and trade legislation, President Obama called on Congress to adopt a national CES in two consecutive State of the Union addresses. The call was followed in 2012 by the introduction of CES legislation in Congress that would have required utilities to generate 24% of their electricity from clean sources (including renewables, natural gas and nuclear) by 2015, rising 3% each year to 84% in 2035.³⁴

An analysis of the legislation by the EIA found that it would reduce US CO₂ emissions by an additional 18% by 2035, which is about the same amount of reductions that would result from a \$23 carbon tax.^{35,36}

But a general inability to move energy legislation in the 112th Congress caused the bill’s sponsors and the White House to abandon it.

Any new CES proposal would need to overcome several challenges inherent to the policy, including significant national average electricity price increases after 2020 (18%) and vast differences between price increases in various parts of the country, which make it hard to secure support in the hardest hit regions.³⁷

However, as 30 US states already have renewable energy standards in place (many of which are supported by Republican governors), a CES is known to Americans.³⁸ If designed well (and if it is able to avoid the ‘energy tax’ labels that have stalled carbon pricing to date), a CES has the potential to secure bi-partisan support in the future.

“THE BEST APPROACH WOULD BE TO IMPOSE A CAP OR TAX ON GLOBAL-WARMING POLLUTION, BUT FOR NOW, THOSE EFFORTS ARE DEAD IN CONGRESS. SECOND BEST WOULD BE TO SET A FEDERAL CLEAN ENERGY STANDARD.”

David Victor, University of California - San Diego and Kassia Yanosek, Tana Energy Capital

III. BUSINESS ACTIONS

OPPORTUNITIES TO FURTHER REDUCE EMISSIONS EXIST TODAY.

The adoption of new climate policies (or lack thereof) by the US government in the coming years, will affect the extent to which businesses are able to further reduce emissions. For example, policies like the ones outlined above would create incentives for companies to invest more in clean energy and energy-efficiency and to increasingly align their business strategies with a carbon-constrained economy.

But businesses need not be passive observers of the low carbon transition. Numerous, cost-effective opportunities exist today for businesses to further reduce their emissions, and those of their customers, in ways that save money and create competitive advantage. Below is a brief summary of three such opportunities.

1. ADDITIONAL CORPORATE EMISSION REDUCTIONS COULD CUT US EMISSIONS BY MORE THAN 1 BILLION TONS, AND SAVE COMPANIES \$190 BILLION.

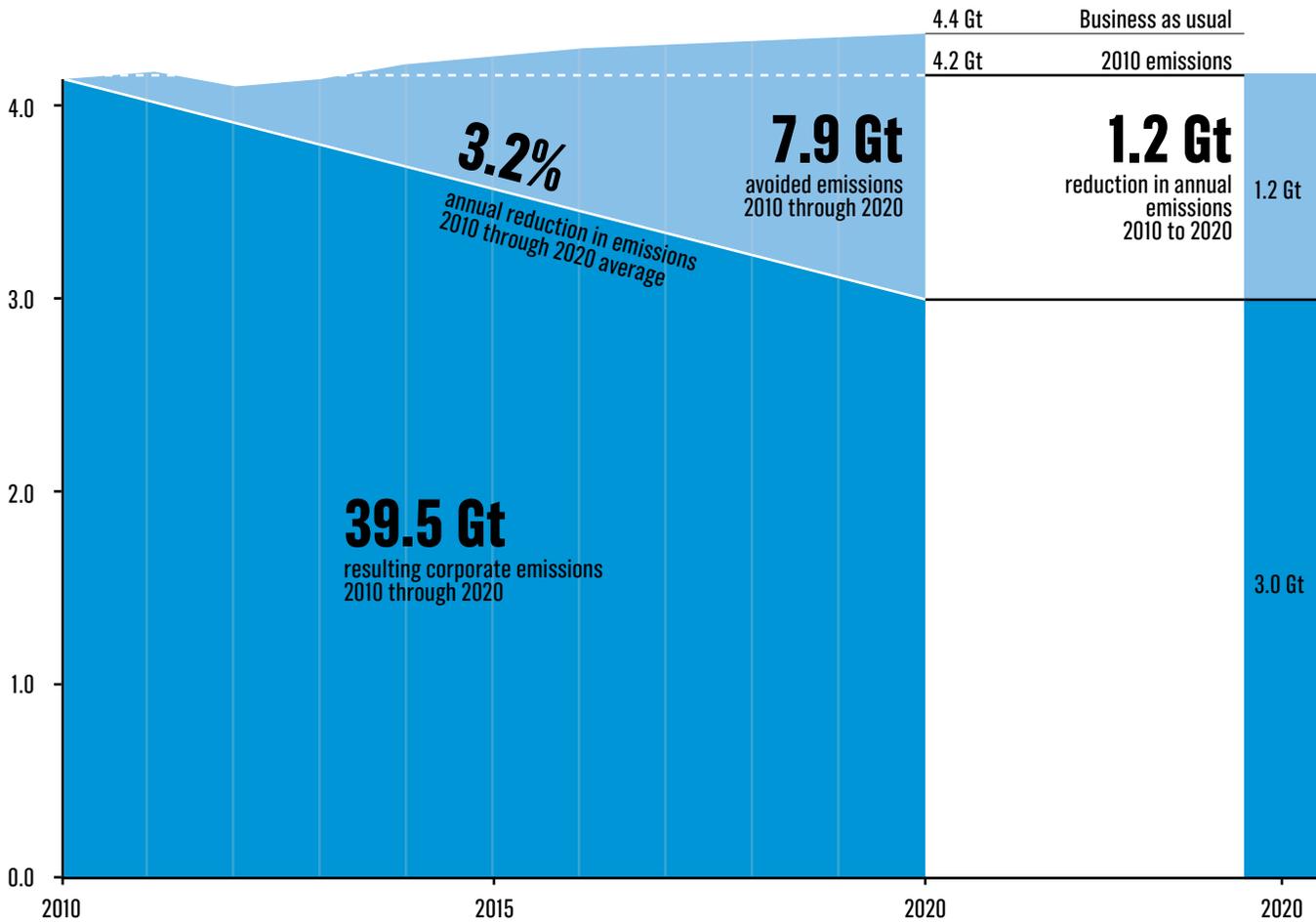
Over the past decade, the number of companies that measure, manage and disclose their emissions has grown exponentially, transforming the corporate social responsibility (CSR) and sustainability landscape, and significantly increasing executives' awareness of the risks and opportunities associated with addressing climate change.

FIGURE 11 Carbon down, profits up: notable corporate GHG emission reductions (2007-2012)

| COMPANY | ABSOLUTE REDUCTION | METHOD | SAVINGS | REVENUE GROWTH |
|------------------------------|--------------------|---|---------------|----------------|
| Intel ³⁹ | 60% | - Efficiency - Clean energy - Waste reduction | \$114 million | 41% |
| Bloomberg L.P. ⁴⁰ | 50% | - Efficiency - Clean energy - Waste reduction | \$43 million | 70% |
| Cisco ^{41 42} | 25% | - Efficiency - Clean energy - Waste reduction | \$13 million | 32% |

However, according to 2012 data from the Carbon Disclosure Project (CDP), the average long-term corporate emission reduction target is currently only about 1% a year, well below the level of ambition needed.⁴³ CDP and the World Wildlife Fund (WWF) found that in order to be on track to avoid dangerous climate impacts, annual reductions from US companies should be closer to about 3% per year—representing a total reduction of 1.2 billion tons by 2020.⁴⁴

FIGURE 12 US corporate sector GHG emissions (gigatons CO₂e)



Source: World Wildlife Fund, Carbon Disclosure Project

By pursuing these reductions through cost-effective measures such as energy efficiency and the adoption of clean energy, the groups found that US companies could save \$190 billion in 2020, and \$780 billion over a 10 year period.

2. RAPID COST REDUCTIONS ARE CREATING NEW OPPORTUNITIES FOR MORE COMPANIES TO ADOPT CLEAN ENERGY.

Companies are already an important driver of demand for clean energy. But as recent data from Bloomberg New Energy Finance shows, a large amount of that demand comes from a relatively small number of companies. For example, in the 2012 Corporate Renewable Energy Index, while 35 companies reported sourcing 100% of their electricity from clean energy, the average procurement rate for all reporting North American companies was only 5%.⁴⁵

MAJOR^{46,47} US COMPANIES SOURCING 40% OR MORE OF THEIR ELECTRICITY FROM CLEAN ENERGY

- Kohls (100%)
- Whole Foods Market (100%)
- Hilton Worldwide (94%)
- Bloomberg L.P. (85%)
- Staples (78%)
- Motorola Mobility (66%)
- Intel Corporation (58%)
- MetLife Inc. (54%)
- State Street Corp. (54%)
- Starbucks (47%)
- Microsoft (46%)
- Ernst & Young LLP (42%)

Source: Bloomberg New Energy Finance, Vestas, Global Corporate Renewable Energy Index 2012

“THOSE THAT ARE CONTENT MERELY TO KEEP AN EYE ON TECHNOLOGICAL DEVELOPMENTS, BETTING ON AVERAGES RATHER THAN POSITIONING THEMSELVES TO BENEFIT FROM THE CUTTING EDGE, MAY FAIL TO SURVIVE IN THE NEW WORLD THESE INNOVATIONS CREATE.”

Matt Rogers, McKinsey & Company

Part of the reason for the discrepancy is that corporate demand for clean energy to date has been driven largely by consumer-facing companies working to connect with customers and enhance their brand—and willing to pay a premium to do so.

But major reductions in the cost of clean technologies are creating opportunities for a broader group of companies to adopt clean energy on a purely economic basis—a fact that many companies have been slow to recognize.⁴⁸ For example, since 2008, the price of solar panels fell by about 80%; the price of LED lighting fell by more than 50%; and the price of wind turbines and batteries for electric vehicles fell by about 30%.

According to a recent report from McKinsey & Company, further adoption of these newly cost-competitive clean technologies could begin to dramatically increase companies' energy productivity as soon as 2015—while future price reductions for emerging technologies like grid-scale storage, CCS, and advanced biofuels could do the same by 2020.⁴⁹

3. INNOVATIVE LOW CARBON PRODUCTS AND SERVICES REPRESENT A NEW GROWTH OPPORTUNITY.

Going forward, companies are likely to have the greatest impact, not by reducing their own emissions, but by helping customers reduce theirs through innovative low carbon products, services and business models. For example, British Telecom estimates that, through its low carbon products, it can enable customers to reduce emissions three times the size of the company's entire carbon footprint.⁵⁰

NOTABLE EXAMPLES OF INNOVATIVE LOW CARBON PRODUCTS, SERVICES AND BUSINESS MODELS

- Nike's FlyKnit technology, which uses single fibers knitted together instead of traditional fabrics, reduces waste by an average of 80% when compared to a typical Nike shoe. The product helped Nike gain recognition as the most innovative company of 2013, following a year in which its profits grew by 57%.⁵¹
- Sales of Philips' green products—including environmentally friendly healthcare products and LED lights—reached \$15 billion in 2012, which was 45% of its total sales. Philips has invested \$756 million in 'green innovation' and is on track to reach \$2.7 billion by 2015.⁵²
- IBM's 'Smarter Planet' business unit, which includes products and services that help clients cut energy use (such as smart grids and smart building solutions), grew 25% in 2012. The company's total annual profits grew 6%.⁵³
- IKEA Group, the world's largest furniture retailer, announced that it will only sell LED lights in its stores by 2016. With LED lights consuming 85% less energy than incandescent bulbs, the move is intended to help IKEA customers save energy and reduce global greenhouse gas emissions.⁵⁴
- After taking ten years to sell the first million Prius hybrids, Toyota sold its third million in just 18 months. In return for its early investment in hybrid technology, Toyota now controls 70% of the US market.

However, while a handful of companies are actively developing new low carbon products, services and business models, research by McKinsey & Company shows that most companies still approach sustainability merely as a way to manage corporate reputation or improve operational efficiency—missing out on potential growth opportunities.⁵⁵

If US companies are to meet their potential as enablers of broad, economy-wide emission reductions, more will need to approach climate change as an opportunity to meet the needs of an increasingly carbon-constrained economy, as opposed to just a marginal CSR activity. Those that do are already capturing substantial value.

CONCLUSION

The actions outlined above are only a few of those that could help further reduce US GHG emissions in the coming years. But which actions are ultimately taken will depend on those that business and government leaders decide to prioritize today.

While there are a number of different paths that could lead the US towards a truly low carbon, resilient society, all of them require sustained commitment and support from America's leaders.

If we are to achieve an American Clean Revolution, and the smarter, better, more prosperous world it will bring, additional steps must be taken. We look forward to taking them at this year's Climate Week NYC 2013.



FOOTNOTES

¹Americancleanrevolution.com

²<http://www.epa.gov/climatechange/science/indicators/ghg/us-ghg-emissions.html>

³While the Environmental Protection Agency (EPA) reports on total GHG emissions annually and on a one-year delay, the Energy Information Administration (EIA) reports on energy-related CO₂ throughout the year and at close to real-time—making it the far more frequently cited metric in the media. For more on the difference between various emissions metrics see: <http://thinkprogress.org/climate/2012/12/05/1275811/why-claims-about-reductions-of-us-carbon-dioxide-emissions-are-misleading/>

⁴Total GHG emissions = energy-related CO₂ emissions + non-energy-related CO₂ emissions + non-CO₂ emissions

⁵<http://www.eia.gov/forecasts/aeo/index.cfm>

⁶http://www.eia.gov/forecasts/steo/report/renew_co2.cfm

⁷<http://www.eia.gov/coal/production/quarterly/>

⁸For more on the impact of rising US coal exports on global emissions see: <http://www.theguardian.com/environment/2013/aug/05/us-emissions-extraction-fracking>

⁹http://pdf.wri.org/working_papers/comparability_of_annex1_emission_reduction_pledges_2010-02-01.pdf

¹⁰The 'business as usual' scenario is based on the 'reference scenario' in the EIA Annual Energy Outlook 2013, projections for non-CO₂ emissions from the EPA, and a fixed rate for non-energy related CO₂ based on 2011 levels. http://www.eia.gov/forecasts/aeo/topic_emissions_all.cfm#carbondioxide_emission

¹¹The 'extended policies' scenario is based on the 'extended policies' scenario in the EIA Annual Energy Outlook 2013, projections for non-CO₂ emissions from the EPA, and a fixed rate for non-energy related CO₂ based on 2011 levels. http://www.eia.gov/forecasts/aeo/IF_all.cfm#updated_nosunset

¹²For more on potential challenges to Obama's Climate Action Plan see: <http://theenergycollective.com/evanjuska/244431/3-biggest-challenges-obama-s-climate-change-plan>

¹³<http://www.whitehouse.gov/the-press-office/2013/06/25/fact-sheet-president-obama-s-climate-action-plan>

¹⁴<http://www.wri.org/publication/can-us-get-there-from-here>. In addition to the GHG regulations included in Obama's Climate Action Plan, the WRI analysis also included other potential federal GHG regulations, including: aviation, off-highway sources, and nitric and adipic acid manufacturing.

¹⁵The RFF analysis modeled regulations' impact on energy-related CO₂ emissions, whereas the WRI analysis modeled regulations' impact on all GHG emissions. <http://www.rff.org/Publications/Pages/PublicationDetails.aspx?PublicationID=22235>

¹⁶http://www.washingtonpost.com/blogs/wonkblog/wp/2013/06/25/obama-tries-the-kitchen-sink-approach-to-global-warming/?hpid=hp_hp-top-table-main-obama-climate-action-plan_2pm

¹⁷Votes are based on: 1) House vote on the "American Clean Energy and Security Act of 2009"; 2) Estimate of Senate support for the "American Power Act of 2010" based on "Senate Climate Debate: The 60-Vote Climb" published by Environment and Energy Daily in May 2010; 3) House vote on Amendment No. 448 to the "Regulations From the Executive in Need of Scrutiny Act of 2013"; and 4) Senate vote on Amendment No. 646 to the "Concurrent Resolution on the Budget for Fiscal Year 2014."

¹⁸The only other Democratic senators to oppose a carbon tax were Mark Warner and Tim Kaine of Virginia—a state that voted for the Republican nominee in two of the last four Presidential elections. For more analysis on recent carbon tax votes see: <http://theenergycollective.com/evanjuska/242656/why-carbon-tax-isn-t-part-president-s-climate-plan>

¹⁹Senator Mark Begich actually voted with carbon tax supporters, but his re-election campaign recently stated that he does not support a carbon tax. For more see: <http://thehill.com/blogs/e2-wire/e2-wire/319297-begich-campaign-says-he-opposes-carbon-tax>

²⁰For more on the speech see: <http://mobile.nationaljournal.com/energy/lamar-alexander-unveils-his-maverick-gop-vision-for-energy-future-20130529>

²¹In it, he outlined "four grand principles" to help the US "create an abundance of clean, cheap, reliable energy." The principles are: 1) cheaper, not more expensive energy 2) clean, not just renewable energy 3) research and development, not government mandates 4) and a free market, not government, picking winners and losers.

²²<http://www.nationaljournal.com/washington-inside-out/second-term-blues-20130814>

²³<http://americanenergyinnovation.org/the-business-plan-problem-statement-goals/>

²⁴<http://www.aaas.org/spp/rd/guihist.shtml>

²⁵<http://www.washingtonpost.com/blogs/wonkblog/wp/2013/04/09/three-charts-that-show-the-u-s-spends-too-little-on-energy-research/>

²⁶<http://energyinnovation.us/data/analysis/gaps-analysis/>

²⁷For example, see Securing America's Energy Future (SAFE) proposal for the creation of an Energy Security Trust: <http://secureenergy.org/projects/energy-security-trust-fund-summit>

²⁸A good recent example is the government support that helped create the now multibillion-dollar shale gas industry. For more information see: http://thebreakthrough.org/archive/new_investigation_finds_decade

²⁹<http://www.brookings.edu/research/papers/2013/02/eliminate-fossil-fuel-subsidies>

³⁰<http://www.worldenergyoutlook.org/publications/weo-2012/>

³¹<http://www.aei.org/papers/energy-and-the-environment/post-partisan-power/>

³²<http://www.brookings.edu/research/opinions/2011/06/27-energy-subsidies-muro>

³³<http://www.foreignaffairs.com/articles/67903/david-g-victor-and-kassia-yanosek/the-crisis-in-clean-energy>

³⁴<http://www.energy.senate.gov/public/index.cfm/democratic-news?ID=67e21415-e501-42c3-a1fb-c0768242a2aa>

³⁵<http://www.eia.gov/analysis/requests/bces12/>

³⁶<http://www.rff.org/News/Features/Pages/Analysis-of-the-Bingaman-Clean-Energy-Standard-Proposal.aspx>

³⁷For example, while electricity prices in New England would actually decrease by 2035, prices throughout much of the Midwest would increase by 25% or more.

³⁸<http://www.eia.gov/todayinenergy/detail.cfm?id=4850>

³⁹http://www.edwardcurry.org/publications/Curry_Intel_Teaching_Case_ICIS.pdf

⁴⁰<http://blog.bloomberg.com/2013-07-24/bloomberg-sustainability-good-for-business-good-for-the-planet/>

⁴¹Energy savings are from 2007-2010. www.ecogreengroup.org/uploads/Events/a_Cisco_Sustainability_Bridging_the_Energy_Gap.pdf

⁴²<http://investor.cisco.com/financialStatements.cfm>

⁴³<https://www.cdproject.net/en-us/pages/global500.aspx>

⁴⁴<http://worldwildlife.org/projects/the-3-solution>

⁴⁵<http://about.bnef.com/white-papers/global-corporate-renewable-energy-index-crex-2012/>

⁴⁶http://money.cnn.com/magazines/fortune/fortune500/2013/full_list/

⁴⁷<http://www.forbes.com/largest-private-companies/>

⁴⁸<https://www.bnef.com/PressReleases/view/216>

⁴⁹http://www.mckinsey.com/client_service/sustainability/latest_thinking/mckinsey_on_sustainability

⁵⁰<http://www.btplc.com/betterfuture/>

⁵¹<http://www.fastcompany.com/most-innovative-companies/2013/nike>

⁵²<http://thecleanrevolution.org/news-and-events/news/philips-green-products-make-up-almost-half-of-total-sales-1>

⁵³http://www.nytimes.com/2013/01/23/technology/ibm-continues-its-profit-growth.html?_r=0

⁵⁴<http://www.bloomberg.com/news/2012-10-01/ikea-plans-to-sell-only-led-lights-worldwide-to-cut-emissions.html>

⁵⁵http://www.mckinsey.com/insights/energy_resources_materials/the_business_of_sustainability_mckinsey_global_survey_results#putting



ABOUT THE CLIMATE GROUP

The Climate Group is an independent, not-for-profit organization working to inspire and catalyze leadership for a Clean Revolution: a low carbon future that is smarter, better and more prosperous. For all.

TheClimateGroup.org

[@ClimateGroup](https://twitter.com/ClimateGroup)

THE CLIMATE GROUP

145 WEST 58TH STREET

SUITE 2A

NEW YORK, NY 10019

TEL: +1 646 233 0550

INFO@THECLIMATEGROUP.ORG

ABOUT THE CLEAN REVOLUTION INITIATIVE

The Clean Revolution is a partnership of international statesmen and governments, business leaders and corporations, thinkers and opinion formers. It is coordinated by The Climate Group. It calls for a swift, massive scale-up of clean energy and infrastructure, and of smart technologies and design. We believe this is the only way to a smarter, better, more prosperous future.

TheCleanRevolution.org

[#CleanRevolution](https://twitter.com/CleanRevolution)

ABOUT CLIMATE WEEK NYC

Climate Week NYC is a hub for over 50 high-profile meetings, events and activities organized in and around New York City by a diverse group of business, government, arts and civil society players. Climate Week NYC 2013 is our fifth anniversary.

ClimateWeekNYC.org

[#CWNYC](https://twitter.com/CWNYC)