

# Responsible Growth and a Low-Carbon Economy

Bank of America's Task Force on Climate-related Financial Disclosures  
(TCFD) Report

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## **Important Information About This Report**

For purposes of this report, we use the Task Force on Climate-related Financial Disclosures risk framework, which differs from our approach to the disclosure of risks in our filings with the Securities and Exchange Commission (SEC). This report includes certain information about Bank of America and describes potential future events, which may be significant, but any significance should not be read as necessarily rising to the level of materiality or disclosure in our SEC filings.

## **Forward-looking Statements**

Certain statements in this report may contain “forward-looking statements.” These statements speak only as of the date they are made and may represent Bank of America’s current expectations, plans or forecasts of its future results, revenues, expenses, capital measures, strategy and future business and economic conditions more generally, and other future matters and occurrences. These statements are not guarantees of future results or performance and involve certain known and unknown risks, uncertainties and assumptions that are difficult to predict and are often beyond our control. Actual outcomes and results may differ materially from those expressed in, or implied by, any of these forward-looking statements. You should not place undue reliance on any forward-looking statement. Factors that could cause Bank of America’s actual results to differ materially from those described in the forward-looking statements can be found in its Annual Report on Form 10-K for the year ended December 31, 2019, and in subsequent reports filed with the SEC. Additionally, this report contains statements based on hypothetical or severely adverse scenarios and assumptions. These statements should not necessarily be viewed as being representative of current or actual risk or forecasts of expected risk.



## Letter from Anne Finucane

The opportunity and need for companies and investors to show leadership on climate change is more eminent than ever before. The impacts of climate change are growing in both severity and frequency, and it will take action from all sectors to address this challenge.

At Bank of America, our focus on responsible growth enables us to serve clients, deliver attractive returns for our shareholders and address some of society's greatest challenges. We have long recognized the importance of addressing climate change, partnering closely with clients and dedicating significant intellectual and financial capital to advance low-carbon solutions. In alignment with more than 190 countries, we support the Paris Climate Agreement and its efforts to limit global temperatures from rising more than 2°C above pre-industrial levels and to aim to limit the increase to 1.5°C.

We also understand climate change presents risks to the business community, and it is important for companies to articulate how these risks are being managed. Bank of America was a founding member of CDP (formerly Carbon Disclosure Project) and has reported under that framework annually since its inception.

However, as our collective understanding of climate-related risk has evolved, so have disclosure standards. That is why we were an early supporter of the Task Force on Climate-related Financial Disclosures (TCFD). We are committed to transparency and stand behind the TCFD's efforts to develop a consistent mechanism for companies to provide information regarding their climate-related financial risks.

The scope and range of potential impacts from climate change require close attention by all companies, ensuring that climate-related risks are properly identified, managed and disclosed to stakeholders. This report is an evolution of our previous climate-related risk disclosures, such as in our annual reports, ESG Performance Data Summaries or CDP submissions, and we welcome the opportunity to share more comprehensive information regarding our approach to climate-related risks using the TCFD guidance.

Thank you,

Anne Finucane  
Vice Chairman, Bank of America

## Introduction

Climate change is no longer a far off risk but rather a global concern with impacts that are already beginning to unfold, including increased frequency and severity of extreme weather conditions, melting glaciers, loss of sea ice, accelerated sea level rise and longer, more intense heat waves and droughts. All of society – individuals, corporations, governments, nonprofits and others – will need to cooperate and respond to manage exposures to climate-related risk.

The Task Force on Climate-related Financial Disclosures (TCFD) was launched by the Financial Stability Board in December 2015 with an aim to use financial risk disclosures as a means to inform investors and other stakeholders about the risks companies face related to climate change and how those risks are being managed. The TCFD was developed as the world was commencing negotiations that would lead to the landmark Paris Climate Agreement that saw nearly 190 countries commit to pursue efforts to keep the increase in global average temperature this century to well below 2°C above pre-industrial levels and to aim to limit the increase to 1.5°C. Bringing a climate focus to the private sector, the TCFD issued recommendations for companies to identify and disclose the potential financial impacts of climate-related risks and opportunities on their businesses. TCFD disclosure is meant to help lenders, insurers and investors better assess and price those risks and opportunities.

Governments and markets are beginning to respond to climate change with greater urgency. As one of the world's largest financial institutions, we are committed to ensuring that climate-related risks and opportunities are properly managed within our business and that we are working with governments and markets to accelerate the changes required. We will continue to evaluate the impact of climate change on our business and financial results, and as we better understand how to measure and model climate-related risks and their potential significance, we will disclose as appropriate.

As seen in Figure 1, for over a decade, Bank of America has been reporting on climate-related risks and our own environmental footprint through our annual [Environmental, Social and Governance \(ESG\) Report](#), our [CDP submissions](#), and our [Environmental and Social Risk Policy \(ESRP\) Framework](#), among other disclosures.

**Figure 1: Bank of America Past Publication of Climate Disclosures<sup>1</sup>**

Bank of America Climate-related Risk Disclosures		
2003	2004	2007
Founding Member and signatory of <b>CDP</b> , reporting since inception 	First <b>GRI framework report</b> published 	First disclosure of <b>ESG information</b> in annual report 
2016	2019	2019
<b>Environmental and Social Risk Policy Framework</b> released 	Ninth year on <b>CDP Climate Change A list</b> 	Published updated <b>Environmental and Social Risk Policy Framework</b> and tenth annual <b>ESG Report</b> 

<sup>1</sup> Merrill Lynch began reporting to CDP in 2003; we began reporting as a combined company in 2009.

We make these disclosures because we believe it is important that stakeholders — including clients, employees, investors and others — understand how we manage risk and have better insight into the long-term value of the bank. The landscape of climate-related risk disclosures has evolved over the last two decades—from the Global Reporting Initiative (GRI) and CDP frameworks to recent efforts like the Sustainability Accounting Standards Boards (SASB), supervisory expectations from the Prudential Regulatory Authority (PRA) in the United Kingdom, and the recently introduced consultation paper on common metrics and reporting of sustainable value creation from the International Business Council. In October 2019, Merrill Lynch International (MLI) and Bank of America NA (BANA) London submitted our first response under the PRA Supervisory Statement on financial risks of climate change. We plan to issue our first SASB report in 2020.

The TCFD recommendations intend to bring the common elements of these disclosure frameworks together to ensure clear, consistent reporting on climate-related risk. The core elements include Strategy and Scenario Planning, Risk Management, Governance, and Metrics and Targets.

What follows is our approach to climate-related risk using the framework articulated by the TCFD.

## Strategy and Scenario Planning

Centered on extensive engagement and partnership with internal and external parties, Bank of America has developed a three-pronged approach to our climate strategy, which is part of our overall focus on responsible growth:

- Assessing and managing climate-related risks;
- Supporting and accelerating our clients' low-carbon transition; and
- Minimizing our direct impact on the climate.

### **Assessing and managing climate-related risks**

Climate-related risks are divided into two major categories: (1) risks related to the transition to a lower-carbon economy, which may entail extensive policy, legal, technology and market changes, and (2) risks related to the physical impacts of climate change, driven by extreme weather events, such as hurricanes and floods, as well as chronic longer-term shifts, such as temperature increases and sea level rise<sup>2</sup>. These changes and events can have broad impacts to operations, supply chains, distribution networks, customers, and markets and are otherwise referred to as transition risk and physical risk.

To understand how climate-related impacts could affect us and our clients we have evaluated various scenarios, including those associated with a 2, 3 or 4°C rise in global temperatures. Our evaluations draw from the leading assessments in the scientific community, as well as BofA Global Research, on how global temperature rises will drive a range of economic, physical and ecological changes by the end of this century.

According to the U.S. Fourth National Climate Assessment<sup>3</sup>, a scenario in which temperatures increase by roughly 2.5°C by 2090 could result in U.S. based economic losses of \$280 billion a year, while warming closer to 5°C over the same period would result in annual economic losses of over half a trillion

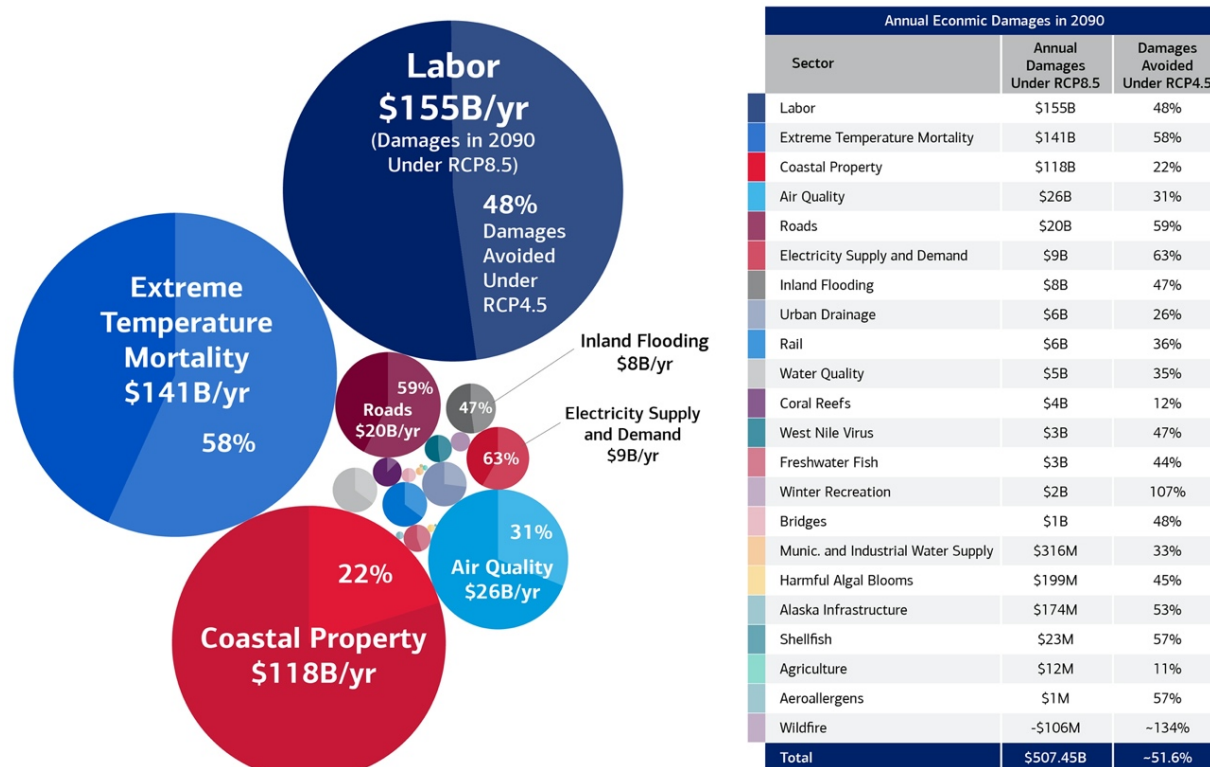
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<sup>2</sup> <https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf>

<sup>3</sup> See page 1349 of the Assessment; positive effect from wildfire driven by projected shifts in vegetation that reduce frequency of wildfire. Source: US Global Change Research Program - Department of Defense, EPA, NASA.

dollars. The circles in Figure 2 represent projected annual economic damages in 2090 in the U.S. by sector in 2015 dollars assuming a 5°C temperature rise (RCP<sup>4</sup>8.5/5°C) scenario; lighter areas signify damages avoided under a 2.5°C (RCP4.5/2.5°C) scenario indicating the significant economic expense that can be prevented by limiting the temperature rise.

**Figure 2: Projected Damages and Potential for Risk Reduction by Sector Under 5°C and 2.5°C Scenarios**



In addition, [a paper](#) published by the University of Cambridge in 2019 looked at the global economic impacts of a 4°C increase and found that virtually all countries would suffer economically with the loss of at least 7 percent of global GDP by the end of this century.

Beyond just economic losses, we expect climate change to increasingly be experienced through its societal impacts. Heat related illnesses and deaths increase as temperatures rise, our food supply and water supply decreases, and as the acute physical risks drive individuals out of their current environments the likely result is that more people are competing for the same limited resources, increasing social, geopolitical and economic tensions. The effects of rising sea levels, storms and flooding, crop yield, extreme heat and drought, as well as impacts on general human health, are outlined in papers such as the Intergovernmental Panel on Climate Change's (IPCC) [Fifth Assessment Report](#), which provide us with the best scientific consensus at the time of this report. We also benefit from more-focused reports such as the IPCC's [Global Warming of 1.5°C](#) or [CarbonBrief's analysis](#) of climate impacts from temperature increases ranging from 2 to 4.5°C.

<sup>4</sup> RCP stands for Representative Concentration Pathway based on greenhouse gas concentration in the atmosphere; RCP4.5 scenario equates to ~2.5°C temperature rise while RCP 8.5 scenario equates to ~5°C temperature rise.

These data rich sources enable Bank of America to expand our understanding of what climate change could potentially mean for our future business and inform how we approach the management of climate-related risks.

### ***Transition risk***

To analyze how transition risk could impact our clients, we tested two hypothetical event-based scenarios, one policy-based and one market-based, to see how each could impact companies in one of the sectors most exposed to climate-related risks – oil and gas (see Figure 8 in Risk Management section for other sectors exposed to climate-related risks). Bank of America worked with peer institutions in the financial services sector and in collaboration with the management consultancy Oliver Wyman, to examine this transition risk with the intent to better understand the sensitivity of the creditworthiness of oil and gas companies to policies and market changes linked to the transition to a low-carbon economy.

The analysis was run under two different potential scenarios, both compatible with a 2°C or lower pathway<sup>5</sup>, on a sample of our oil and gas portfolio:

- The policy implementation of an economy-wide carbon tax<sup>6</sup>
- The market's sudden widespread adoption of electric vehicles (EVs)

The carbon tax scenario assumed that a global carbon tax of \$50 and \$100 per metric ton of carbon dioxide was adopted over a three-year period, was non-additive (e.g., existing carbon taxes increased to a single global rate), and applied to upstream producers who then passed on part of the additional costs to customers. The scenario also assumed that as a result of the carbon tax, production decreased resulting in a supply curve shift.

The electric vehicle scenario assumed a widespread increase in EV sales over a three year period with 20% of new vehicle sales being EVs versus ~2% for 2019.<sup>7</sup> A 15-year turnover rate was applied to existing vehicles and the scenario assumed 30% of additional electricity (generated by gas) would be required to support the increase in EVs.

Oliver Wyman created a tool to identify and assess key drivers of operating economics such as volume, cost, price, and capital expenditures, then looked at how each could be impacted by the scenario and further result in impact to the borrower's financial statements based on scenario adjustments.

This tool was useful in informing us of how oil and gas companies may be impacted differently based on the policy or market change and their business mix. Depending on the company, the carbon tax may negatively impact operating economics, which could lead to a weaker credit profile. However, the EV scenario indicated a longer timetable (beyond three years) for any potential material impact on the credit profiles of oil and gas companies.

We learned that to fully analyze the impact of a carbon tax or any other policy change, it is necessary to assess a particular counterparty's operating economics and supply and demand implications. Figure 3

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<sup>5</sup> According to the [IMF Fiscal Monitor report from October 2019](#), a global carbon tax of \$75 per metric ton by the year 2030 could limit the planet's warming to 2°C. Our analysis was conducted before the IMF report and assumed the policy implementation was immediate, well in advance of 2030.

<sup>6</sup> A carbon tax is a fee the government imposes on any company that burns fossil fuels.

<sup>7</sup> Source: Edison Electric Institute.

[https://www.eei.org/issuesandpolicy/electrictransportation/Documents/FINAL\\_EV\\_Sales\\_Update\\_Oct2019.pdf](https://www.eei.org/issuesandpolicy/electrictransportation/Documents/FINAL_EV_Sales_Update_Oct2019.pdf)

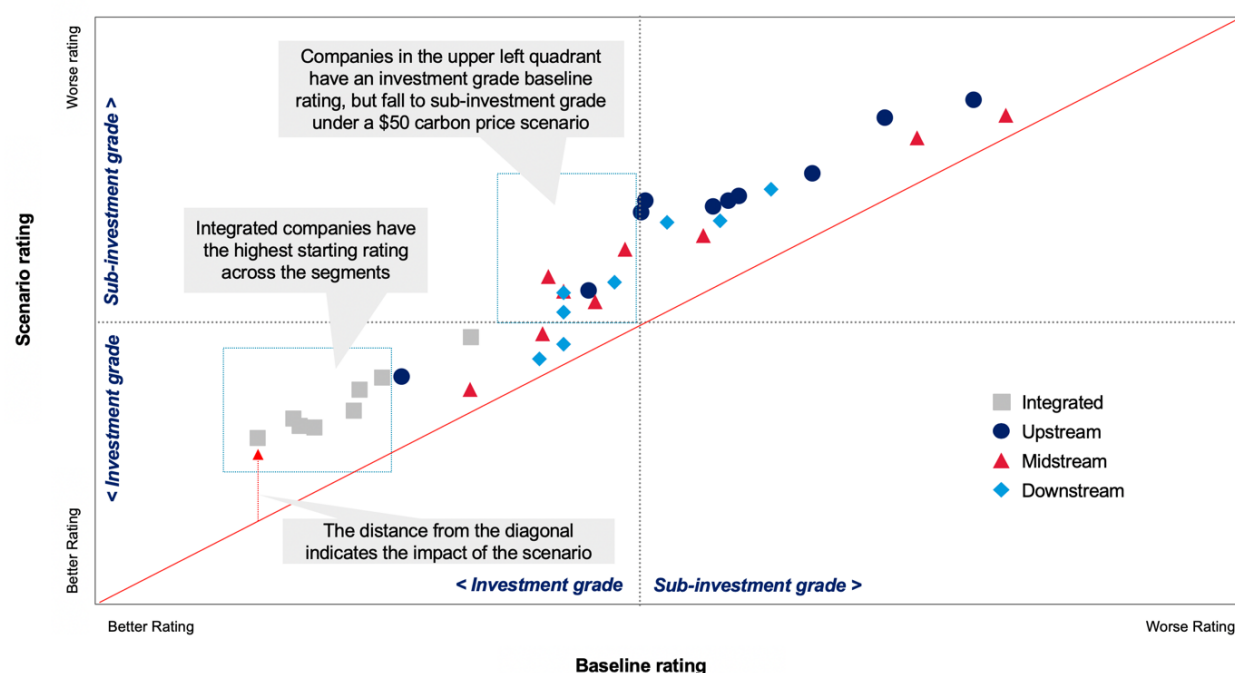
illustrates the wide variation in how the creditworthiness of oil and gas companies may be affected by a \$50 carbon tax scenario. The distance from the red line indicates the impact of the scenario on each company, highlighting that for some companies there was little impact while for others it was more significant. Any impact to Bank of America would depend on the amount of credit exposure we have to a company that could be significantly negatively impacted. As we improve the efficacy of transition scenario analysis, it will become one of the array of tools used to continuously monitor the ability of a borrower or counterparty to perform under its obligations.

**Figure 3: Climate Transition Scenario Potential Impact on Ratings**

Source: Oliver Wyman

**Scenario vs. original rating**

USD 50 carbon price per mt CO<sub>2</sub>; 2020



There are many challenges in developing scenarios that look far out into the future. The long-term timeline of climate forecasting makes it difficult to properly inform analyses with confidence. As illustrated in Figure 2, outside of the financial services sector, industries across the economy each have their own unique vulnerabilities to climate-related risks, which necessitates a closer look at how risks may manifest in those particular areas. For example, assessing company-specific carbon footprints is necessary, though still not sufficient, to adequately evaluate transition risk. These are challenges that we are examining and working through as we move forward, being mindful of the fact that sector risk will continue to evolve with new legislation, technologies, market changes and other dynamics.

We will continue to develop the processes by which we measure and understand transition risk and disclose as appropriate in alignment with TCFD guidance, industry best practice and evolving regulatory requirements. Particular areas of focus for further development over the next two years include integrating ESG metrics into our credit risk management practices, re-evaluating our industry underwriting guidelines and exploring the impacts of transition to a low-carbon economy through portfolio stress testing. See the Risk Management section for details on industry sectors we will be prioritizing.



## Physical risk

To understand how physical risks may impact Bank of America, we engaged the climate risk team at Willis Towers Watson on a pilot project to assess the potential exposure of select residential mortgage portfolios.

Willis Towers Watson completed a preliminary acute physical risk analysis on a sample portfolio of Bank of America residential mortgages across the U.S. Each property was given a score based on the level of risk associated with 12 potential hazards: tornado, earthquake, tropical cyclone, hailstorm, wildfire, river flood, flash flood, coastal flood, lightning, tsunami, volcano, and winter storm. The score is an attempt to have a single scale of severity across hazards. Heatmaps of the outstanding mortgage balances exposed to the most relevant hazards for acute physical climate risk are shown in Figure 4. With increased frequency and severity of extreme weather events likely over time, these heatmaps serve as a baseline assessment of our potential risk exposure.

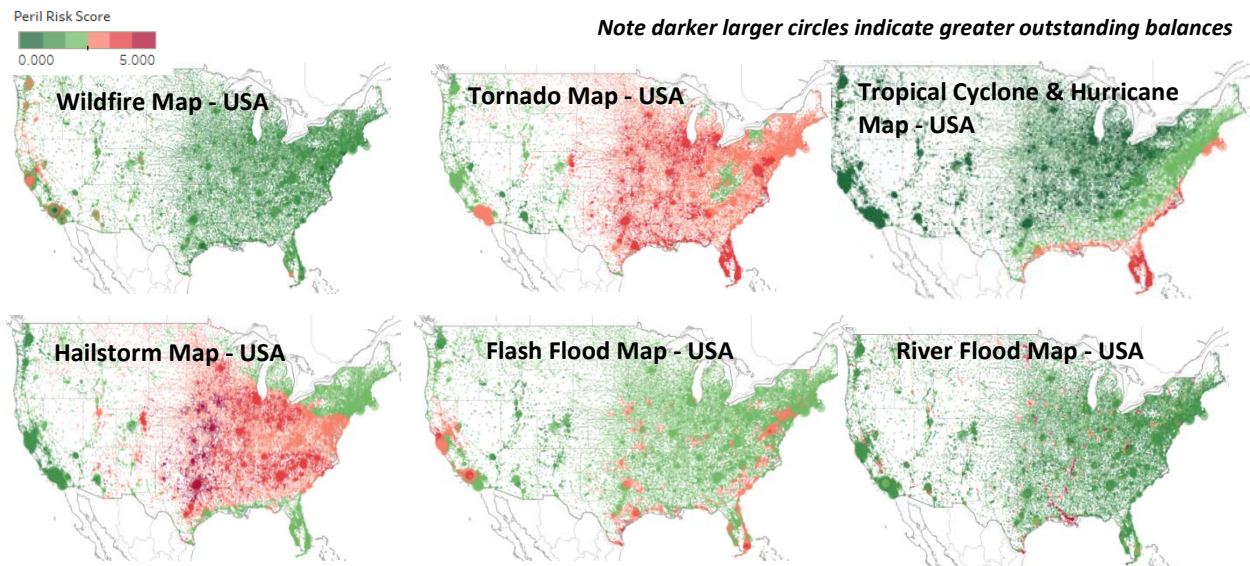
Our credit risk is partially mitigated by insurance and borrower equity, both of which insulate the bank from potential losses and have historically resulted in de minimis losses for extreme weather events. As climate events are more widely felt, we continue to assess risk mitigation factors. This analysis builds upon our existing risk identification process, which includes climate-related risks, as well as our disaster response systems, both of which factor into the severity and potential impact of events.

**Figure 4: Sample of Climate Risk Peril Maps Based on Willis Towers Watson Risk Scores**

Perils	Scoring Criteria	High Risk (4s and 5s)
Wildfire	Based on data of climatic conditions such as rainfall, dry spells and vegetation that has been linked with historical data on wildfires.	High Frequency and Severity
Tornado	Relative frequency and intensity. The zones are based on meteorological data and historical events.	High Frequency and Severity
Tropical Cyclone & Hurricane	Maximum wind speed which is expected with 10% probability in 10 years.	Wind Speed >155 miles per hour
Hailstorms	Frequency and severity. Presence and strength of factors such as evaporation, temperature and topography.	High Frequency & Severity
Flash Flood	Frequency and intensity of flash floods and includes variability and extreme behavior of rainfall, flow accumulation and soil types.	High Frequency and Intensity
River Flood	Frequency of flooding.	High Frequency

Score	Hazard Ranking	Description
0	No Hazard / No Data	No Hazard / No Data
1	Very Low	Low Frequency and/or with low damage potential
2	Low	Could happen but with low damage potential and/or minimal to no disruption
3	Medium	Occurs often with low damage potential or occasionally with medium damage potential
4	High	Occurs often and/or causes significant damage and disruption
5	Very High	Occurs frequently and/or causes significant damage and disruption

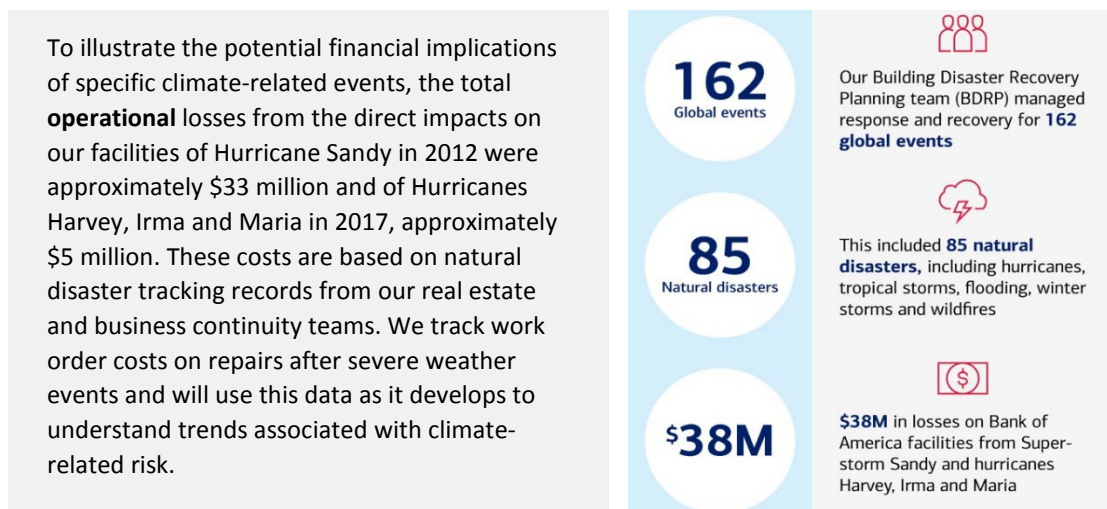


We recognize that while chronic physical risk is difficult to assess, model and quantify, the impacts are potentially significant, vast and varied across geographies. Further, the impacts intensify with every degree of rising temperatures.

As with transition risk, we are continuing to develop our methodologies to measure physical risk — especially the timing and magnitude of climate-related impacts, which are highly uncertain and dependent on the level of mitigating actions implemented.

While to date we have not experienced material losses from climate change, we are aware of its increasing impacts. Therefore, we are working with partners, such as risk and climate resilience experts, public and multilateral financial institutions, and others to continue exploring different perspectives on how the TCFD's physical risk scenario recommendations can be maximized for enhanced risk management.

**Figure 5: Sample of Bank of America Climate-Related Operational Losses<sup>8</sup>**



<sup>8</sup> Source: [2018 CDP Report](#). According to Wikipedia, Hurricane Sandy was the deadliest and most destructive hurricane of the 2012 Atlantic hurricane season. Inflicting nearly \$70 billion in damage, it was the second costliest hurricane on record in the U.S. until surpassed by Hurricanes Harvey and Maria in 2017.

## **Stress testing**

The conclusions from our transition and physical risk analyses are intended to assist in informing future strategic decisions regarding financial exposure to climate-related risks and accordingly, how related analytical tools (such as scenario analysis and information on extreme weather events) may be embedded within business planning and decision-making processes. For instance, given the need to assess transition risk at the individual counterparty level, we are incorporating an evaluation of transition risk into underwriting and credit risk management practices. In light of the physical risk analysis, we incorporated a physical risk scenario into our 2020 stress testing processes, assuming two Category 5 hurricanes struck the Miami-Dade area within two weeks of each other. We are evaluating results of that stress test in accordance with our risk management framework.

Additionally, we continue to evaluate different scenarios to help ensure that we effectively manage climate-related risk. For example, we expect to pilot an enterprise-wide climate change scenario in our stress testing process in 2020, looking at both physical and transition risk, to further inform our strategy.

## **Supporting and accelerating our clients' low-carbon transition**

According to the IPCC, the transition to a sustainable, low-carbon economy will require substantial investment from the public and private sectors if we are to meet the international climate goals articulated in the Paris Climate Agreement<sup>9</sup>. A critical part of our strategy is strong engagement and partnership with clients in fossil fuel or emissions intensive sectors such as energy and power utilities. Through this active client engagement, we share our expertise and perspectives on corporate and financial strategies to help reduce emissions, create positive and constructive dialogues with key stakeholders, and encourage and influence clients to consider their role in the low-carbon transition. In addition, we are actively focused on identifying and supporting new, emerging growth sectors and companies whose products and services will be critical to a sustainable, low-carbon economy.

As we outline in our ESRP Framework, we are focused on supporting and financing areas that are critical to the transition from a high-carbon to a low-carbon society, including:

- Energy efficient design and retrofitting of buildings; in particular, deep retrofits required to meet climate goals;
- Decarbonization of the power sector, including the enhancement and expansion of renewable energy, battery storage, advanced nuclear, and carbon capture and storage/use technologies;
- Electrification and low-carbon fuels for industry, transport and building heating;
- Sustainable agriculture and reforestation; and
- New technologies, products and services as they evolve.

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<sup>9</sup> According to the IPCC's 2018 report "[Global Warming of 1.5](#)", limiting global temperature rises from surpassing 1.5°C will require a global investment in clean energy and infrastructure of \$1.6 trillion to \$3.8 trillion a year (in 2010 U.S. dollars), with an average of about \$3 trillion to \$3.5 trillion a year from 2016 to 2050.

In April 2019<sup>10</sup>, as part of our focus on sustainable finance, we announced that we will mobilize an additional \$300 billion to low-carbon, sustainable business<sup>11</sup> by 2030, bringing our total commitment to \$445 billion since 2007 when we first launched our Environmental Business Initiative with a \$20 billion, 10-year commitment. We met that commitment in 2012 and launched our second commitment of \$125 billion in 2013, a goal we achieved in 2019. Through lending, investing, capital raising, advisory services and developing financing solutions, we are helping to accelerate the transition to a low-carbon, sustainable economy.

We are also undertaking an assessment over the next year of methodologies for measuring greenhouse gas emissions associated with our financing activities to inform the feasibility of aligning such activities with the Paris goals and reduce risk to our business.

### ***Sustainable markets committee***

We are working to mobilize capital (“sustainable finance”) to address the United Nations’ Sustainable Development Goals (SDGs). The SDGs represent 17 categories of societal priorities that provide a framework for governments, the private sector, foundations and others to prioritize resources and policies toward goals we all share: prosperity, equality, human rights, and a sustainable, clean energy future. To accelerate our progress, identify new opportunities, and build upon our work in sustainable finance, we established a Sustainable Markets Committee in 2020, co-chaired by our Chief Operating Officer and Vice Chairman, who also continues to chair our Global Environmental, Social and Governance Committee (see Governance section for additional details).

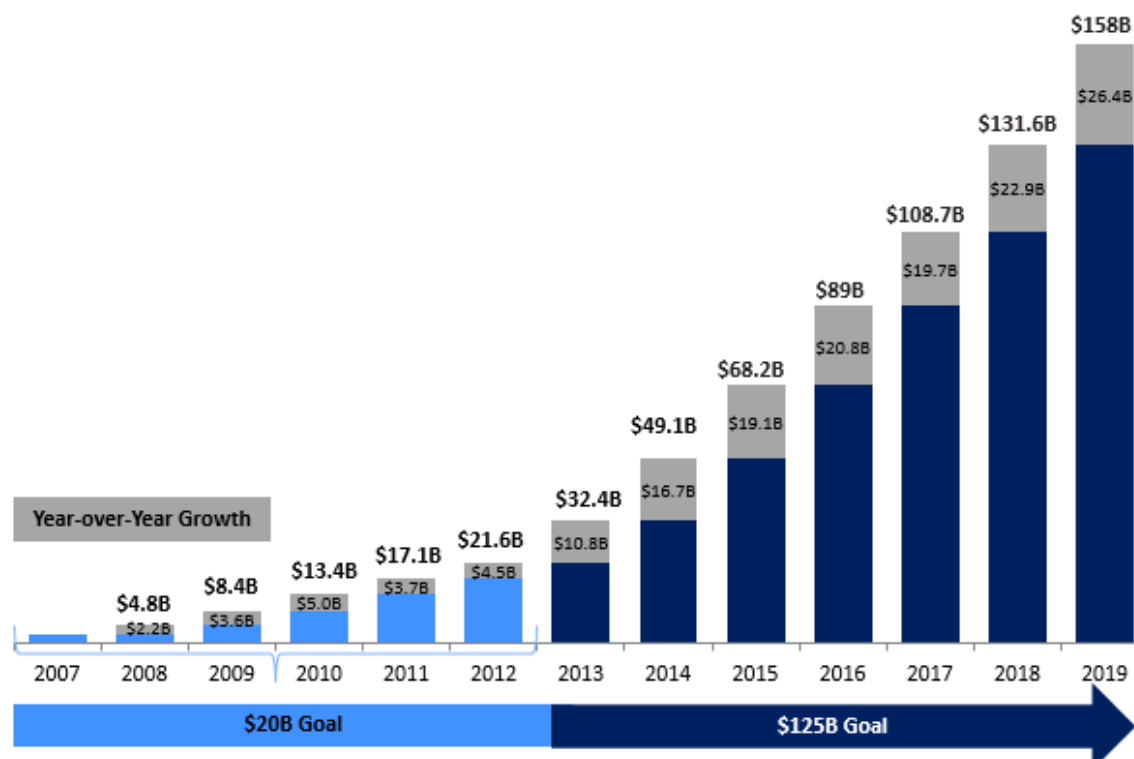
The principal objective of the Sustainable Markets Committee is to create consistent perspective and focus across all of our sustainable finance activities, from policy and research to the deployment of capital and investment products. In addition, the committee will oversee our work to further develop products, capabilities, and services in support of our clients as we work together to address the transition to a low-carbon economy.

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<sup>10</sup> Source: Bank of America Newsroom - <https://newsroom.bankofamerica.com/press-releases/environment/bank-america-commits-300-billion-2030-low-carbon-sustainable-business>

<sup>11</sup> Through the initiative, we are focused on providing capital to develop solutions to climate change (e.g., energy efficiency, renewable energy, transportation) and meet environmental challenges (i.e., water conservation, land use, waste).

**Figure 6: Growth in Sustainable Finance as Part of our Environmental Business Initiative<sup>12</sup>**



### Minimizing our direct impact on the climate

We are increasingly incorporating climate change considerations into our resilience and operational scenario planning. These efforts help us continue to properly manage climate-related risks for our operations, as well as our many stakeholders.

This is demonstrated by our operational goals that include attaining carbon neutrality and sourcing 100% renewable electricity, as described in the Metrics and Targets section.

As a member of both RE100 and its companion program EV100,<sup>13</sup> Bank of America is extending our efforts to accelerate the transition to a low-carbon economy and support innovation that can help us rethink how we use energy and transportation today. Currently, we have more than 100 EV charging ports installed at office locations for employee use; over 50,000 bank employees work at buildings with EV charging stations,<sup>14</sup> with more installations planned in 2020. Bank of America also provides a reimbursement to employees who choose to purchase or lease an approved EV. We are partnering with Electrify America, a leader in ultra-fast charging for EVs, to install electric vehicle charging stations at select financial center

<sup>12</sup> See Page 28 of Bank of America's 2019 Annual Report.

<sup>13</sup> RE100 is a global corporate leadership initiative of [The Climate Group](https://www.theclimategroup.org/) in partnership with [CDP](https://www.cdp.net/) and aimed at bringing together [influential businesses](https://www.theclimategroup.org/) committed to 100% renewable electricity. EV100 is also a global initiative of [The Climate Group](https://www.theclimategroup.org/) that brings together forward-looking companies committed to accelerating the transition to electric vehicles (EVs), to make electric transport 'the new normal' by 2030.

<sup>14</sup> Source: 2019 Annual EV100 reporting; 52,255 associates worked at buildings with EV chargers.

[https://www.theclimategroup.org/sites/default/files/ev100\\_annual\\_report\\_pdf.pdf](https://www.theclimategroup.org/sites/default/files/ev100_annual_report_pdf.pdf);

[http://www3.weforum.org/docs/WEF\\_Corporate\\_Mobility\\_Transport\\_Challenge\\_Report.pdf](http://www3.weforum.org/docs/WEF_Corporate_Mobility_Transport_Challenge_Report.pdf)

locations across the U.S. Approximately 40 EV charging stations with a total of 140 EV chargers will be available for use by the end of 2020 at certain locations in California, Georgia, Florida, Illinois, Oregon, Washington, Virginia, and Massachusetts.<sup>15</sup>

In summary, by focusing our strategy on assessing and managing climate-related risks, supporting clients in their low-carbon transition, and minimizing our direct impact on the climate, we are actively addressing climate-related risk and its impacts on our business. As we build on our understanding and analysis of these risks, we will adapt our strategy as necessary to continue to effectively mitigate and manage these risks.

## Risk Management

At Bank of America, a culture of managing risk well is fundamental to our values and our purpose, and how we drive responsible growth. It requires all employees to focus on risk in all activities and encourages the necessary mindset and behavior to enable effective risk management and promote sound risk taking within our risk appetite. This approach is reinforced in our Code of Conduct.

First published in 2016, we established our Environmental and Social Risk Policy (ESRP) Framework to provide additional clarity and transparency around how we approach environmental and social risks, which touch almost every aspect of our business. Like all risks, effective management of environmental and social risks requires coordinated governance, clearly defined roles and responsibilities, and well-developed processes to identify, measure, monitor and control risks appropriately and in a timely manner.

The ESRP Framework is aligned with our enterprise Risk Framework, which serves as the foundation for consistent and effective management of risks facing Bank of America. The enterprise Risk Framework sets forth roles and responsibilities for the management of risk, provides a blueprint for how the Board of Directors, through delegation of authority to committees and executive officers, establish risk appetite and associated limits and describes the seven key types of risk we face: credit, market, liquidity, compliance, operational, strategic and reputational risk. Increasingly, environmental and social issues, including climate change, impact many of these.

Figure 7 illustrates examples of our seven risk types as they relate to the TCFD categories of transition and physical risk. We continue to assess these risks that could result from climate change.

### ***Financial risks of climate change steering council***

We have formed a global, cross-functional group known as the Financial Risks of Climate Change (FRCC) Steering Council to oversee our climate risk management practices and shape our approach to managing climate-related risks in line with our enterprise Risk Framework. This Steering Council, which includes senior leaders from the Global Risk Management, ESG, Corporate Treasury, and Chief Administrative Office functions, meets monthly. We have also established an FRCC Forum comprised of teammates representing risk management across all seven of our risk types, as well as Treasury, Global Research and ESG. The mandate of the FRCC Forum is to review climate science research, assess risk exposure, and develop and implement our roadmap to improve climate-related risk management practices. The FRCC Forum meets bi-weekly.

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<sup>15</sup> <https://newsroom.bankofamerica.com/press-releases/environment/electrify-america-install-ev-charging-stations-bank-america-financial>



**Figure 7: Examples of Climate-Related Risks in Relation to Risk Type**

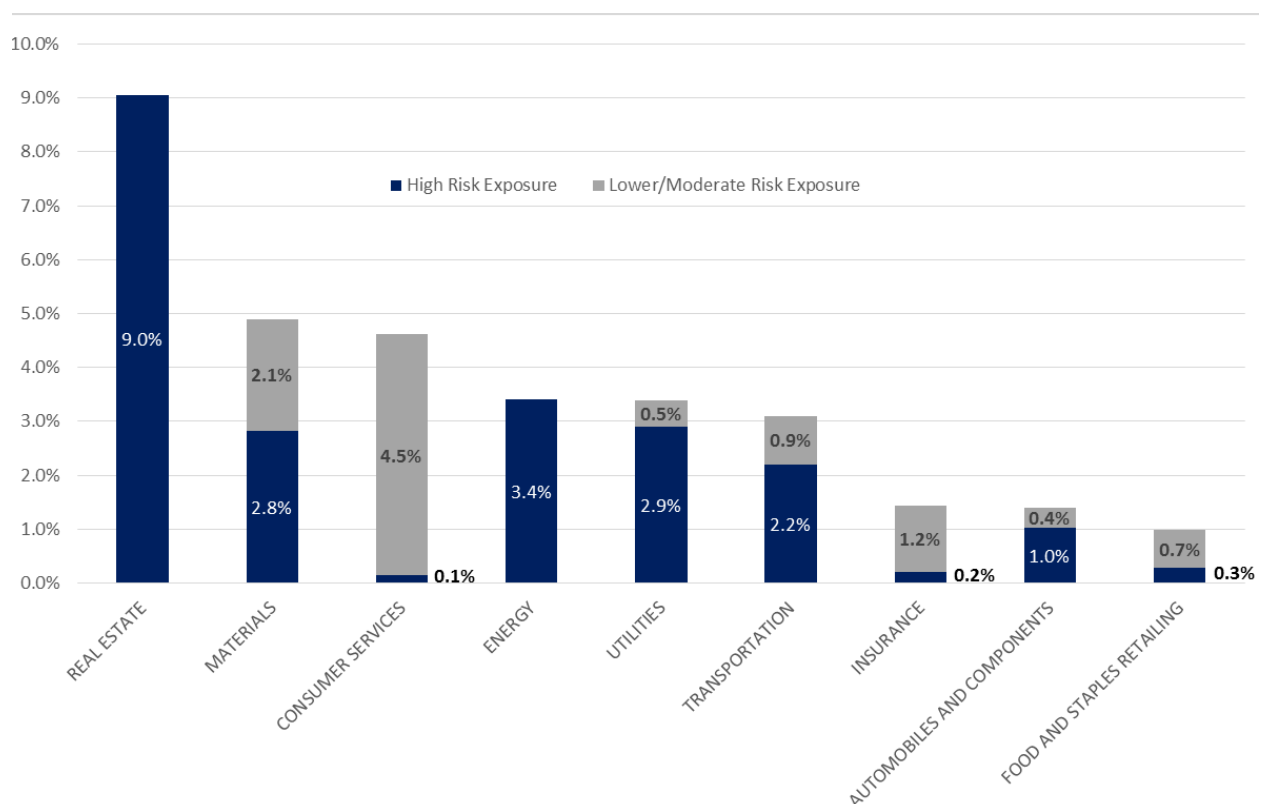
Risk Type	Risk Type Definition	Physical Risk	Transition Risk
<b>Credit</b>	Risk of loss arising from the inability or failure of a borrower or counterparty to meet its obligations	Impacts on repayment capacity and collateral values	Financial impacts from policy, legal, technology or market changes
<b>Market</b>	Risk that changes in market conditions may adversely impact the value of assets or liabilities or otherwise negatively impact earnings	Impacts to asset valuations; secondary exposure to insurers	Impacts to market prices
<b>Liquidity</b>	The inability to meet expected or unexpected cash flow and collateral needs while continuing to support our businesses and customers under a range of economic conditions	A run on deposit balances, unexpected increases in unfunded commitments and decrease in access to funding providers	Impacts on clients' liquidity needs
<b>Compliance</b>	Risk of legal or regulatory sanctions, material financial loss or damage to the reputation of the bank arising from the failure of the bank to comply with the requirements of applicable laws, rules and regulations, and our internal policies and procedures	Workplace disruptions from extreme weather events impact our ability to comply with internal policies and procedures	Direct impacts of new climate-related regulations on bank operations
<b>Operational</b>	Risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events	Impact of extreme weather events on facilities, employees, or vendors	Impact of regulatory changes on internal processes or vendors
<b>Strategic</b>	Risk resulting from incorrect assumptions about external or internal factors; inappropriate business plans; ineffective business strategy execution; or failure to respond in a timely manner to changes in the regulatory, macroeconomic or competitive environments in the geographic locations in which we operate	Impact of incorrect assumptions, inadequate planning, or poor strategy execution regarding climate-related risk	Impact of untimely response to changes in regulatory or market environments
<b>Reputational</b>	The risk that negative perceptions of the bank's conduct or business practices may adversely impact its profitability or operations	Impact of perceived inadequate management of climate-related risks on our operations	Impact of client and shareholder perceptions regarding fossil fuel financing or lack of progress toward climate commitments

## Risk identification and measurement

Our front line units identify risks and, using a consistent scale, rank their likelihood of occurring as well as severity. Climate-related risk is identified in our risk inventory and integrated into our risk management framework through its potential impact to the seven risk types. Risk identification is an ongoing process, incorporating input from both front line units and control functions. To ensure all employees can identify climate-related risks, including emerging risks, we will be conducting an enterprise-wide awareness campaign throughout 2020 informing and educating employees on the various impacts of climate-related risks.

With regard to commercial credit risk, we have identified the sectors that are likely most exposed to climate-related risks based on transition and physical risk attributes such as material contributors to greenhouse gas emissions, revenue streams highly sensitive to physical impacts, investment in technology and/or operations needed, and insurance availability. We are prioritizing further research and action on the most vulnerable sectors. As of December 31, 2019, these sectors represented approximately 22% of our total committed commercial credit exposure of \$1,062 billion (see Table 38 of our 2019 10-K for further details on commercial credit exposure by industry).

**Figure 8: Percent of Committed Commercial Credit Exposure to Sectors Most Exposed to Climate Risks**



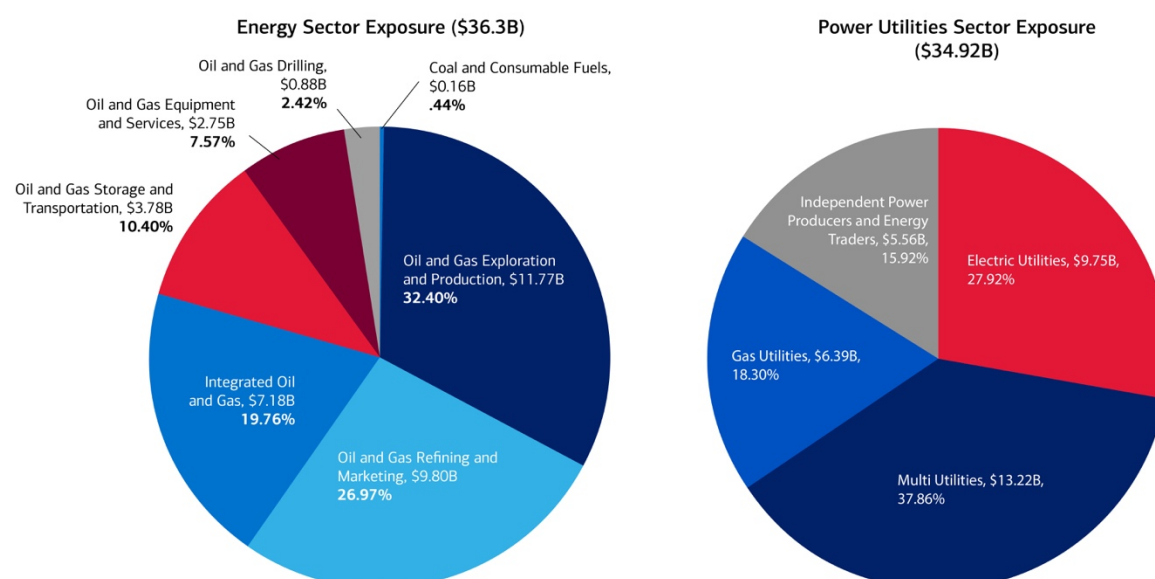
Within each sector portfolio, sub-sectors and specific clients will be impacted differently. For instance, within the Utilities sector, companies that have or are investing in power generation from solar, wind, hydro, nuclear and other low-carbon fuels may benefit from the transition to a low-carbon economy. Within Automobiles and Components, companies focused on electric vehicle production may similarly benefit. Further, within real estate, coastal areas will likely be negatively impacted while other areas may



be positively impacted. We categorized all of Real Estate as being exposed given the potential transition risks as well as the physical risks. Our continued research is intended to help us determine the specific impacts at a sub-sector and client level and inform the actions we take to address them.

As of December 31, 2019, we had \$71.25 billion of committed credit exposure to Energy and Power Utilities<sup>16</sup> – less than 7% of our overall committed commercial credit exposure. These sectors are generally viewed as more carbon emission intensive and therefore particularly susceptible to transition risk; we provide more detail on the composition of our exposure to these sectors in Figure 9.

**Figure 9: Committed Commercial Credit Exposure to Energy and Power Utilities Clients**



### Risk monitoring and control

We recognize there are a range of risks associated with our current levels of fossil fuel financing, including reputation risk as negative perceptions of investors, clients, employees and other stakeholders regarding our financing could adversely impact Bank of America. Our goal is to rebalance our portfolios away from more carbon emission intensive fossil fuel extraction, power generation, transportation and other consumption through engaging with clients and accelerating their progress toward low-carbon business models. In addition to monitoring our exposures to industries exposed to climate-related risks and actively engaging with our clients in this effort, we are exploring new, innovative products such as facilities that are structured to link pricing to a client's carbon reduction efforts. We are significant investors and financiers in the expansion of renewable and other low-carbon energies (see Figure 12 for Environmental Business by Sector). An internal analysis of the generation fuel mix associated with our power utilities

<sup>16</sup> Energy Sector Exposure of \$36.33 billion consists of Oil, Gas and Consumable Fuels (\$32.69 billion) and Energy, Equipment and Services (\$3.64 billion); Power Utilities Sector Exposure of \$34.92 billion consists of Electric and Multi-Utilities (\$22.97 billion), Gas Utilities (\$6.39 billion), and Independent Power Producers (\$5.56 billion) – it excludes water utilities which are included in the Utilities figure in Table 38 of our 2019 Form 10K.

portfolio indicates approximately a third of our exposure is low-carbon, not inclusive of our \$9.4 billion portfolio of tax equity investments<sup>17</sup> in wind and solar projects throughout the U.S. We have dramatically reduced exposure to companies focused on coal extraction, as evidenced by the fact that pure play coal extraction now only represents \$155 million of our energy sector exposure (or 0.4%), down nearly 80% from \$762 million at FYE 2015.

As mentioned in the Introduction, governments and markets are beginning to respond to climate change with greater urgency. We are actively monitoring the potential impact to the bank of future policy responses from governments designed to address climate change. Our public policy team is engaged with policy makers across the globe to ensure we understand and, where appropriate, work to influence potential policy changes that could impact the firm or our clients. We are supportive of policies that will help accelerate the transition to a low-carbon economy and have continuously stated our support for a price on carbon as we know voluntary action alone will not be enough to address the climate challenge. We are working with and within the U.S. Chamber of Commerce, the Business Roundtable and other trade associations of which we are a member to encourage more urgent action on climate change from the public and private sectors. Becoming carbon neutral for Scope 1 and 2 emissions<sup>18</sup> (further discussed later in this report) helps mitigate potential policy changes impacting our facility energy costs.

The potentially destabilizing impact of climate risk on the financial sector has become an area of particular focus for governments and regulators. European bank regulators are beginning to require banks and insurance companies to formally address the financial risks of climate change through governance, risk management, scenario analysis and disclosures. MLI and BANA London's efforts in responding to the PRA helped to inform our global roadmap to improve climate-related risk management practices. As part of implementing our climate risk roadmap, we are working to develop a more granular approach to determine the potential size and scope of climate-related risks. This includes choosing best-in-class, relevant climate scenarios in order to be able to measure and monitor existing and emerging risks and determine appropriate metrics and targets to control the risk.

## Governance

Our commitment to proper climate-related risk management means having effective oversight systems in place, such as committees and working groups — from the CEO and Board of Directors on down.

We have detailed our position on climate change in our [ESRP Framework](#), which articulates how we manage and govern environmental and social risks across all of our businesses and outlines the environmental and social issues most relevant to us. We recognize the impact these environmental and social risks can have on our communities, clients, vendors, employees and company, and take our role in managing them very seriously. Our ESRP Framework provides clarity and transparency on our approach

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<sup>17</sup> Percentage of low-carbon exposure is based on analysis of generation fuel mix performed by MJ Bradley. Tax equity investments are not included in our commercial credit exposures; \$9.4 billion is from 2019 Annual Report - <http://investor.bankofamerica.com/static-files/898007fd-033d-4f32-8470-c1f316c73b24> (page 28).

<sup>18</sup> The GHG Protocol Corporate Standard classifies a company's GHG emissions into three 'scopes'. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

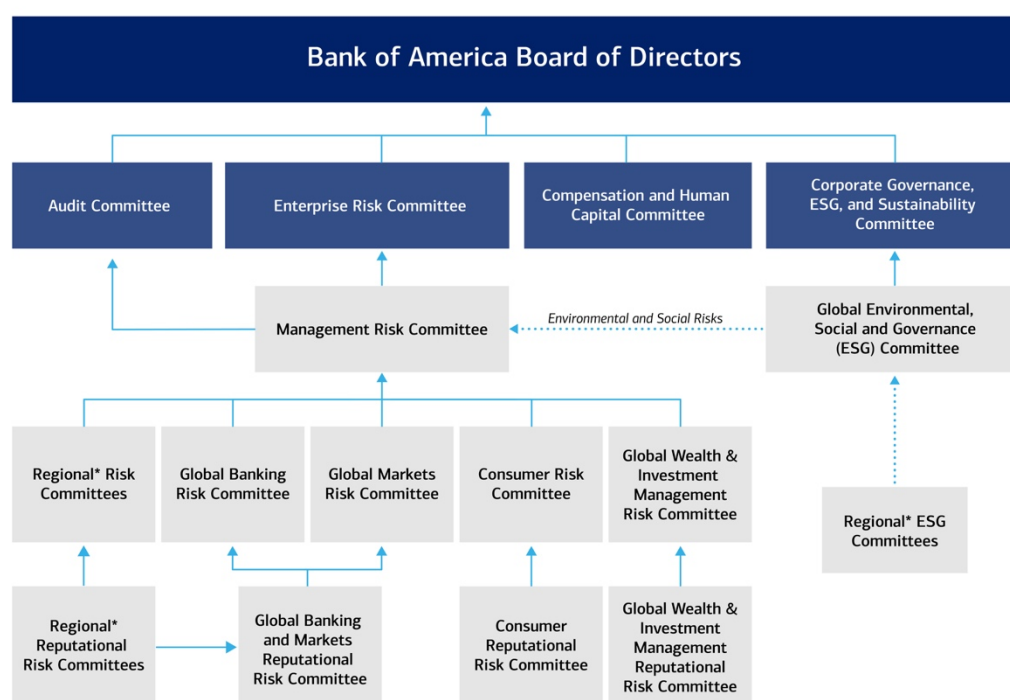
to environmental and social risks, including how we identify, measure, monitor and control these risks consistent with our enterprise Risk Framework.

### Board of Directors oversight

Governance of climate-related risks takes place at various levels throughout Bank of America, with ultimate responsibility resting with our Chairman of the Board of Directors and Chief Executive Officer. The Corporate Governance, ESG, and Sustainability Committee of the Board of Directors has specific responsibility for reviewing our activities and practices relating to ESG matters, including climate change. The Enterprise Risk Committee has primary responsibility for overseeing management's handling of material risks facing the bank and the implementation of the enterprise Risk Framework.

Each quarter the Enterprise Risk Committee and the full Board receive a summary of key risks facing the bank, including emerging risks. Climate change is a risk theme that is being actively monitored as part of this process.

**Figure 10: CEO, Board of Directors and Management Level Oversight<sup>19</sup>**



\* Regional committees are established to address matters in Asia Pacific, Latin America, European Union, United Kingdom, Central and Eastern Europe, Middle East and Africa

### Management level oversight

Globally, a management-level committee composed of senior leaders across every major line of business and support function oversees our strategy and initiatives for ESG activities and practices. Known as our

<sup>19</sup> Chart does not reflect all Management Level Committees.

Global Environmental, Social and Governance (ESG) Committee, chaired by our Vice Chairman, this group informs the Corporate Governance, ESG, and Sustainability Committee of the Board of Directors on environmental and social issues and ensures climate-related risk is integrated into strategy. On matters of environmental and social risk, including climate-related risk, the ESG Committee reports to the Management Risk Committee. The ESG Committee meets quarterly, at a minimum, and climate-related risk is regularly discussed.

### **Regional governance**

At the regional level, managing climate-related risks is part of our governance, risk identification and risk management processes, overseen by our local risk and business committees as appropriate. Our regional risk committees focus on region-specific issues and are chaired by in-region leaders. All of the regional risk committees will be briefed on climate change risk, including information on how specific countries within that region may be impacted, in 2020. In the United Kingdom (UK), Merrill Lynch International (MLI) has organized a steering group focused on identifying and assessing climate-related risks in response to PRA regulation.

### **Business activity governance**

Monitoring and oversight of risks associated with business activity is integrated into the overall governance process, as well as the roles and accountabilities of all employees. Front line units have primary responsibility for managing risks inherent in their business. While environmental and social risks, including climate-related risks, may impact multiple risk types, these risks are also managed as part of the reputational risk oversight process. Each front line unit has a risk committee whose charter includes oversight of reputational risk. These committees are comprised of the business heads and representatives from control functions including senior executives from our Global Risk, Global Compliance and Legal groups. Oversight involves providing approval for business activities that present elevated levels of reputational risks as a result of climate change or other environmental issues, including certain fossil fuel financing.

## **Metrics and Targets**

Bank of America has set a wide range of public business and operational targets aligned with our three-pronged strategy of assessing and managing climate-related risks; supporting clients in their low-carbon transition; and minimizing our direct impact on the climate. These targets are continually assessed through the appropriate governance routines and recalibrated as we respond to the urgency of the climate change challenge. Our ultimate goal is to align our business with the scientific consensus of what is needed to prevent global temperatures from rising more than 1.5–2°C, as outlined in the Paris Climate Agreement.

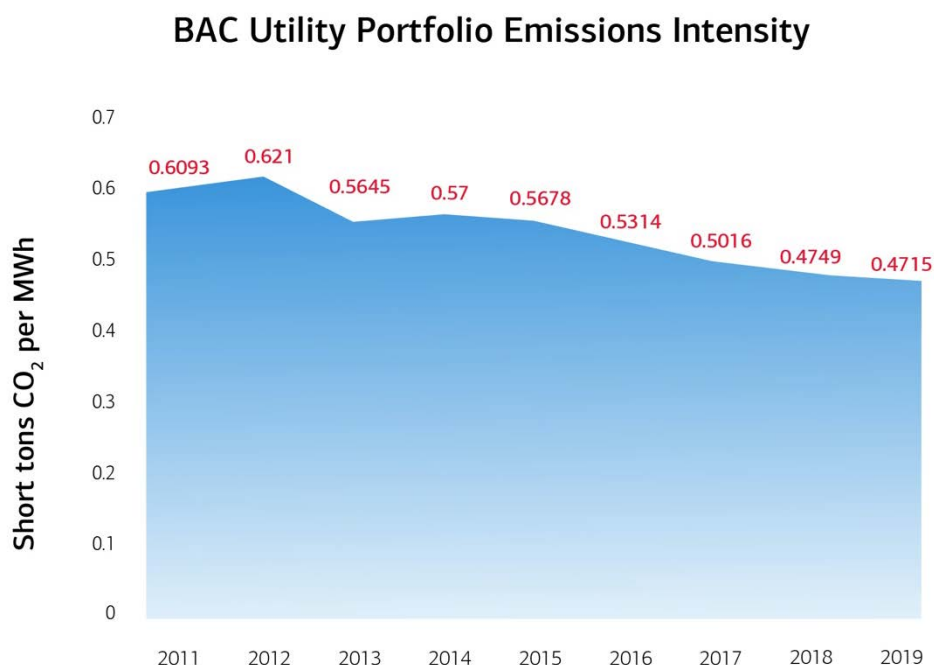
### **Targets to ensure we are adequately assessing and managing climate-related risks**

With the exception of emissions related to investments and other financing, Bank of America reports on all Scope 3 emissions that are relevant to the bank in our [ESG Performance Data Summary](#). For emissions related to investments and other financing (“financed emissions”), there is no agreed upon methodology widely used in the financial services sector. That said, over the next year, we are undertaking an assessment of available methodologies for measuring financed emissions in order to determine the

feasibility of using these methodologies to help align our financing activities with the goals of the Paris Climate Agreement.

Since 2004, Bank of America has been the only major financial institution to measure and disclose the emissions intensity of its U.S. power utility portfolio<sup>20</sup>. As shown below, the emissions intensity of our portfolio has been steadily declining over time as a growing percentage of our large U.S. power utility clients are reducing their carbon footprint.

**Figure 11: Bank of America Utility Portfolio Emissions Intensity**



Our consideration of value chain emissions includes tracking and reporting on the greenhouse gas emissions intensity of our U.S. power utility corporate loan portfolio since 2004, and we remain the only financial institution to do so. This portfolio includes electric generators with whom the bank has significant credit relationships.

<sup>20</sup> Source: Bank of America [ESG Performance Data Summary](#).

## Business targets to support clients in transitioning to a lower carbon environment

As discussed earlier, one of the ways we are reducing transition-related risk in our portfolios is by increasing the flow of capital to low-carbon technologies and activities. Bank of America's third commitment under our Environmental Business Initiative will mobilize an additional \$300 billion in capital over the next ten years (2020–2030). Since 2007, we have supported \$158 billion in low-carbon, sustainable business activities across the globe as demand for capital for sustainable innovations and projects continues to increase. Our financing has driven development of energy efficiency, renewable energy, sustainable transportation, water conservation and sustainable land use — in turn, supporting hundreds of thousands of jobs and contributing tens of billions of dollars to U.S. GDP.

**Figure 12: Environmental Business by Sector (2007-2019)**<sup>21</sup>



## Operations targets to minimize our impact on the climate

On the operational side, we have a suite of public goals we are working to achieve by the end of 2020 that aim to reduce our direct impacts on the environment. This includes reducing greenhouse gas (GHG) emissions, consumption of energy, water and paper, and waste. In 2019, we reached our goal of becoming carbon neutral for Scope 1 and 2 emissions, one year ahead of our plan. To reach this goal, we reduced our location-based emissions by 56%, purchased 100% of electricity from renewable sources, and purchased a small number of carbon offsets for our unavoidable emissions.

<sup>21</sup> Based on 2019 information; represents sector break-out of \$158 billion amount in our 2019 Annual Report <http://investor.bankofamerica.com/static-files/898007fd-033d-4f32-8470-c1f316c73b24> (see pages 28 and 40).

**Figure 13: Bank of America Operational Targets 2010-2020**

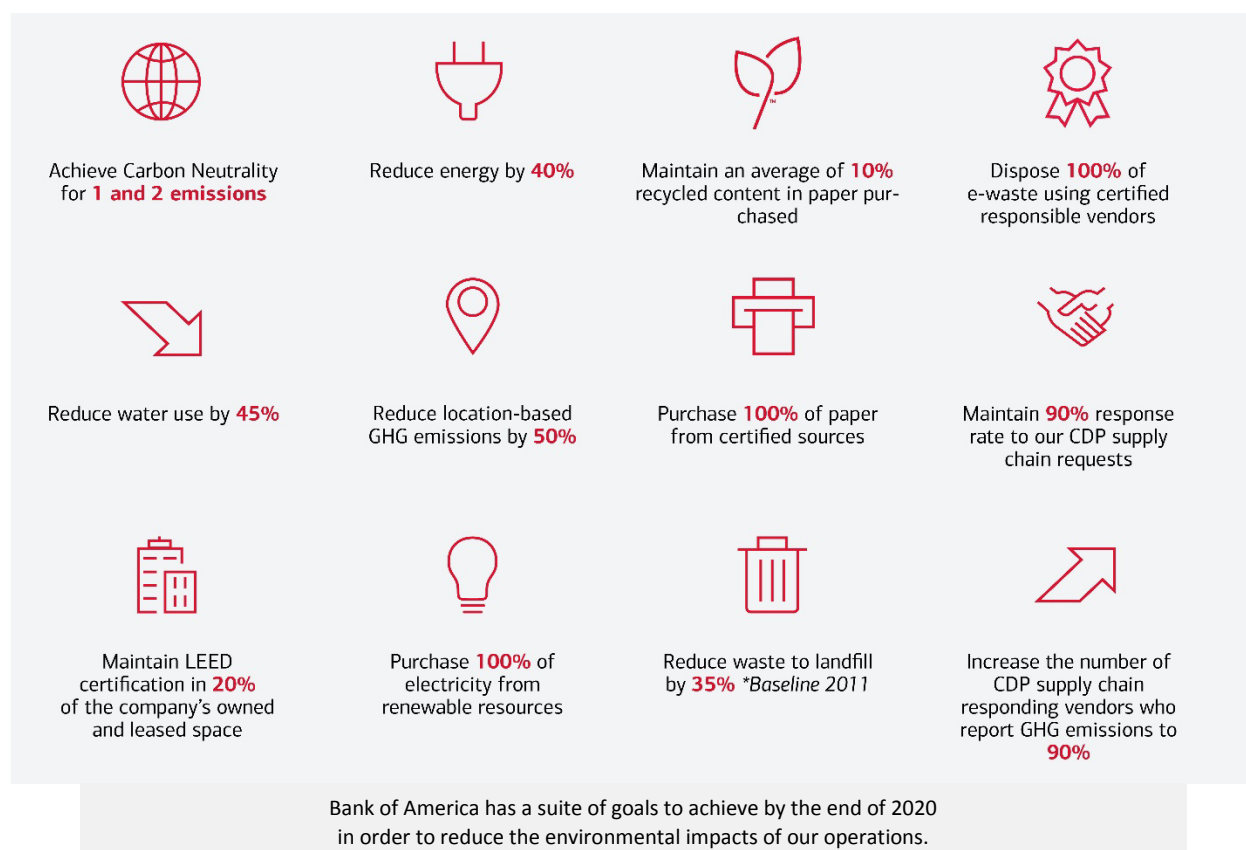


Figure 14 below presents Bank of America's GHG emissions data for 2018 (latest data available), covering Scope 1, 2 and 3 emissions. Our inventory uses the methodology established by The Greenhouse Gas Protocol and guidance from the U.S. Environmental Protection Agency. More detailed information regarding our environmental goal performance, including GHG emissions, can be found in our [ESG Performance Data Summary](#).



**Figure 14: GHG Emissions Data**<sup>22</sup>

GREENHOUSE GAS EMISSIONS	UNITS	2016	2017	2018
<b>Scope 1 and location-based Scope 2 emissions</b>				
Scope 1 direct emissions (from fuel combustion and refrigerant leakage from company facilities and vehicles)	Metric tons CO <sub>2</sub> e	84,399	82,271	85,145
Location Based Scope 2 Indirect emissions (from the purchase of electricity, steam, heat, and cooling)	Metric tons CO <sub>2</sub> e	973,306	839,986	791,166
<b>Total Scope 1 and location-based Scope 2 emissions</b>	<b>Metric tons CO<sub>2</sub>e</b>	<b>1,057,705</b>	<b>922,257</b>	<b>876,311</b>
<b>Reduction in total Scope 1 and location-based Scope 2 emissions (from 2010 base year)</b>	<b>Percent decrease from base year</b>	42%	49%	52%
<b>Scope 3 indirect emissions</b>				
Category 1 - purchased goods and services	Metric tons CO <sub>2</sub> e	2,315,069	2,423,747	2,004,292
Category 2 - capital goods	Metric tons CO <sub>2</sub> e	237,286	386,195	397,794
Category 3 - fuel- and-energy-related activities	Metric tons CO <sub>2</sub> e	224,042	177,790	169,233
Category 4 - upstream transportation and distribution	Metric tons CO <sub>2</sub> e	178,634	210,979	200,813
Category 5 - waste (traditional disposal)	Metric tons CO <sub>2</sub> e	24,373	23,510	23,091
Category 6 - business travel	Metric tons CO <sub>2</sub> e	155,342	151,186	154,501
Category 7 - employee commuting	Metric tons CO <sub>2</sub> e	363,910	350,814	345,389
Category 8 - upstream leased assets	Metric tons CO <sub>2</sub> e		Not relevant	
Category 9 - downstream transportation and distribution	Metric tons CO <sub>2</sub> e	2,000,000	1,500,000	1,500,000
Category 10 - processing of sold products	Metric tons CO <sub>2</sub> e		Not relevant	
Category 11 - use of sold products	Metric tons CO <sub>2</sub> e	5,000	4,000	4,000
Category 12 - end of life treatment of sold products	Metric tons CO <sub>2</sub> e	20,000	21,000	20,000
Category 13 - downstream leased assets	Metric tons CO <sub>2</sub> e		Not relevant	
Category 14 - franchises	Metric tons CO <sub>2</sub> e		Not relevant	
Category 15 - investments	Metric tons CO <sub>2</sub> e		Relevant, not yet calculated	
<b>Total Relevant, Calculated Scope 3 indirect emissions</b>	<b>Metric tons CO<sub>2</sub>e</b>	<b>5,523,656</b>	<b>5,249,221</b>	<b>4,819,113</b>

<sup>22</sup> Source: Bank of America [ESG Performance Data Summary](#).



## Conclusion

Businesses have a fundamental responsibility to their shareholders, employees, clients and communities. One of those responsibilities is to understand what risks may impact the business and its stakeholders. At Bank of America, we recognize that climate change could pose a significant risk to our business, our clients and the communities where we live and work. As underscored by the IPCC and affirmed by the Paris Climate Agreement, urgent action is needed to address climate change and prevent its increasingly devastating impacts from accelerating further. Doing so will require changes in all sectors of our economy.

Bank of America has been addressing climate change for almost two decades. This includes continuously assessing and managing our climate-related risks; deploying hundreds of billions of dollars in sustainable finance toward climate solutions; and within our operations, becoming carbon neutral and reducing other direct impacts. It also includes continuing to enhance and expand our disclosure of climate-related and other ESG information through our public reporting. This TCFD report is another step forward in how we communicate our approach to climate change.

Looking forward, we will continue to refine our methodologies and better understand potential impacts of climate change to Bank of America, and we will disclose that information through vehicles such as our annual ESG Report, our Annual Report, and TCFD-specific papers such as this.

The need to address climate change presents more than just risks, it affords great opportunities to those businesses that are able to harness the need for global, transformational change. Bank of America recognizes our role and responsibility in addressing our own direct impact on the climate; financing the transition to a low-carbon environment; and as a global leader, influencing others to act. Working together with governments, markets, clients and across our enterprise, we intend to use our influence and financial capital to drive the necessary changes to address one of the greatest challenges of our time.

For your reference:

- [Bank of America Annual Report](#)
- [Bank of America ESG Performance Data Summary](#)
- [Bank of America ESG Highlights](#)
- [Bank of America Proxy Statement](#)
- [Bank of America ESRP Framework](#)