

United States Senate

WASHINGTON, DC 20510

January 25, 2019

The Honorable Jerome H. Powell
Chairman of the Board of Governors
Federal Reserve System
20th Street and Constitution Avenue NW
Washington, DC 20551

Dear Chairman Powell:

We are writing to urge you, as our nation's federal banking regulators, to ensure our financial system is prepared for the risks associated with climate change. We request detailed information on the steps each of your organizations have taken to identify and manage climate-related risks in the U.S. financial system.

Central banks and bank supervisors across the world have committed to managing climate-related risks in the financial sector. U.S. regulators must join their international peers in ensuring the financial system is resilient to climate-related risks. To that end, U.S. regulators must take stock of these risks and require greater transparency and preparation from supervised financial institutions as we confront the growing impacts of climate change.

An international group of 18 central banks and bank supervisors—including regulators from Australia, China, England, Finland, France, Germany, Japan, Mexico, Singapore, and Spain, to name a few—has taken the lead in addressing the financial risks of climate change. Organized as the Network for Greening the Financial System (NGFS), this group of regulators has identified that “climate-related risks are a source of financial risk,” and that it is therefore within the mandate of financial regulators “to ensure the financial system is resilient to these risks.” They are working together to develop best practices to incorporate climate risks in prudential supervision and financial stability surveillance, which will require “new analytical and supervisory approaches, including those based on forward-looking scenario analysis and stress tests.”¹

Some of these regulators are already working to enhance climate risk management among their supervised institutions. The Bank of England, for example, recently announced that it is planning to include the impact of climate change in its bank stress tests as early as next year.² In October 2018, the Bank of England also required that insurance and financial institution boards identify a senior executive to manage climate change risks and report to the board.³ The central

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² Caroline Binham and David Crow, “Carney plans to test UK banks’ resilience to climate change,” *Financial Times*, December 17, 2018, <https://www.ft.com/content/0ba2390a-ffd4-11e8-ac00-57a2a826423e>

³ Leslie Hook and Caroline Binham, “Bank of England tells institutions to prepare for climate change,” *Financial Times*, October 14, 2018, <https://www.ft.com/content/e1d2087e-ce34-11e8-9fe5-24ad351828ab>

bank “expects to see evidence” that boards are devoting “adequate resources and sufficient skills and expertise . . . to managing the financial risks from climate change.”⁴

As described in the NGFS’s First Progress Report, issued in October 2018, the financial system and individual financial institutions face climate-related risks from acute weather-related events, such as droughts, floods, storms, and wildfires, and long-term shifts in climate and weather patterns, such as increasing temperature and sea-level rise.⁵ These events could reduce the value of assets and collateral, decrease investment income, increase insured and uninsured losses, and disrupt financial institutions’ own business operations. Financial institutions are also vulnerable to broader economic downturns as a result of widespread damage to property and infrastructure, reduced household wealth and business investment, lower productivity, supply chain disruptions, uncertainty, and volatility.

Your agencies are responsible for protecting the stability of our financial system and supervising U.S. financial institutions. However, we have seen no evidence that your agencies have seriously considered the financial risks of climate change or incorporated those risks into your supervision of financial institutions. Neither the Federal Reserve, the Office of the Comptroller of the Currency, nor the FDIC included any mention of climate change risks in their most current supervisory reports or risk assessments,⁶ despite the fact that 2018 saw record-breaking damage from weather and climate events and the publication of several high-profile reports on the impending impacts of climate change.⁷

Severe weather events are already impacting the U.S. economy. As of October 2018, the United States has experienced 238 weather and climate disasters since 1980 in which damages exceeded \$1 billion in real dollars. The total cost of these 238 events exceeds \$1.5 trillion.⁸ This total does not yet include damages from the Camp and Woolsey wildfires that devastated California in November 2018, causing estimated insured losses between \$9 billion and \$13 billion.⁹

Recent major storms have devastated regional economies. For example, as the Federal Reserve Bank of Richmond described in the October 2018 Beige Book, firms across several sectors suffered from “production disruptions for manufactures, port closures, reduced travel and

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⁵ *First NGFS Progress Report*, <https://www.banque-france.fr/en/financial-stability/international-role/network-greening-financial-system/first-ngfs-progress-report>, p. 5.

⁶ <https://www.federalreserve.gov/publications/2018-11-supervision-and-regulation-supervisory-developments.htm>; <https://www.fdic.gov/regulations/examinations/supervisory/insights/sisum18/si-summer-2018.pdf>; <https://www.occ.treas.gov/publications/publications-by-type/other-publications-reports/semiannual-risk-perspective/pub-semiannual-risk-perspective-fall-2018.pdf>

⁷ For example: <https://www.ipcc.ch/sr15/>

⁸ “Billion-Dollar Weather and Climate Disasters: Overview,” National Centers for Environmental Information, National Oceanic and Atmospheric Administration, October 9, 2018, <https://www.ncdc.noaa.gov/billions/>

⁹ Tanishaa Nadkar and Noor Zainab Hussain, “Insured losses from Camp and Woolsey wildfires estimated at \$9-13 billion: RMS,” *Reuters*, November 19, 2018, <https://www.reuters.com/article/us-california-wildfires-insurance/insured-losses-from-camp-and-woolsey-wildfires-estimated-at-9-13-billion-rms-idUSKCN1NO18Y>

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Further, extreme weather events have effects beyond just the impacted region. The Federal Reserve Bank of Cleveland finds that following natural disasters, “credit in unaffected but connected markets declines by about 50 cents per dollar of additional lending in shocked areas.”¹² Overall, one leading academic study estimates that climate change costs the U.S. economy “roughly 1.2% of gross domestic product per +1°C on average.”¹³

The financial sector is also exposed to transition risks—and opportunities—related to climate change mitigation and adaptation efforts. Policy, legal, and market changes are inevitable, and large sectors of the economy will face shifting asset values and operational costs. According to the Bank of England, transition risks “could lead to a disorderly re-pricing of carbon-intensive assets and a negative supply shock.”¹⁴ In a 2011 study that pioneered the concept of the “carbon bubble,” the Carbon Tracker Initiative estimated that only 20 percent of the world’s total fossil fuel reserves could be burned unabated, leaving up to 80 percent of assets technically unburnable. The report found that “today’s financial architecture is not fit for purpose to manage the transition to a low-carbon economy,” requiring “serious reforms . . . to key aspects of financial regulation and practice firstly to acknowledge the carbon risks inherent in fossil fuel assets and then take action to reduce these risks on the timeline needed to avoid catastrophic climate change.”¹⁵ Indeed, a 2014 PricewaterhouseCoopers survey found that the “investor community is actively analyzing” the issue of “unburnable carbon”—otherwise known as stranded assets—and added that investor concern extends “way beyond the activists already.”¹⁶

It is imperative that U.S. financial regulators ensure the stability of our financial system in the face of these risks. We urge you to assess the degree to which the U.S. financial system is prepared for climate change and begin incorporating climate-related risks into individual examinations and macro-prudential supervision of U.S. financial institutions. Lastly, we

¹⁰ “Beige Book - October 24, 2018,” Board of Governors of the Federal Reserve System, <https://www.federalreserve.gov/monetarypolicy/beigebook201810.htm>

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¹⁴ Sandra Batten, Rhiannon Sowerbutts and Misa Tanaka, “Let’s talk about the weather: the impact of climate change on central banks,” Bank of England, May 2016, <https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2016/lets-talk-about-the-weather-the-impact-of-climate-change-on-central-banks.pdf?la=en&hash=C49212AE5F68EC6F9E5AA71AC404B72CDC4D7574>

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strongly encourage you to coordinate with your international peers to develop best practices for evaluating and managing the risks posed by climate change.

To better understand the preparedness of our nation's financial system for climate change risk, we respectfully request you respond to the following questions by February 15, 2019:

1. Has your agency assessed the physical and transition risks that U.S. financial institutions face as a result of climate change? Is the assessment of climate change risks a regular component of your agencies' micro-prudential supervision?
2. Does your agency assess the systemic risks that climate change could pose to the financial system?
3. If yes, what tools and models does your agency use to inform these assessments?
4. Has your agency assessed if the U.S. financial system is resilient to such risks, or taken any actions to increase the resiliency of the financial system to climate change?
5. Has your agency collaborated with banking regulators, bank supervisory agencies, or central banks in other countries to discuss best practices related to assessing and managing climate change risks?
6. Has your agency conducted research, held events, formed working groups, or taken other internal or public-facing actions related to the role of financial regulators in addressing climate change risk?

Sincerely,



BRIAN SCHATZ
U.S. Senator



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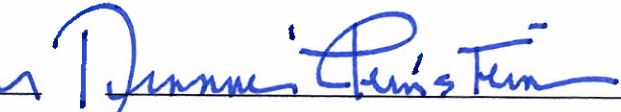


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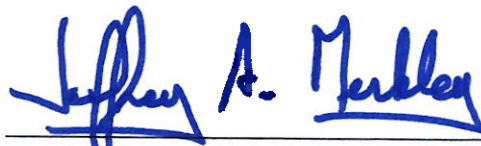
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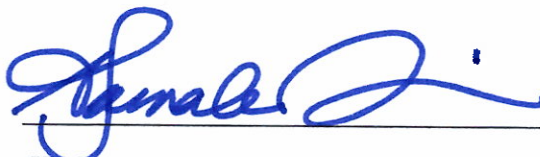
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JEFFREY A. MERKLEY

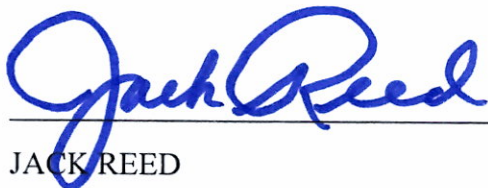
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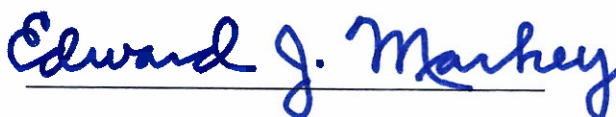
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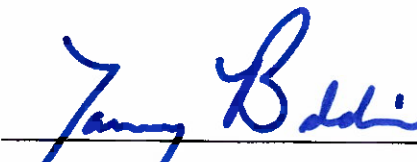
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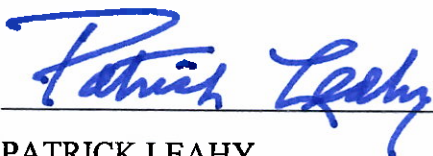
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BERNARD SANDERS

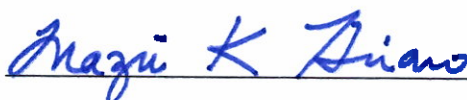
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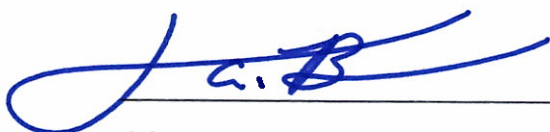
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United States Senate

WASHINGTON, DC 20510

January 25, 2019

The Honorable Joseph M. Otting
Comptroller of the Currency
Office of the Comptroller of the Currency
400 7th Street SW
Washington, DC 20219

Dear Comptroller Otting:

We are writing to urge you, as our nation's federal banking regulators, to ensure our financial system is prepared for the risks associated with climate change. We request detailed information on the steps each of your organizations have taken to identify and manage climate-related risks in the U.S. financial system.

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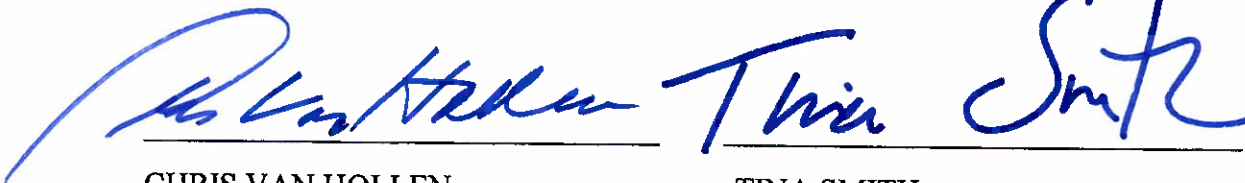
Sincerely,



BRIAN SCHATZ
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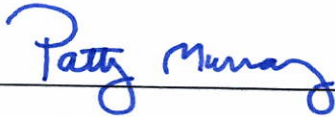
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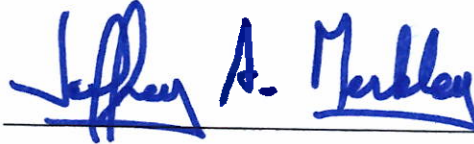


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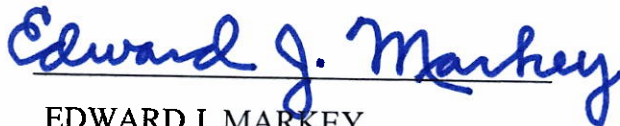
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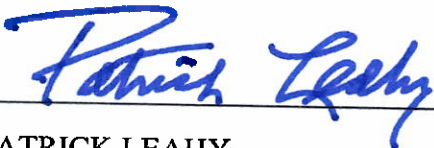
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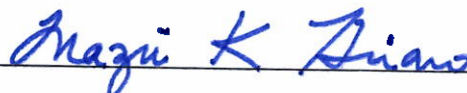
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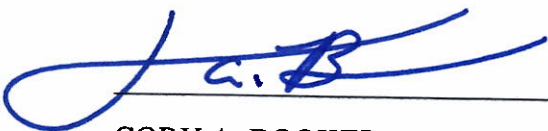
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United States Senate

WASHINGTON, DC 20510

January 25, 2019

The Honorable Jelena McWilliams
Chairman
Federal Deposit Insurance Corporation
550 17th Street NW
Washington, DC 20429

Dear Chairman McWilliams:

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Central banks and bank supervisors across the world have committed to managing climate-related risks in the financial sector. U.S. regulators must join their international peers in ensuring the financial system is resilient to climate-related risks. To that end, U.S. regulators must take stock of these risks and require greater transparency and preparation from supervised financial institutions as we confront the growing impacts of climate change.

An international group of 18 central banks and bank supervisors—including regulators from Australia, China, England, Finland, France, Germany, Japan, Mexico, Singapore, and Spain, to name a few—has taken the lead in addressing the financial risks of climate change. Organized as the Network for Greening the Financial System (NGFS), this group of regulators has identified that “climate-related risks are a source of financial risk,” and that it is therefore within the mandate of financial regulators “to ensure the financial system is resilient to these risks.” They are working together to develop best practices to incorporate climate risks in prudential supervision and financial stability surveillance, which will require “new analytical and supervisory approaches, including those based on forward-looking scenario analysis and stress tests.”¹

Some of these regulators are already working to enhance climate risk management among their supervised institutions. The Bank of England, for example, recently announced that it is planning to include the impact of climate change in its bank stress tests as early as next year.² In October 2018, the Bank of England also required that insurance and financial institution boards identify a senior executive to manage climate change risks and report to the board.³ The central

¹ *First NGFS Progress Report*, <https://www.banque-france.fr/en/financial-stability/international-role/network-greening-financial-system/first-ngfs-progress-report>

² Caroline Binham and David Crow, “Carney plans to test UK banks’ resilience to climate change,” *Financial Times*, December 17, 2018, <https://www.ft.com/content/0ba2390a-ffd4-11e8-ac00-57a2a826423e>

³ Leslie Hook and Caroline Binham, “Bank of England tells institutions to prepare for climate change,” *Financial Times*, October 14, 2018, <https://www.ft.com/content/e1d2087e-ce34-11e8-9fe5-24ad351828ab>

bank “expects to see evidence” that boards are devoting “adequate resources and sufficient skills and expertise . . . to managing the financial risks from climate change.”⁴

As described in the NGFS’s First Progress Report, issued in October 2018, the financial system and individual financial institutions face climate-related risks from acute weather-related events, such as droughts, floods, storms, and wildfires, and long-term shifts in climate and weather patterns, such as increasing temperature and sea-level rise.⁵ These events could reduce the value of assets and collateral, decrease investment income, increase insured and uninsured losses, and disrupt financial institutions’ own business operations. Financial institutions are also vulnerable to broader economic downturns as a result of widespread damage to property and infrastructure, reduced household wealth and business investment, lower productivity, supply chain disruptions, uncertainty, and volatility.

Your agencies are responsible for protecting the stability of our financial system and supervising U.S. financial institutions. However, we have seen no evidence that your agencies have seriously considered the financial risks of climate change or incorporated those risks into your supervision of financial institutions. Neither the Federal Reserve, the Office of the Comptroller of the Currency, nor the FDIC included any mention of climate change risks in their most current supervisory reports or risk assessments,⁶ despite the fact that 2018 saw record-breaking damage from weather and climate events and the publication of several high-profile reports on the impending impacts of climate change.⁷

Severe weather events are already impacting the U.S. economy. As of October 2018, the United States has experienced 238 weather and climate disasters since 1980 in which damages exceeded \$1 billion in real dollars. The total cost of these 238 events exceeds \$1.5 trillion.⁸ This total does not yet include damages from the Camp and Woolsey wildfires that devastated California in November 2018, causing estimated insured losses between \$9 billion and \$13 billion.⁹

Recent major storms have devastated regional economies. For example, as the Federal Reserve Bank of Richmond described in the October 2018 Beige Book, firms across several sectors suffered from “production disruptions for manufactures, port closures, reduced travel and

⁴ “Consultation Paper 23/18: Enhancing banks’ and insurers’ approaches to managing the financial risks from climate change,” Prudential Regulation Authority, Bank of England, <https://www.bankofengland.co.uk/prudential-regulation/publication/2018/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-change>

⁵ *First NGFS Progress Report*, <https://www.banque-france.fr/en/financial-stability/international-role/network-greening-financial-system/first-ngfs-progress-report>, p. 5.

⁶ <https://www.federalreserve.gov/publications/2018-11-supervision-and-regulation-supervisory-developments.htm>; <https://www.fdic.gov/regulations/examinations/supervisory/insights/sisum18/si-summer-2018.pdf>; <https://www.occ.treas.gov/publications/publications-by-type/other-publications-reports/semiannual-risk-perspective/pub-semiannual-risk-perspective-fall-2018.pdf>

⁷ For example: <https://www.ipcc.ch/sr15/>

⁸ “Billion-Dollar Weather and Climate Disasters: Overview,” National Centers for Environmental Information, National Oceanic and Atmospheric Administration, October 9, 2018, <https://www.ncdc.noaa.gov/billions/>

⁹ Tanishaa Nadkar and Noor Zainab Hussain, “Insured losses from Camp and Woolsey wildfires estimated at \$9-13 billion: RMS,” *Reuters*, November 19, 2018, <https://www.reuters.com/article/us-california-wildfires-insurance/insured-losses-from-camp-and-woolsey-wildfires-estimated-at-9-13-billion-rms-idUSKCN1NO18Y>

tourism, and damages to crops and livestock” after Hurricane Florence.¹⁰ Early estimates put Hurricane Florence’s damage as high as \$22 billion, making it one of the 10 most costly storms in U.S. history.¹¹

Further, extreme weather events have effects beyond just the impacted region. The Federal Reserve Bank of Cleveland finds that following natural disasters, “credit in unaffected but connected markets declines by about 50 cents per dollar of additional lending in shocked areas.”¹² Overall, one leading academic study estimates that climate change costs the U.S. economy “roughly 1.2% of gross domestic product per +1°C on average.”¹³

The financial sector is also exposed to transition risks—and opportunities—related to climate change mitigation and adaptation efforts. Policy, legal, and market changes are inevitable, and large sectors of the economy will face shifting asset values and operational costs. According to the Bank of England, transition risks “could lead to a disorderly re-pricing of carbon-intensive assets and a negative supply shock.”¹⁴ In a 2011 study that pioneered the concept of the “carbon bubble,” the Carbon Tracker Initiative estimated that only 20 percent of the world’s total fossil fuel reserves could be burned unabated, leaving up to 80 percent of assets technically unburnable. The report found that “today’s financial architecture is not fit for purpose to manage the transition to a low-carbon economy,” requiring “serious reforms . . . to key aspects of financial regulation and practice firstly to acknowledge the carbon risks inherent in fossil fuel assets and then take action to reduce these risks on the timeline needed to avoid catastrophic climate change.”¹⁵ Indeed, a 2014 PricewaterhouseCoopers survey found that the “investor community is actively analyzing” the issue of “unburnable carbon”—otherwise known as stranded assets—and added that investor concern extends “way beyond the activists already.”¹⁶

It is imperative that U.S. financial regulators ensure the stability of our financial system in the face of these risks. We urge you to assess the degree to which the U.S. financial system is prepared for climate change and begin incorporating climate-related risks into individual examinations and macro-prudential supervision of U.S. financial institutions. Lastly, we

¹⁰ “Beige Book - October 24, 2018,” Board of Governors of the Federal Reserve System, <https://www.federalreserve.gov/monetarypolicy/beigebook201810.htm>

¹¹ Ryan Sweet and Adam Kamins, “Preliminary Cost Figures for Hurricane Florence,” *Moody’s Analytics*, September 17, 2018, <https://www.economy.com/dismal/analysis/todays-economy/346812/Preliminary-Cost-Figures-for-Hurricane-Florence/>

¹² Kristle Cortés and Philip E. Strahan, “Tracing Out Capital Flows: How Financially Integrated Banks Respond to Natural Disasters,” Federal Reserve Bank of Cleveland, September 2014, <https://www.clevelandfed.org/newsroom-and-events/publications/working-papers/2014-working-papers/wp-1412-tracing-out-capital-flows-how-financially-integrated-banks-respond-to-natural-disasters.aspx>

¹³ Solomon Hsiang et al., “Estimating economic damage from climate change in the United States,” *Science* 356, no. 6345 (2017), 1362-1369

¹⁴ Sandra Batten, Rhiannon Sowerbutts and Misa Tanaka, “Let’s talk about the weather: the impact of climate change on central banks,” Bank of England, May 2016, <https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2016/lets-talk-about-the-weather-the-impact-of-climate-change-on-central-banks.pdf?la=en&hash=C49212AE5F68EC6F9E5AA71AC404B72CDC4D7574>

¹⁵ Mark Campanale and Jeremy Leggett, “Unburnable Carbon: Are the World’s Financial Markets Carrying a Carbon Bubble,” Carbon Tracker Initiative, July 13, 2011, <https://www.carbontracker.org/reports/carbon-bubble/>

¹⁶ *People of the State of New York v. Exxon Mobil Corporation*, https://ag.ny.gov/sites/default/files/summons_and_complaint_0.pdf, p. 24 of 97.

strongly encourage you to coordinate with your international peers to develop best practices for evaluating and managing the risks posed by climate change.

To better understand the preparedness of our nation's financial system for climate change risk, we respectfully request you respond to the following questions by February 15, 2019:

1. Has your agency assessed the physical and transition risks that U.S. financial institutions face as a result of climate change? Is the assessment of climate change risks a regular component of your agencies' micro-prudential supervision?
2. Does your agency assess the systemic risks that climate change could pose to the financial system?
3. If yes, what tools and models does your agency use to inform these assessments?
4. Has your agency assessed if the U.S. financial system is resilient to such risks, or taken any actions to increase the resiliency of the financial system to climate change?
5. Has your agency collaborated with banking regulators, bank supervisory agencies, or central banks in other countries to discuss best practices related to assessing and managing climate change risks?
6. Has your agency conducted research, held events, formed working groups, or taken other internal or public-facing actions related to the role of financial regulators in addressing climate change risk?

Sincerely,



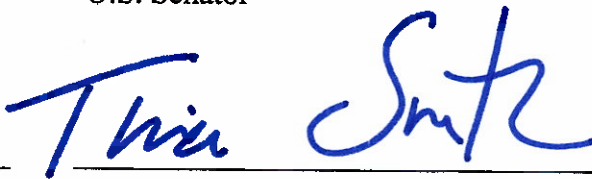
BRIAN SCHATZ
U.S. Senator



SHERROD BROWN
U.S. Senator



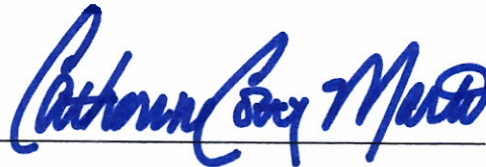
CHRIS VAN HOLLEN
U.S. Senator



TINA SMITH
U.S. Senator



ELIZABETH WARREN
U.S. Senator



CATHERINE CORTEZ MASTO
U.S. Senator

AMY KLOBUCHAR

AMY KLOBUCHAR
U.S. Senator

DIANNE FEINSTEIN

DIANNE FEINSTEIN
U.S. Senator

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PATTY MURRAY
U.S. Senator

JEFFREY A. MERKLEY

JEFFREY A. MERKLEY
U.S. Senator

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BENJAMIN L. CARDIN
U.S. Senator

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KAMALA D. HARRIS
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EDWARD J. MARKEY
U.S. Senator

BERNARD SANDERS

BERNARD SANDERS
U.S. Senator

TAMMY BALDWIN

TAMMY BALDWIN
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PATRICK LEAHY

PATRICK LEAHY
U.S. Senator

MAZIE K. HIRONO

MAZIE K. HIRONO
U.S. Senator

CORY A. BOOKER

CORY A. BOOKER
U.S. Senator

SHELDON WHITEHOUSE

SHELDON WHITEHOUSE
U.S. Senator