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Risks and Opportunities in Climate Change

Financing the green economy

Amanda Augustine / Marcial Nava

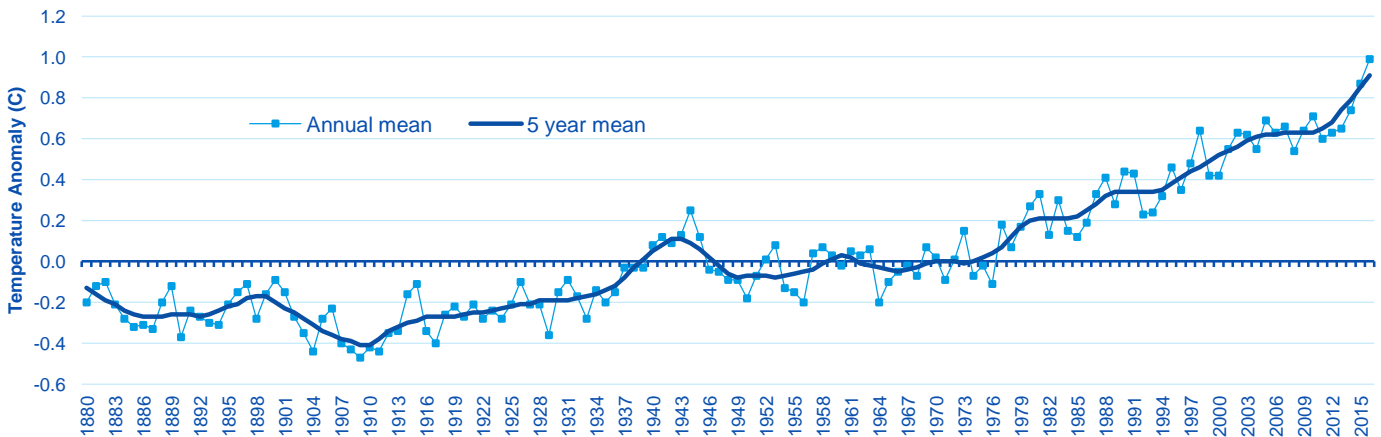
Houston, 28 April 2017

The world economy is transitioning to a carbon-free paradigm triggered by the potentially disastrous effects of climate change. In the following years, vast amounts of capital will be allocated to mitigation and adaptation projects. With the right strategy, the opportunities for the banking industry could outweigh the risks.

What We Know and Why We Care

NASA defines climate change as “any long-term change in Earth's climate, or in the climate of a region or city.”¹ Examples include changes in temperature, precipitation, and wind patterns that have occurred over several decades or even longer. Scientists have confirmed that prior to the Industrial Revolution, which began in Britain in the late 1700s; climate change was explained by natural variations in volcanic activity, solar radiation, and greenhouse gas (GHG) concentrations.² However more recently, climate change is largely attributable to human activity. Rather than stemming from natural phenomena, the largest sources of GHG emissions now come from the use of fossil fuels for electricity production, transportation and industrial activities. Residential and commercial activities as well as agriculture are also sources of GHG emissions. When significant amounts of carbon dioxide (CO₂), methane, nitrous oxide and other GHG are released to the atmosphere, they absorb energy and trap heat, causing the Earth's temperature to rise — the phenomenon known as global warming.³

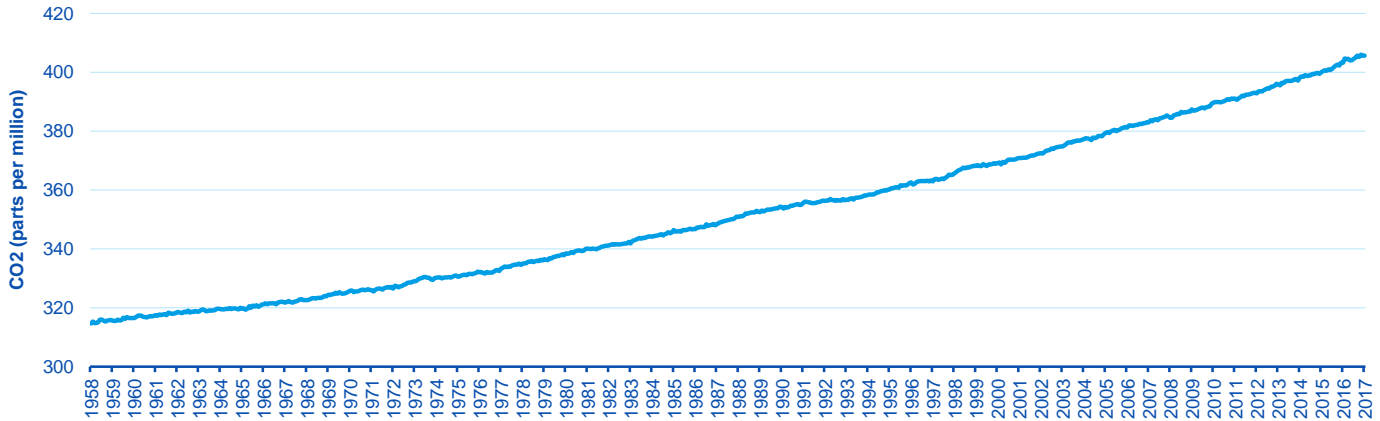
Figure 1. Global land-ocean temperature index*



* Change in global surface temperature relative to 1951-1980 average temperatures. Source: NASA/GISS

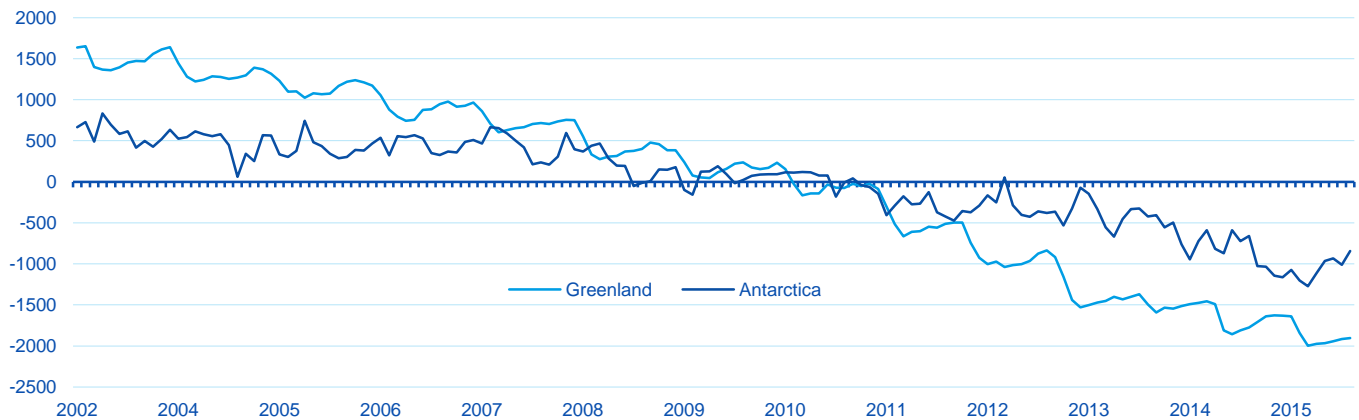
1: NASA. 2011. “What Are Climate and Climate Change?” <https://goo.gl/0uAPxV>
 2: IPCC. 2013. “Climate Change 2013: The Physical Science Basis.” <https://goo.gl/INyNmd>
 3: EPA. 2017. “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2015.” <https://goo.gl/NsxJSx>

Figure 2. Atmospheric levels of carbon dioxide with average seasonal cycle removed



Source: NOAA

Figure 3. Land ice sheets mass variation (gigatonnes per year)



Source: NASA

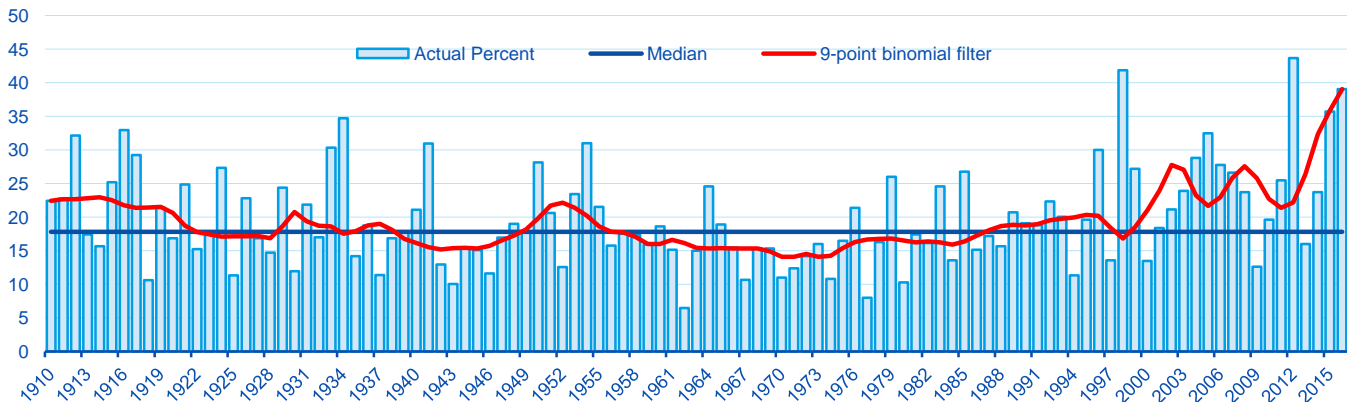
Both NASA and the National Oceanic and Atmospheric Administration (NOAA) recently confirmed that 2016 was the hottest year on record globally. The sea surface and land surface temperatures were the highest on record — 1.35° F and 2.57° F above average, respectively. In addition, the Arctic sea ice extent was at its smallest annual average on record, while the Antarctic sea ice extent hit its second smallest level on record.⁴ 2016 was also notable because NOAA’s Climate Extremes Index (CEI) was at its second highest level in over a century, coming in at 44.2%, meaning that 44.2% of the contiguous U.S. states experienced top 10% extreme weather conditions last year.⁵ For reference, a CEI value of over

4: NOAA. 2017. “2016 Marks Three Consecutive Years of Record Warmth for the Globe.” <https://goo.gl/HECGmi>

5: NOAA. 2016. “U.S. Climate Extremes Index (CEI): Graph.” <https://goo.gl/JyVmaz>

20% indicates more extreme conditions than average. The highest level the index has reached within the last century was 51.6%, which happened as recently as 2012 — the hottest year on record in the U.S. The country experienced widespread drought conditions along with searing heat waves that year.

Figure 4. U.S. Climate Extremes Index (contiguous U.S. with tropical cyclone indicator, January-December, 1910-2016)



Source: NOAA

Social and Economic Impact

The impacts of climate change are diverse, affecting not only our ecosystems, but also our society and economy. The social impacts include changes to human health, infrastructure, and transportation systems, as well as to supplies of energy, food, and water.⁶ Warmer temperatures can lead to more cases of heatstroke and dehydration, as well as poorer air quality, which increase the occurrence of respiratory and cardiovascular disease. Higher temperatures, along with more severe storms and floods, and rising sea levels, could damage and delay highway, railway, and air travel and increase the cost of maintaining these systems. Water supply and quality will continue to be affected by changes in precipitation and runoff, while crop yields could experience declines due to CO₂ levels and extreme weather.

On the economic side, climate change is expected to further exacerbate poverty and income inequality in both developed and developing countries.⁷ Those currently living below or near the poverty line are most at risk due to the lack of resources to adapt or recover from climate-related shocks. The damage that extreme weather events can inflict on their homes and businesses has the potential to prevent their escape from poverty altogether. One recent study estimates that global warming could widen income inequality and reduce global income 23% by 2100 compared to scenarios without climate change.⁸ Estimates from the Intergovernmental Panel on Climate Change (IPCC) indicate that additional

6: EPA. "Climate Change Impacts by Sector." <https://goo.gl/PJXr5x>

7: IPCC. 2014. "Climate Change 2014: Synthesis Report." <https://goo.gl/ZfDLVt>

8: Marshall, Burke, Hsiang, Solomon M. Miguel, Edward. 2015. "Global Non-Linear Effect of Temperature on Economic Production." *Nature*. Vol. 527. Issue 7577. Pages 235-239.

temperature increases of 2°C could result in global annual economic losses between 0.2% and 2% of income.⁹ Without the appropriate response, climate change could push 100 million people into poverty by 2030 offsetting previous achievements in the fight against extreme poverty.¹⁰

As for the U.S., although the economic impacts of climate change are expected to occur throughout the country, they will be unevenly distributed across regions and sectors. In a survey conducted by New York University, over 1,000 economic experts believed that climate change would have negative consequences on U.S. agriculture (94%), fishing (78%), utilities (74%), forestry (73%), tourism/outdoor recreation (72%), insurance (66%), and health services (54%).¹¹ On a regional level, the Northeast and Mid-Atlantic regions are expected to be increasingly vulnerable to rising sea levels and severe storms, while the South will experience decreased precipitation, limiting resources for agriculture and households. Meanwhile, crops and property in the Great Plains and Midwest regions will suffer from more frequent and severe floods and droughts.¹² As temperatures continue to rise, scientists predict that temperatures in Boston could be similar to those of Atlanta by 2100. The nation's population as a whole will feel the effect of more frequent extreme heat events like the Chicago heat wave of 1995, which resulted in an 85% increase in deaths and 11% rise in hospitalizations due to heatstroke, with many of the affected being elderly or poor. Likewise, infrastructure and people in coastal areas will experience more intense and long-lasting tropical storm and hurricane activity, perhaps exceeding that of Hurricane Katrina, which had an economic cost of \$200 billion or over 1% of GDP.¹³

National Security Impact

A Pentagon report released in 2014 found that climate change poses an immediate risk to national security, aggravating problems such as poverty, terrorism, infectious disease, and food shortages.¹⁴ In its Climate Change Adaptation Roadmap, the Pentagon expresses concern that already fragile governments could be further undermined by infectious disease and lack of food and water exacerbated by climate change. Internationally, the report acknowledges the vulnerability of more than 7,000 U.S. military bases, installations, and facilities; while on the domestic front, the Pentagon notes the increased demand for National Guard services due to greater occurrence of extreme weather events. Despite the change in administration, the Department of Defense is likely to continue its consideration of climate change as a risk to national security.

Researchers have identified a link between climate change and violent conflicts. Back in 2011, for example, the outbreak of war in Syria was preceded by a mega-drought in the Levant - arguably the worst since at least the last 500 years-¹⁵ that devastated crops and livestock and pushed approximately 1.5 million Syrians from rural to already overcrowded urban areas. The drought was caused by an unusual pattern of increased dryness in the Mediterranean and the Middle East, a phenomenon that scientists have associated with humans-induced climate change.

9: IPCC. 2014. "Climate Change 2014—Impacts, Adaptation and Vulnerability." <https://goo.gl/H3fr5h>

10: Tsitsiragos, Dimitris. 2016. "Climate Change is a Threat- and An Opportunity –for the Private Sector." <https://goo.gl/Faf1zT>

11: Howard, Peter, and Sylvan, Derek. 2015. "Expert Consensus on the Economics of Climate Change." <https://goo.gl/RFF2Jl>

12: Matthias, Ruth *et. al.* 2007. "The US Economic Impacts of Climate Change and the Costs of Inaction." <https://goo.gl/9QLKWI>

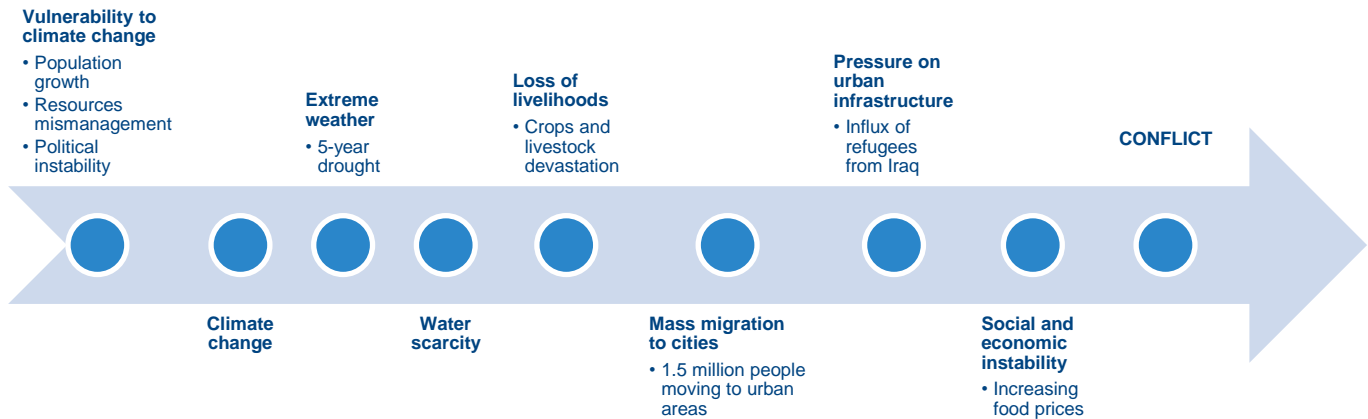
13: *Ibid.*

14: Department of Defense. 2014. "2014 Climate Change Adaptation Roadmap." <https://goo.gl/GZ7zZ1>

15: Meko, David M. and Cook, Edward R. 2016. "Spatiotemporal Drought Variability in the Mediterranean Over the last 900 years." *Journal of Geophysical Research*. Vol. 121, Issue 5, March, pages 2060-2074.

Climate change acts as “threat multiplier”¹⁶, aggravating fragility, and exacerbating or causing violent conflict. In the context of modern terrorism, studies have found a relationship between extreme weather and the development of non-state armed groups (NSAGs) like Boko Haram in Africa or ISIS in the Middle East. NSAGs tend to thrive not only in areas where economies and governments are weak but also in regions where the ecology is in distress. Hunger, failing crops and water scarcity allow NSAGs to recruit people and extract rents from controlling water and food supplies.

Figure 5. The link between climate change, instability and conflict in Syria



Source: Nett, Katharina, Rüttinger, Lukas. 2016. “Insurgency, Terrorism and Organised Crime in a Warming Climate. Analysing the Links Between Climate Change and Non-State Armed Groups” Climate Diplomacy, Adelphi & Federal Foreign Office. <https://goo.gl/1cMI4a>

Climate Change and Businesses

At the World Economic Forum annual meeting in Davos this year, business and political leaders ranked extreme weather as the biggest global risk, over involuntary migrations, natural catastrophe, terrorism, and data fraud.¹⁷ At the forum, several key areas were identified as priorities for climate action: increasing investment, phasing out fossil fuel subsidies, standardizing corporate reporting on emissions and climate risk, putting an effective price on carbon, and increasing collaboration.¹⁸ Businesses that haven’t already started working towards a low-carbon economy are realizing that the shift is inevitable and will come sooner rather than later. In the U.S., the new administration’s pending policy actions on climate

16: Nett, Katharina, Rüttinger, Lukas. 2016. “Insurgency, Terrorism and Organised Crime in a Warming Climate. Analysing the Links Between Climate Change and Non-State Armed Groups” Climate Diplomacy, Adelphi & Federal Foreign Office. <https://goo.gl/1cMI4a>

17: Blas, Javier, and Shankleman, Jess. 2017. “Davos Elite Focus on Climate Change, Ignoring Trump’s Skepticism.” <https://goo.gl/uxQb9r>

18: Farnworth, Emily, and Swanborough, Jahda. 2017. “5 Ways Businesses are Turning Up the Heat on Climate Change.” <https://goo.gl/2yJ2Dp>

change are largely uncertain, yet many American corporations have vowed to push ahead with their own goals regardless. Their motivation lies beyond pure PR or corporate responsibility purposes, as failing to develop a climate change strategy could ultimately hurt their bottom line. For example, car makers like Ford and GM are heavily investing in developing electric vehicles, while major oil companies and utility providers are preparing to satisfy consumers moving away from fossil fuels. Taking these steps to mitigate climate change risk also helps U.S. companies increase their activity overseas where they may face tightening regulations.

The Risky Business Project, a collection of top business and policy leaders aiming to prepare American companies for climate change, has estimated that an average of \$320 billion a year in private sector investment is needed to reduce GHG emissions by 80% by 2050.¹⁹ Overall this increased investment is expected to lead to job gains of over one million by 2030, with the utilities, construction, and manufacturing sectors benefitting the most. On the flip side however, it would constrain job growth in coal, oil, and natural gas exploration and production, especially in the Southern and Mountain regions of the country.

The Paris Agreement

To mitigate and adapt to the effects of climate change on a broader level, 195 countries of the COP 21 UN Climate Change Conference agreed to a new deal in 2015, laying out a plan to limit global temperature rise to below 2°C above pre-industrial levels. It is still unclear if the Trump administration will abandon the Paris Agreement or not. However, the recent executive order reeling back the Clean Power Plan makes it likely that the U.S. will fall short of its Paris pledge of a 26-28% reduction in GHG by 2025. Backtracking on the Paris Agreement would likely harm the interests of the U.S., as it would cede global leadership on climate change action to China and provide an impetus for other nations to reduce collaboration on other important issues like trade or terrorism.

Nevertheless, the Paris Agreement have served as a signal to businesses that the era of carbon reduction has arrived. Shortly after the election last year, over 1,000 businesses and investors, including Starbucks, General Mills, and HP, signed an open letter to the new president urging that the U.S. remain party to the Paris Agreement in order to give financial decision-makers clarity, boost the confidence of investors worldwide, and provide long-term direction.²⁰ In another statement, 11 major companies based or operating in the U.S., including HP, Intel, and Shell, supported the agreement “as an expression of the strong governmental leadership needed to smoothly transition to a low-carbon sustainable future.”²¹ They also acknowledged that it facilitated the private sector’s role in reducing GHG by promoting transparency, addressing competitiveness, and facilitating carbon pricing.

Implications for Banks

As the consequences of climate change become more evident, banks will face **increasing reputational risks** associated with financing projects that are considered harmful for environment. In the age of social media, financing these types of projects could rapidly escalate into bad publicity, boycotts, and protests. If the pressure is too strong, banks could end up

19: Risky Business Project. 2016. “From Risk to Return: Investing in a Clean Energy Economy” <https://goo.gl/l5EMnT>

20: “Business Backs Low-Carbon USA.” <https://goo.gl/Oo0lJB>

21: Center for Climate and Energy Solutions. 2016. “Business Statement Applauding the Paris Climate Agreement.” <https://goo.gl/kfck5>

divesting abruptly, incurring unexpected losses. A bad reputation on climate issues could alienate clients and employees, depriving banks from sources of income and talent. Hedging climate reputational risk requires a careful examination of the loan portfolio and preventive divestment from conflicting assets. Other strategies include measuring and disclosing the carbon footprint of loans, expanding the pool of green products and services, and developing a growth strategy compatible with the goals of the Paris Agreement. Because the banking industry serves virtually every sector of the economy, climate change could be the opportunity that banks have been waiting for in order to regain the trust of society lost after the financial crisis.

Banks could also be affected by **regulatory** risks derived from government policies aimed at supporting mitigation and adaptation efforts. Some of these policies include reducing subsidies for unsustainable activities, imposing carbon taxes, establishing renewable energy mandates and emission standards, implementing cap and trade mechanisms, etc. Measures like these would impact industries with a high carbon footprint and the financial institutions that serve them. Environmental regulations often differ across regions within the same country. China, for example, established a pilot cap and trade program in two provinces and five cities only, with the intention of making it national this year. In the U.S., states and cities have different environmental policies. In this country, the repealing of the Clean Power Plan and the reconsideration and approval of the Keystone pipeline creates an unpredictable regulatory environment that prevents banks from developing a long-term strategy on environmental issues.

Environmental regulatory risks also affect banks directly. As concerns on climate change become mainstream, some countries in the G20 (e. g. Brazil, India, Indonesia) have been voluntarily incorporating environmental sustainability factors into regulations on bank governance, capital and risk management as well as market disclosure. Meanwhile, monetary policy makers like the Bank of England have begun to analyze the potential impact of climate-related financial risk into their statutory objectives. Although Basel III does not explicitly cover the relationship between climate change and financial stability, it provides a flexible framework for bank regulators to assess and monitor the impact of climate-related risks to the financial sector.²²

The transition to a low carbon economy would affect the value of companies with a high carbon footprint, particularly fossil fuels. A study conducted by Carbon Tracker and the Grantham Research Institute for Climate Change and the Environment estimated that for the rise in average global temperature to remain at or below 2°C, only 20% of total fossil fuel reserves can be burnt by 2050. As a result, extractive industries face the risk of having a significant portion of their assets stranded, which would have negative consequences for their investors. Incorporating the probability of **stranded assets** into stress testing could help banks to assess and adopt measures to mitigate this type of risk.

Damages to **physical property** could lead to asset devaluations and defaults in many industries. In particular, real estate and agriculture are particularly exposed to mega-droughts, wildfires, and superstorms. Rising sea levels could significantly lower the value of coastal assets. For banks, recurrent damage to branches and corporate buildings could disrupt regular operations and increase the cost of insurance.

22: Alexander, Kern. 2016. "Greening Banking Policy" <https://goo.gl/6h24Ry>

Opportunities in Climate Change

Despite its many risks, the fight against climate change is expected to unleash investment opportunities that require vast amounts of public and private capital. According to the think tank New Climate Economy, even before considering the effects of climate change, the world economy would require \$89 trillion investments by 2030 in order to keep up with population growth and urbanization.²³ The transition to a low carbon economy implies that a substantial share of these investments would have to be reallocated to climate change mitigation and adaptation projects. Those plus estimated additional investments of \$4.1 trillion would take the entire pool of investment requirements to \$93 trillion.²⁴

The World Bank estimates that about \$700 billion will be needed annually by 2030 for infrastructure projects, clean energy, resource efficiency and green construction. Considering that the size of the global bond market is about \$100 trillion, there seems to be enough capital to finance the transition to a low carbon economy. The question then is how investors find the right signals in order to reallocate their capital into green projects.

Green bonds have become an effective alternative to finance big projects with a mid- to long-term horizon. Designed for projects that have a direct positive impact on the environment, the market for “labelled green” bonds reached an outstanding balance of \$118 billion in mid-2016²⁵, with 82% of the bonds rated investment grade. Development banks are the primary issuers; however, municipalities, corporations, and private banks have been increasing their participation.

Because of its short presence in the market, labelled green bonds are still vulnerable to “greenwashing” or the practice of claiming a bond “green” when it is not entirely so. To solve this problem, some countries and financial organizations have adopted principles and guidelines for what constitutes a green bond. None of these are generally accepted standards, but as the market for green bonds expands, efforts to improve transparency and certainty are likely to intensify.

On the other hand, there is a much bigger market for “unlabelled green bonds.” The so called climate-aligned bonds (labelled green bonds plus bonds related to some degree with environmentally friendly projects) accumulated \$694 billion in mid-2016, according to the Climate Bond Initiative. The U.S. and China are the biggest markets for these debt instruments with 16 and 36% share respectively. In the U.S., green bonds could experience momentum as an alternative to shrinking support from the federal government.

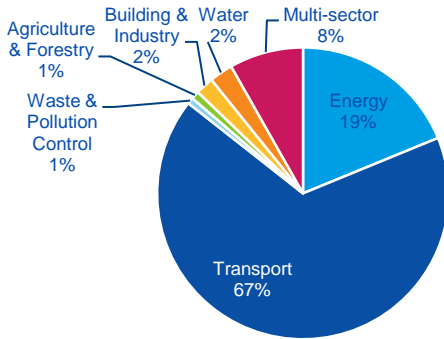
Climate-aligned bonds have multiple benefits in the transition to a low carbon economy. They help investors hedge the exposure to carbon-intensive industries, satisfy mandates for green investments and convey reputational value.

23: New Energy Economy. 2014., “Better Growth, Better Climate: The New Climate Economy Report” <https://goo.gl/vT4HS7>

24: *Ibid*

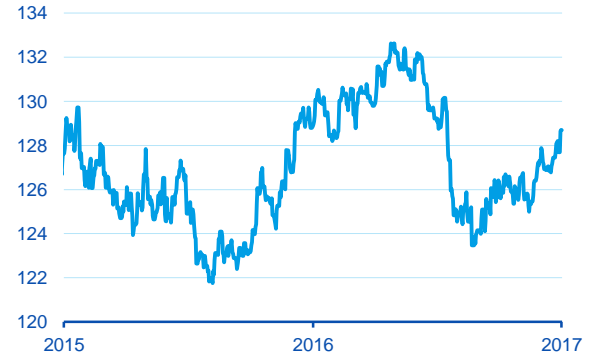
25: Climate Bonds Initiative. 2016. “Bonds and Climate Change. The State of the Market in 2016.” <https://goo.gl/6EQmqv>

Figure 6. Climate-aligned bond market by sector



Source: Climate Bonds Initiative, State of the Market 2016.

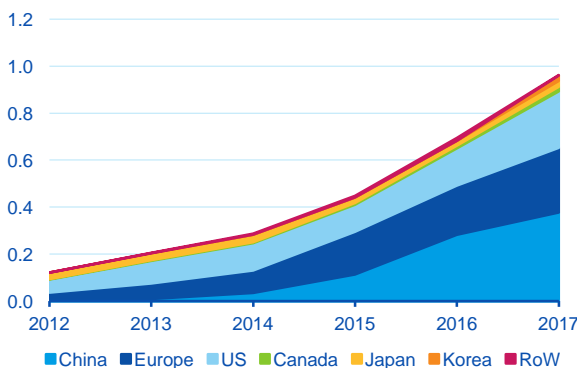
Figure 7. S&P green bond index



Source: Bloomberg

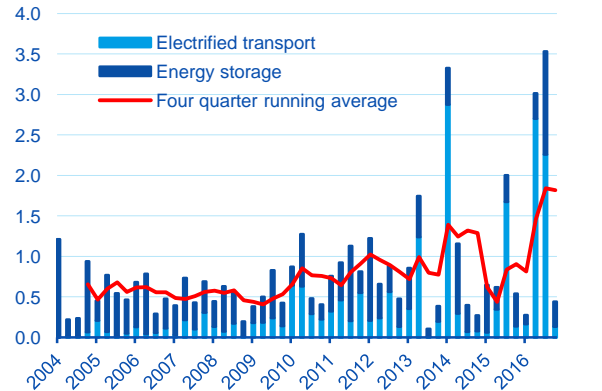
Transportation accounts for nearly one third of carbon emissions to the atmosphere, making electrification a critical element in the transition to a carbon-free economy. Globally, the electric vehicle (EV) penetration is still low (1.35% as of 4Q16), but demand has grown by 50% annually since 2014. Electric vehicles tend to be more expensive than conventional vehicles; however, they are expected to achieve price parity with internal combustion vehicles sometime in the next decade due to enhancements in battery technologies, materials, scalability, and manufacturing.²⁶ This would encourage massive adoption, benefiting automakers, battery manufacturers and their suppliers. China, Europe, and the U.S. are currently the biggest markets. Financing electric vehicles offer new possibilities to traditional auto lending like bundling (financing the car plus charging equipment and installation) and cross-selling (auto loan plus other green financial products and services). The number of public charging stations installed in major EV markets has increased tenfold since 2011 to 325,792 in 2016. As demand for electric vehicles accelerates, so does demand for public charging stations whose installation can also be financed.

Figure 8. Global EV sales, 2012-2017e (million units)



Source: Bloomberg New Energy Finance

Figure 9. Total investment in electrified transport and storage companies Q1 2009 – Q4 2016 (\$bn)

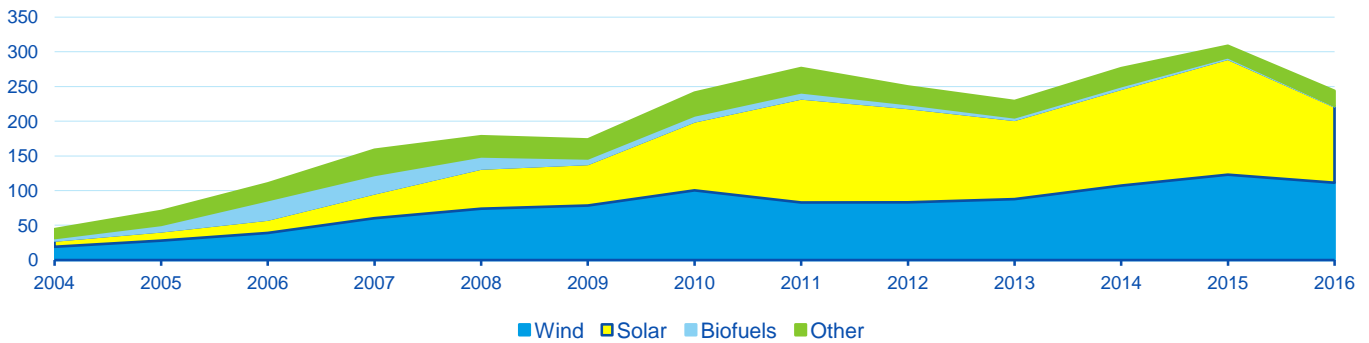


Source: Bloomberg New Energy Finance

26: Source: Bloomberg New Energy Finance

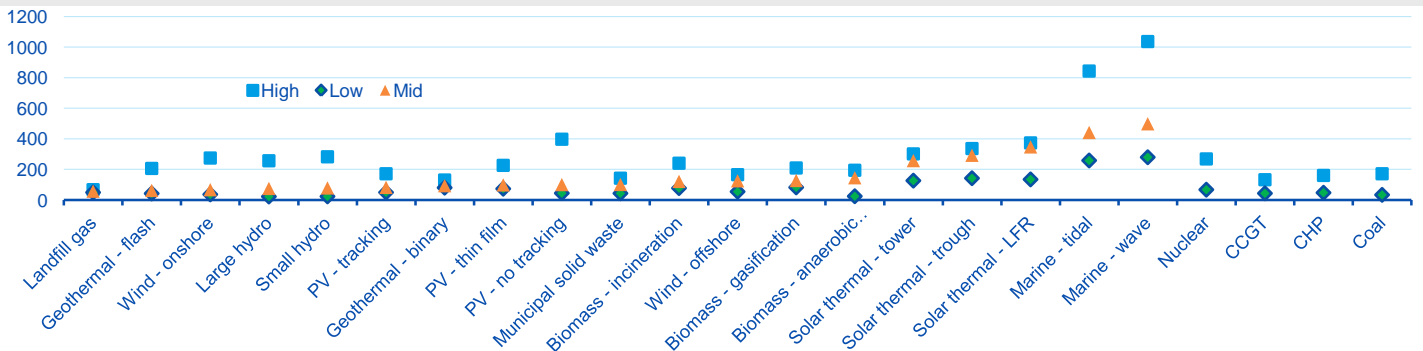
Globally, 2016 marks the second consecutive year since **renewable energy** accounted for the majority of new power capacity additions. Overall, renewable energy, excluding large-scale hydro projects, represents 11.3% of total electricity production around the globe. Between 2004 and 2010, investments in renewable energy (solar, wind, biomass and waste, small hydro, geothermal, biofuels, and marine) increased around fivefold — from \$47 billion to \$243 billion. Between 2010 and 2016, investments have averaged \$263 billion per year. By sector, \$226 billion out of the \$243 billion in investments made during 2016 went in almost equal proportion to wind and solar projects. In the same year, the U.S., China, and Europe concentrated almost two thirds of total investments devoted to renewable energy in the world. However, in the following years, an increasing number of developing countries are expected to add more power capacity from renewable energy. India, Brazil, Mexico, Chile, South Africa, Jordan, and Morocco are notorious examples of countries that are expanding the share of renewables in their energy mix. Investments in renewable energy go hand-in-hand with significant reductions in the cost of renewable energy. In many regions, the levelized cost of electricity for wind and solar is now at or below that of coal and natural gas. Hybrid projects that combine different sources of renewable energy in a single location are gaining popularity as they tend to be better at coping with the intermittency of wind and solar.

Figure 10. New investment in clean energy by sector (\$bn)



Source: Bloomberg New Energy Finance

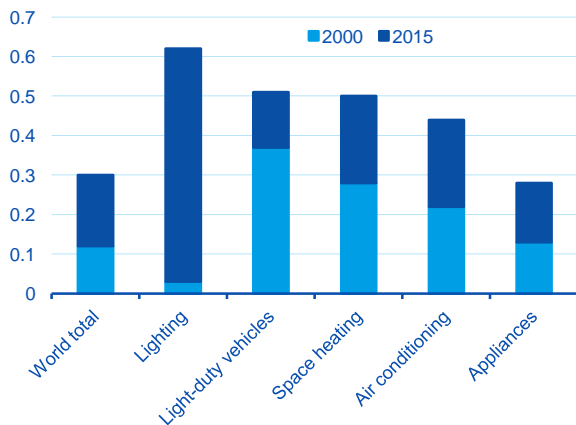
Figure 11. Global levelized cost of electricity (LCOE) H2 2016 (\$/MWh)



Source: Bloomberg New Energy Finance

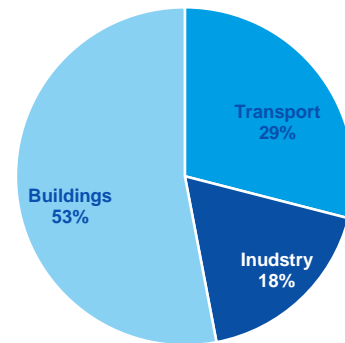
The International Energy Agency (IEA) estimates that \$221 billion investments were directed to **energy efficiency projects** in 2015, roughly equivalent to 14% of total global investments in energy supply. Lighting is an important segment of energy efficiency with investments accumulating \$65 billion in 2015. Improvements in energy efficiency depend on innovation and public policy. The market for energy efficiency tends to grow faster in places where mandates are implemented. The IEA estimated that as of 2015, only 30% of energy consumption was subject to mandatory efficiency standards, implying that there is still ample room for further growth in the energy efficiency business assuming that regulation will only get tougher over time. In particular, energy service companies (with revenues of \$24 billion in 2015) and eco-friendly commercial real estate could grow significantly in the following years.²⁷

Figure 12. Share of global energy use covered by mandatory standards by end-use



Source: International Energy Agency

Figure 13. Energy efficiency investments by sector (2015)



Source: International Energy Agency

Green Consumers. Extensive media coverage of environmental issues and the frequency of extreme weather events have increased awareness of climate change, changing consumer preferences mainly in the developed world and among the young and educated. For millions of people, the desire to ‘go green’ increases everyday. For example, it is estimated that the global market for organic and healthy foods could reach \$1 trillion by 2017. About 72% of Generation Z and 75% of Millennial consumers are willing to pay more for products and services coming from companies that have sound social and environmental practices.²⁸ However, green consumers are not homogeneous and effective market segmentation is needed in order to serve them effectively. According to Ottman (2015), green consumers can be separated into four main groups: resource conservers, health fanatics, animal lovers, and outdoor enthusiasts.²⁹ For banks, the possibilities for targeting these segments are plenty. Some examples of green (or environmentally-focused) financial products and services are: credit cards that reward green purchases either with points, cash back or by donating money to selected nonprofit organizations; green mortgages or HELOCs that allow borrowers to finance energy-efficiency improvements; clean auto loans with preferential rates for hybrids and electric vehicles; and insured eco-deposits used to finance projects

27: Energy Information Administration. 2016. “Energy Efficiency Market Report.” <https://goo.gl/343r11>

28: Nielsen. 2015. “Green Generation: Millennials Say Sustainability is a Shopping Priority.” <https://goo.gl/Kdljsh>

29: Ottman, Jacqueline 2010. “A Smart Way to Segment Green Consumers.” Harvard Business Review. <https://goo.gl/ONX1AQ>

that reduce waste and pollution. Most of these products are already offered by financial institutions in Europe, Australia, and North America.³⁰

Table 1. Green consumer segments

Categories	Characteristics
Resource Conservers	Dislike waste and favor recycling, look for energy-efficient products.
Health Fanatics	Concern about the impact of certain products on their health. Consumers of organic and environmentally friendly products
Animal Lovers	Worried about ethical treatment of animals. The group includes vegetarians and vegans.
Outdoor Enthusiasts	Seek to reduce the impact of their recreational activities on nature.

Source: Ottman, Jacqueline 2010. "A Smart Way to Segment Green Consumers." Harvard Business Review. <https://goo.gl/ONX1AQ>

Bottom Line

A transition to a low carbon economy is taking place, bringing risks and opportunities to the banking industry. The question is how quickly and efficiently banks will be able to incorporate climate change into their core strategies. Financing the green economy is not only lucrative but ethical. By allocating capital to profitable green projects, banks can contribute to mitigate and better adapt to the effects of climate change. Already, major financial institutions have committed to improve the conditions for a "green" financial market. With the right strategy, banks could benefit greatly from higher demand for sustainable consumer goods, renewable energy, alternative fuel vehicles, and energy efficiency.

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30: North American Task Force of the United Nations Environment Programme Finance Initiative. 2007. "Green Financial Products and Services. Current Trends and Future Opportunities in North America." <https://goo.gl/M8jYWi>