

# THE SIDE

OakNorth's  
Credit Intelligence  
Magazine for  
Commercial  
Banking Leaders

**RIPE FOR  
REGULATORY REFORM**

What's next for  
climate risk regulation?

ON Climate Impact  
Framework

Climate risk  
management:  
is your  
bank ready?

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**\$2.1T**

**COST OF CLIMATE CHANGE-DRIVEN  
WEATHER DISASTERS TO THE  
US ECONOMY**



Panel of Industry  
Experts



**Mark Levonian**

FORMER SENIOR DEPUTY  
COMPTROLLER FOR  
ECONOMICS AT THE OCC



**Bruce T. Richards**

FORMER SENIOR VICE  
PRESIDENT AT THE FEDERAL  
RESERVE BANK OF NEW  
YORK AND HEAD OF  
SUPERVISION FOR COMPLEX  
FINANCIAL INSTITUTIONS



**Jeremiah Norton**

FORMER BOARD MEMBER  
OF THE FDIC



# Climate change - the risks, regulations, and rewards. Is your bank ready?

## You will learn:

**RISKS:** how climate change risk can be addressed in a more structured and strategic way

**REGULATIONS:** what commercial lenders of all sizes can expect to see from future regulatory guidance

**REWARDS:** how getting ahead of the risk could lead to a better bottom line, opportunistic growth, deeper customer relationships, and positive headlines



**Watch on demand now**



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# INSIDE THE ONSIDE

RISHI KHOSLA



“ We are incredibly excited to be partnering with innovative and forward-thinking banks to address both the challenges and opportunities climate change presents, and have been inspired by the desire from so many commercial banking leaders to be a force for positive change in this area.”

## A FORCE FOR POSITIVE CHANGE

**THE NATIONAL OCEANIC AND ATMOSPHERIC** Administration (NOAA) recently released its annual research on climate events, reporting that there were 20 weather and climate disasters in the US in 2021 that caused \$1B or more in damage. These collectively caused over \$145B in damage – an astounding figure. NOAA’s research also shows that the average number of annual billion-dollar events continues to increase – with an average of 17.2 over the past five years compared to 5.3 during the 1990s.

Given this, it’s perhaps unsurprising that businesses across the country are assessing how to reduce their carbon footprint – homebuilders are having to consider the sustainability of the materials they use or risk seeing planning applications rejected; restaurants are updating menus to cater to vegan, vegetarian and flexitarian diets; retailers are looking into replacing the type of packaging they use with recyclable alternatives; farmers are examining how to reduce their use of fertilizers and pesticides. The list goes on.

With current technology, the cost of full decarbonization of the US power grid is more than \$4.5T – another astounding figure (*source: Wood Mackenzie*). But rather than a cost, I see it as a \$4.5T opportunity. One for banks to help their commercial customers transition to the green economy – whether by helping those homebuilders invest in greener building materials; or those restaurants introduce more plant-based food options to their menus; or enabling those retailers to switch to recycled packaging materials; or providing those farmers with the capital to invest in more sustainable agriculture products. The list goes on.

We are therefore incredibly excited to be partnering with innovative and forward-thinking banks to address both the challenges and opportunities climate change presents, and have been inspired by the desire from so many commercial banking leaders to be a force for positive change in this area.

We hope you enjoy this latest issue of the ONside and if you have any feedback about our magazine, please email [ONside@oaknorth.com](mailto:ONside@oaknorth.com) 

# The grim reality of climate change

Costing the US economy upwards of \$2T in losses

SINCE 1980

310

climate disasters costing more than \$1B in damages

\$2.1T

worth of damage caused to the US economy

15,180

total lives lost

# OF LIVES LOST/YEAR

287

305

309

522

688

COST/YEAR (\$B)

19

29

55

87

145

# OF \$B DISASTERS/YEAR

2.9

5.3

6.3

12.3

20

1980s

1990s

2000s

2010s

2021

RECORD YEAR

The number and cost of disasters are increasing over time due to a combination of **increased exposure** (value at risk of possible loss), **vulnerability** (how much damage does the intensity—wind speed, flood depth—at a location cause) and that climate change is **increasing the frequency** of some types of extremes that lead to billion-dollar disasters.

## DISASTERS WITH HIGHEST COST TO THE ECONOMY



DROUGHT



STORMS



HURRICANES

\$742B

Total cost of last five years—**more than 1/3** of the total cost of past 42 years

# Climate risk management: is your bank ready?

Response to OCC's 'Five Questions Every Bank Board Should Ask'

**IN NOVEMBER 2021 THE ACTING COMPTROLLER OF THE CURRENCY, MICHAEL J. Hsu**, published five key climate change related questions for US bank boards to consider, as they plan and execute their climate change risk strategies.

OakNorth is developing a forward-looking and strategic climate impact framework to help banks create a robust and comprehensive approach as they think about climate change related risks and opportunities. The ON Climate Impact Framework will help bank management easily answer such climate change related questions and subsequently drive meaningful action.

## 1 WHAT IS YOUR BANK'S OVERALL EXPOSURE TO CLIMATE CHANGE?

A bank's overall exposure to climate change covers both internal exposure (operational aspects) and external exposure (portfolio/borrower business models). Internal exposure to climate change is mostly centered around identifying risks to core operations, while external exposure manifests as both risks and opportunities. Identifying total exposure (both internal and external) requires a robust handle on climate change-centric data and KPIs, and their interaction with the bank's risk/opportunity assessment strategies.

ON Climate Impact Framework helps banks understand their overall climate change related exposure, highlights areas of portfolio with highest risk, and surfaces new lending opportunities, among other things. OakNorth's framework provides a climate lens to a bank's existing risk/opportunity assessment strategies by weaving climate impact related data and KPIs (at a granular level) into forward looking climate impact scenarios.

## 2 WHICH COUNTERPARTIES, SECTORS, OR LOCALES SHOULD WARRANT A BANK'S HEIGHTENED ATTENTION AND FOCUS?

Climate change risk will percolate across all sectors (and geographies). Some sectors will be more clearly exposed (such as oil and gas extraction) with easily identifiable impact given their direct control on emissions (direct impact). A vast majority of sectors in a bank's portfolio, such as automotive component retailers, breweries, and hospitals would have varied impact (for example: indirect due to emissions from purchased power source, and value chain emissions). Such varied and indirectly impacted sectors require a more focused and distinct, sector-to-sector approach towards assessing climate change impact.

ON Climate Impact Framework helps banks focus on risk across directly and, more crucially, all the indirectly impacted sectors. OakNorth's framework takes a holistic view of sector-specific nuances and builds a robust assessment with factors such as carbon intensity of individual subsectors, event driven risks, supply chain effect and business evolution.

### 3 HOW EXPOSED ARE BANKS' PORTFOLIOS TO A CARBON TAX?

A strategic and forward-looking assessment of emission related (transition risk) impact is required to understand climate-led risk in a bank's portfolio. Identifying the sectors most impacted by carbon tax (for penalizing carbon emissions) can help banks formulate a carbon de-risking strategy for their portfolio. Given the lack of clear regulatory guidance around the quantum and application of such taxation, it is necessary for banks to look at multiple carbon taxation scenarios to identify the impact on their overall loan book.

ON Climate Impact Framework incorporates multiple carbon policy scenarios to identify carbon taxation projections. These projections are applied across the value chain of the borrowers and sectors in a bank's loan portfolio, resulting in a timely impact assessment on parameters such as leverage, profitability, etc. This presents a holistic view of carbon tax impact on a bank's overall loan portfolio.

### 4 HOW VULNERABLE ARE BANKS' DATA CENTERS AND OTHER CRITICAL SERVICES TO EXTREME WEATHER?

Banks rely on critical infrastructure—either in-house or third-party—which is exposed to physical hazards and extreme weather which can cause operational disruptions. Banks need to top up their existing business continuity planning strategies with a more forward looking and granular physical risk assessment approach. Climate-led, physical events have increased in frequency and intensity over the years. In 2020, there were 22

“ OakNorth can help banks understand both the probability and eventual risk on assets, rising out of such extreme events.

weather and climate disasters in the US where the amount of damage was \$1B or more. In fact, in total, these caused a combined \$95B in damages. In 2021, there were fewer of these events (20 vs 22), but they collectively caused over \$145B in damage, so were much more severe. As a recent example, the Colorado wildfires destroyed 1,100 homes, causing more than \$513M in damage (*source: Newsweek*).

ON Climate Impact Framework recognizes the multiple facets of climate-related physical risks that can affect an asset's risk profile and business performance. OakNorth can help banks understand both the probability and eventual risk on assets, rising out of such extreme events. Our framework estimates physical risk (driven by weather events) across time horizons and temperature increase scenarios.

### 5 WHAT CAN BANKS DO TO POSITION THEMSELVES TO SEIZE OPPORTUNITIES FROM CLIMATE CHANGE?

Climate change-driven risk will force business model changes and stress the cashflows of incumbent sectors/borrowers, but such shifts will also present banks with an opportunity to shift their lending policies towards net climate neutral/

positive business models (where net returns could be higher). The US government wants to invest c.\$2T in overhauling and upgrading the nation's infrastructure to ensure climate resiliency. This includes: \$7.5B to build out a national network of EV chargers, \$65B to develop a clean energy grid and transmission, and \$21B to reclaim abandoned mine land and cap orphaned oil and gas wells.

ON Climate Impact Framework highlights sectors that have a net positive impact of climate change such as leasing of electric vehicles and electric charging stations, sustainable transportation, etc. It provides powerful insights that enable banks and financial institutions to get ahead of climate related risks and opportunities in a data-driven manner, enabling smarter, faster, and more proactive decisions across the credit life cycle.



Join a 1:1 demo and we'll show you how your bank can benefit from OakNorth's Climate Impact Framework

# ON Climate Impact Framework

Measuring, managing, mitigating, and modeling climate change risk

**IT IS CLEAR FROM THE NUMEROUS BANK LEADERS WE'VE SPOKEN TO, AND** the points raised in the other articles in this issue, that climate change presents both risks and opportunities. But for most banks, the challenge still remains in identifying these in their commercial loan book. It is for this reason why our team of credit scientists and engineers have spent the last two years developing the ON Climate Impact Framework as part of the ON Credit Intelligence Suite. The framework provides powerful insights that enable banks and financial institutions to get ahead of climate related risks and opportunities in a data-driven manner, enabling smarter, faster, and more proactive decisions across the credit life-cycle.

## THE FRAMEWORK COVERS TWO DISTINCT CATEGORIES OF CLIMATE RISK:

- **Transition Risk** identifies how low-carbon policies, investment in clean/remediating technology, changes in price elasticity, and evolving consumer sentiment impact specific sub-sectors and the resulting credit risk within a bank's loan portfolio.
- **Physical Risk** evaluates how extreme weather events such as: a flood, drought, hurricane, etc. can lead to business disruption and damage to property. It also addresses how long-term changes in climatic patterns, such as rising temperatures, change in precipitation, increasing sea levels, desertification, etc. can affect labor, capital, and agricultural productivity.

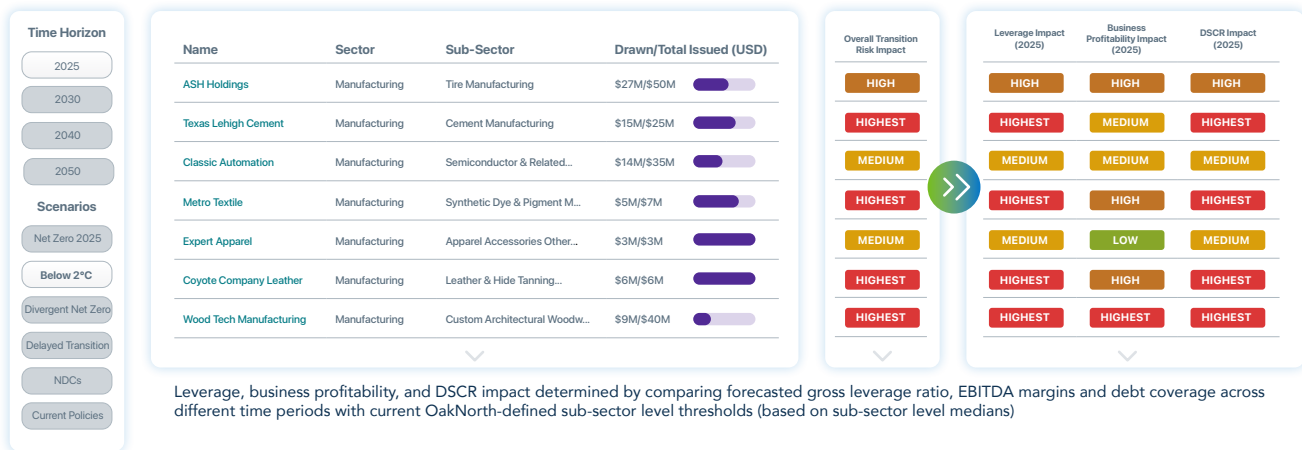
## TRANSITION RISK

OakNorth's transition risk methodology considers six climate scenarios aligned to the Network for Greening the Financial System (NGFS). These are evaluated through the lens of an orderly transition (i.e. where policy action starts immediately/in the near term), disorderly transition (i.e. where policy actions are delayed until 2030), and Hot House World (i.e. where there are no further policy actions):





PROVIDING A FORWARD-LOOKING CLIMATE VULNERABILITY RATING DEPLOYED ACROSS THE LIFECYCLE



ON's Six Climate Scenarios

<b>NET ZERO 2050</b>	<b>Orderly</b> 1.5°C rise in temperature by 2050
<b>BELOW 2°C</b>	<b>Orderly</b> 1.7°C rise in temperature by 2050
<b>DIVERGENT NET ZERO</b>	<b>Disorderly</b> 1.5°C rise in temperature by 2050
<b>DELAYED TRANSITION</b>	<b>Disorderly</b> 1.8°C rise in temperature by 2050
<b>NATIONALLY DETERMINED CONTRIBUTION</b>	<b>Hot House World</b> 2.5°C rise in temperature by 2050
<b>CURRENT POLICIES</b>	<b>Hot House World</b> > 3°C rise in temperature by 2050

We apply these scenarios across our existing repository of 273 sub-sectors to assess and classify each sub-sector at a granular level, based on carbon emission impact, as direct impact, indirect impact, or residual impact.

These scenarios are overlaid on 10 borrower data points (which can be readily extracted from spreading and core banking systems), allowing lenders to holistically understand the impact across policy driven and supply-chain driven operating costs, capital expenditure for clean or remediating technology, and revenue changes driven by shifts in demand or disrupted operations.

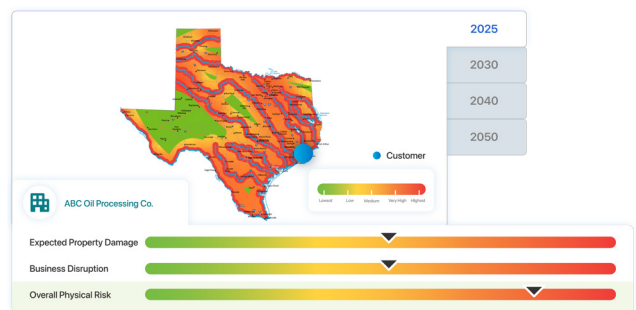
This provides a forward-looking climate risk level from lowest priority (least vulnerable) to highest (most vulnerable), empowering relationship managers, credit officers and risk managers to make better, more informed decisions on which borrowers or sub-sectors in their portfolio are most likely to suffer or benefit from climate changes.

These insights can be applied across the full credit lifecycle, from origination and ongoing monitoring, to conducting portfolio-level scenario analysis, responding to investor, board and regulatory requests, and setting credit strategy.

PHYSICAL RISK

Our physical risk methodology accounts for five key climate perils that can affect borrower and sub-sector performance: hurricane, wildfire, flood, heatwave, and drought. The impact of these are captured in a heatmap across different time horizons and under multiple climate scenarios, over which information on borrower's physical assets is overlaid. The Expected "Damage to Properties" and the "Disruption to Business" then converges to provide a "Lowest" to "Highest" climate change risk level for the borrowers.

We are working with commercial banking leaders and forward-thinking banks across the country to implement the ON Climate Impact Framework to effectively address the climate change risks and identify the climate change opportunities in their commercial loan books.



Access more information on the OakNorth Climate Impact Framework

# Climate change risk is ripe for regulatory reform, so what does this mean for commercial lenders?

## FROM THE OUTSET OF HIS PRESIDENCY, BIDEN

has made it clear that climate change is an important part of his national and global agenda. Since Q4 last year, the regulatory focus on it has been gaining momentum and in a matter of months, the policy outlook for banks has changed dramatically. Climate has been pushed front and center and the regulatory implications for commercial lenders could be massive.

For the first time, all three of the main agencies responsible for overseeing US financial institutions – the Fed, the FDIC, and the OCC – are being led by individuals who have been vocal about the need for banks to make climate change a priority. So, what does this mean for commercial lenders going forward?

## DATA AND SCENARIO ANALYSIS

In order to effectively examine the effects of climate change at the counter-party and exposure level, banks will need to gather much more granular data than what they currently have. As we've seen from extreme weather events across the US over the last year, climate risks are highly uncertain and non-linear in their propagation and can affect multiple risk categories simultaneously. While there is more disclosure occurring now around areas such as carbon emissions, this data is not yet complete and there is limited history on it, so banks' scenario analysis will also need to evolve as data improves.

OCTOBER 21, 2021

The Financial Stability Oversight Council published its report on climate-related financial risk in response to Biden's Executive Order

NOVEMBER 8, 2021

Acting Comptroller of the Currency, Michael Hsu, published an open letter, entitled: 'Five Climate Questions Every Bank Board Should Ask'

DECEMBER 16, 2021

The OCC published its 'Principles for Climate-Related Financial Risk Management for Large Banks'

While regulators will acknowledge these challenges, they will expect banks to factor this uncertainty into formulating their risk management and business strategies going forward. A key task for bank boards will therefore be in ensuring the bank is aware of uncertainties in climate risk data and is confident that it has a well-documented plan for managing those areas of uncertainty.

Banks will also need to consider a broad range of scenarios with sufficient granularity to enable them to adequately assess the risks of meeting their risk management objectives and wider climate change targets. Banks that are more aggressive in trying to develop data taxonomies and mine the data they have, will have a good feedback loop into the policy process.

### PREDICTING FUTURE RISK OVER VERY LONG-TERM HORIZONS

Another key consideration for commercial lenders when it comes to climate change risk management is the fact that historical loss experience cannot be used to estimate future risks. For one thing, the scale of natural disasters can vary significantly – a Category 4 or 5 hurricane on the Saffir-Simpson Scale for example, will cause significantly more damage than a Category 2 or 3 hurricane. Equally, the ability of local government and emergency services to effectively manage the


“ Banks have a unique opportunity to play an active roll in shaping the direction of regulation to come.

consequences of a Category 4 or 5 hurricane may vary significantly from state to state. So, it's vital that lenders are able to re-run scenarios as events evolve.

Climate risks will also materialize over a long-term horizon, so regulators and boards will expect management teams to be able to model different scenarios based on this, while still taking into the account near-term impacts. Transition risks will play an increasingly large role in changing consumer demands over the next few years for example, and we've clearly seen the impact of physical risks given the numerous extreme weather events that have occurred. Climate change risk management requires an extension of traditional bank strategic planning horizons. If we consider the Paris Accords for example, the goal set is for 2050, so it requires a shift in mindset from looking at risk over year-long horizons, to looking at it across decade-long horizons.

### EXPERTISE AND CORPORATE GOVERNANCE

There is a lack of expertise and understanding on climate risk across the banking industry at all levels of seniority, as the mix of skills, knowledge and experience required is new and complex. As an industry, we need to train people how to consider these risks and opportunities across all three lines of defense. This is particularly important for those on the first line of defense who are originating business and managing client relationships. Climate change is an area where executive management and the board of directors therefore need to take a very active role in setting the direction of travel.

It's clear that the regulatory tide is turning – large banks had until 14 February to provide feedback to the OCC on its Principles for Climate-Related Financial Risk Management, so we can expect more detailed and updated guidance to be published in the coming months. Meanwhile, Gary Gensler, Chair of the Securities and Exchange Commission has said that it is looking at tiered compliance for small and large companies and the different types of climate disclosures that may be required. Banks have a unique opportunity to play an active roll in shaping the direction of regulation to come, ensuring it's proportionate, consistent, and considered. 

DECEMBER 31, 2021

FDIC Chair, Jelena McWilliams resigned leaving FDIC Board Member, Martin J. Gruenberg, to take the reigns as Acting Chair. In the past, he's said financial regulators "have a compelling obligation to engage with climate change as a financial stability threat"

JANUARY 22, 2022

Biden nominated Sarah Bloom Raskin, the former Deputy Treasury Secretary who has called fossil fuels "a terrible investment," as Vice Chair for Supervision at the Federal Reserve



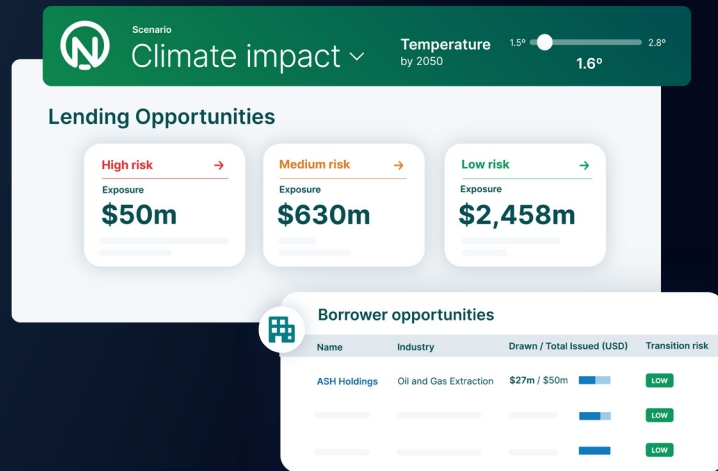
# Commercial Lending and Climate Change

Is green the new gold? 

Climate change is an undeniable threat, but it could also be your greatest opportunity. Turn risk to advantage with the ON Climate Impact Framework.

Leading the way with data-driven insight.

 [Request a demo](#)



 [Access the ON climate resource library](#)

