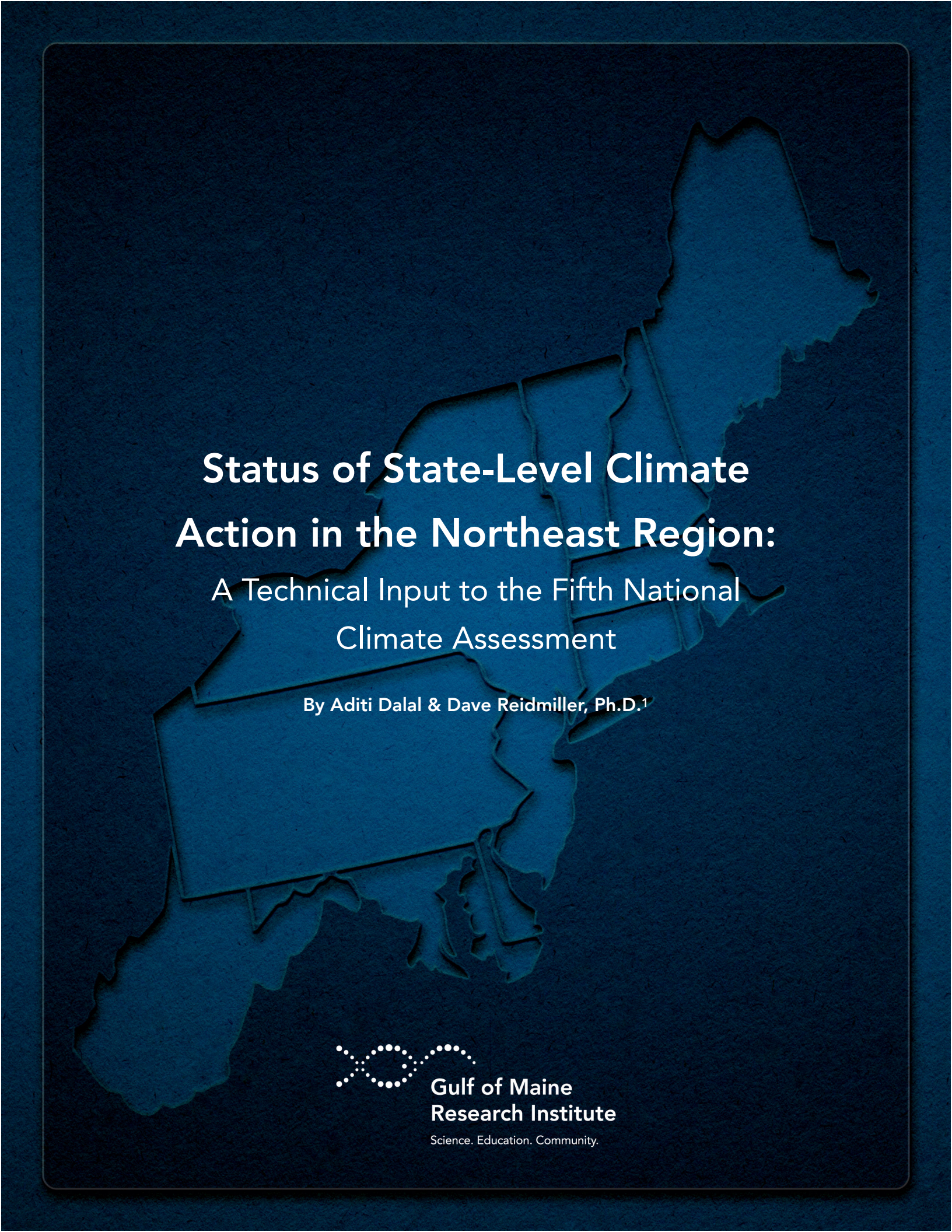

Status of State-Level Climate Action in the Northeast Region:

A Technical Input to the Fifth National Climate Assessment

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Introduction

To inform the development of the Northeast regional chapter of the Fifth National Climate Assessment (NCA5), we analyze the status of state-level climate action across the twelve states (and Washington, DC) defining the region. The focus is less on scientific assessments of climate vulnerabilities and impacts within each state, but rather emphasizes the passage of significant or innovative actions by executive and/or legislative branches of state governments after the date by which literature needed to be published by for inclusion in the Fourth National Climate Assessment (mid-2018). A salient finding from the analysis is that the de-prioritization of climate change as a policy issue at the federal level catalyzed significant sub-national climate action at the state-level (Gurney et al., 2021; Hultman et al., 2020).

Fig. 1. States comprising the Northeast region of NCA5 (including Washington, DC).

Maine

When Governor Janet Mills took office in early 2019, her administration prioritized state-level climate action in Maine. In June of that year, a bill was signed into law creating the Maine Climate Council (MCC), a group of scientists, business leaders, local and state officials, and concerned citizens charged with advising the Governor and the Legislature on how the state should best respond to climate change (Maine State Legislature, 2019). By summer 2020, a Scientific and Technical Subcommittee (MCC STS) had produced a comprehensive assessment of climate impacts across the state's ecosystems and economic sectors (MCC STS, 2020); an update was released a year later (MCC STS, 2021). A collection of economic impact and opportunity reports were also commissioned. Six MCC Working Groups (Natural & Working Lands; Coastal & Marine; Buildings, Infrastructure, & Housing; Energy; Transportation; and Community Resilience Planning, Public Health, & Emergency Management) held a number of community listening sessions to understand what is valued, what is at risk, and what response options are most acceptable to a broad range of constituencies. The suite of recommendations resulting from this work underwent an innovative equity assessment (MCC Equity Assessment Team, 2020). All of this culminated in the December 2020 release of *Maine Won't Wait,* the state's 4-year climate action plan (MCC, 2020). With this plan, Maine set a goal of achieving carbon neutrality by

2045 and reducing greenhouse gas emissions by 45% by 2030 and 80% by 2050 below 1990 levels. In December 2021, the Maine Climate Council published a *One Year Progress Report* to assess progress of the climate action plan with an emphasis on tracking quantitative achievements (MCC, 2021). Six months later, a law was passed requiring state agencies to review—and propose revisions to—existing laws and regulations to integrate a consideration of 1.5 feet of sea level rise by 2050 and 4 feet by 2100 (Maine State Legislature, 2021).

New Hampshire

New Hampshire released a statewide climate action plan back in 2009 with the overarching goal of decreasing greenhouse gas emissions by 80% below 1990 levels by 2050, while focusing on providing economic opportunity to New Hampshire residents (*New Hampshire Climate Change Policy Task Force, 2009*). More recently, the state has passed two climate-related laws of note. In September 2017, a law was passed allowing municipalities to give tax relief to coastal homeowners who own qualified properties and want to make them resilient to sea level rise, storm surge, and extreme precipitation (*New Hampshire State Legislature, 2017*). Two years later, SB 285 was signed into law, allowing municipalities to unify and create revitalization districts as a result of a climate emergency, enabling them to collaborate to address sea level rise and flooding issues, coordinate resources, and share taxes and revenue (*New Hampshire State Legislature, 2019*). In 2022, a state-wide scientific assessment of climate impacts on the state was released (Lemcke-Stampone et al., 2022).

Vermont

In 2020, Vermont enacted the Vermont Global Warming Solutions Act, mandating greenhouse gas emissions reductions 26% below 2005 levels by 2025, 40% below 1990 levels by 2030, 80% below 1990 levels by 2050, and net zero emissions across all sectors by 2050 (*Vermont State Legislature, 2020*). The act also established a 23-member Vermont Climate Council (VCC) and four assisting subcommittees to create a state climate action plan. The law shines light on energy equity by aiming to minimize negative impacts on marginalized and rural communities while also creating the Rural Resilience and Adaptation Subcommittee. By Fall 2021, the VCC gathered feedback from over 1,600 residents to revise the state plan while each subcommittee aided the Council in creating reports of impacts, strategies, plans, and other analysis. In parallel, a team of experts compiled a stakeholder-driven Vermont Climate Assessment (VCA)—modeled in many ways after NCA4—to deliver relevant, useful research on climate impacts across the state's economic sectors (*Galford et al., 2021*). The VCA and the work of the VCC informed the development of the initial Vermont Climate Action Plan in December 2021 outlining steps to cut emissions and help Vermonters adapt (*VCC 2021*). The plan, to be updated every four years, includes an implementation section for legislators and other state-level stakeholders to inform decision-making, while the VCC continues to build out a framework for measuring and assessing progress towards achieving plan goals.

Massachusetts

In 2016, Governor Baker signed Executive Order 569 (EO569), *Establishing an Integrated Climate Strategy for the Commonwealth*, requiring executive agencies to create and implement a statewide Climate Adaptation Plan and a framework to assess the vulnerability of municipalities and all agencies to climate change and extreme weather. In response to EO569, the Legislature passed H.4835, *An Act Promoting Climate Change Adaptation, Environmental and Natural Resource Protection and Investment in Recreational Assets and Opportunity* which allocated $2.4 billion for investment in climate change adaptation, and environmental resource and green space protection. The law promotes climate change education—including its effects on low-income communities and urban communities—while allocating money to the development of parks in these areas. EO569 also set the stage for the innovative *Massachusetts Statewide Hazard Mitigation and Climate Adaptation Plan*, adopted in September 2018, which integrates the effects of climate change into hazard mitigation planning across the state. Accelerating the integration of climate change into state planning, in December 2020, the Office of Energy and Environmental Affairs created the *Massachusetts 2050 Decarbonization Roadmap* which informed the state's emissions reduction goals and pathways for achieving them as laid out in the *Clean Energy and Climate Plan for 2025 and 2030*, currently under development. In March 2021, Governor Baker signed *An Act Creating A Next-Generation Roadmap for Massachusetts Climate Policy*, setting new, stricter emissions reductions targets (below a 1990 baseline) compared to the 2008 *Global Warming Solutions Act*: 50% by 2030, 75% by 2040, and 85% by 2050. It also requires the state to achieve economywide net zero emissions by 2050.

Rhode Island

In February 2014, Governor Lincoln Chafee signed *Executive Order 14-01*, establishing the Executive Climate Change Council, charged with the development of an approach to combating climate change and advising the Governor, the Assembly, and the public on how to prepare for climate change. Following this EO, he signed H.7904, *Resilient Rhode Island Act of 2014*, which legally mandated emissions reductions (below 1990 levels) of 10% by 2020, 45% by 2035, and 80% by 2050. In April 2021, Governor Gina Raimondo signed H.5445, *2021 Act on Climate*, which established more ambitious emissions reduction targets (below 1990 levels) of 45% by 2030, 80% by 2040 and net zero by 2050. Furthermore, the act requires a reassessment of greenhouse gas emissions every five years with a view to adopting stricter reductions targets if possible. It also integrates environmental justice and planning efforts to reduce impacts on vulnerable communities and create an equitable transition. Rhode Island has been a national leader on the mitigation front. In December 2016, it became home to the nation's first commercial offshore wind farm—a five-turbine, 30 MW array around Block Island. And in 2019, Governor Raimondo signed *Executive Order 19-06*, charging state agencies to work together to develop a strategy to advance clean, affordable, and reliable heating and, in the process, making Rhode Island the first state to actively reshape the heating sector, which produces 35% of the state's emissions. In June of 2018, the state's Coastal Resource Management Council adopted the *Rhode Island Shoreline Change Special Area Management Plan* to support coastal communities, as well as state and local policymakers, in making informed decisions about adaptation along the state's extensive shoreline. A month later—and in response to Governor Raimondo's 2017 executive order, *Action Plan to Stand Up to Climate Change*—*Resilient Rhody* was adopted, providing the state with a climate resilience action strategy. Among other things, it established the Chief Resilience Officer position, facilitating direct partner

engagement to develop community-driven adaptation actions, while also highlighting financial mechanisms to advance adaptation and mitigation efforts.

Connecticut

In 2015, Governor Dannel Malloy established the Governor's Council on Climate Change (GC3) with *Executive Order No. 46*, which was formally tasked with examining the effectiveness of existing policies and regulations designed to reduce emissions and identify new strategies to meet the mitigation goal of 80% below 2001 levels by 2050. In February 2018, the Department of Energy and Environmental Protection published an updated (from *2013*) *Comprehensive Energy Strategy* containing recommendations about policy and strategy to meet Connecticut's energy goal including adding more clean energy. In May 2018, Connecticut passed *An Act Concerning Connecticut's Energy Future*, creating new goals for increasing the supply of renewable energy into the state's grid to 40% by 2030. It also set annual interim goals. In June 2018, Governor Malloy signed *An Act Concerning Climate Change Planning and Resiliency* requiring emissions reductions (below 2001 levels) of 45% by 2030 and 80% by 2050. It also requires projections of future sea level rise to be integrated into state and municipal planning. GC3 submitted its recommendations for achieving these mitigation goals in December 2018 with the release of *Building a Low Carbon Future for Connecticut*. In September 2019, Governor Ned Lamont signed *Executive Order No. 3*, increasing the responsibility of the GC3 by charging them with implementing Connecticut's 2013 *Climate Change Preparedness Plan*, creating a new, updated plan by 2021 (*Taking Action on Climate Change and Building a More Resilient Connecticut for All – Phase 1 Report: Near-Term Actions*), and tracking progress on previously articulated goals. EO 3 also requires the Connecticut Department of Energy and Environmental Protection to create pathways to realize a 100% clean energy grid by 2040. In June 2021, Governor Lamont signed *An Act Concerning Climate Change Adaptation*, allowing municipalities to create stormwater authorities charged with developing stormwater management and public outreach. This act expands Connecticut's Green Bank to fund a broader range of projects in response to and in preparation of climate change.

New York

In July 2019, New York State enacted the *Climate Leadership and Community Protection Act* requiring emissions reductions (below 1990 levels) of 40% by 2030 and at least 85% by 2050, while achieving a carbon-free electricity system by 2040. This act also established a 22-member Climate Action Council and a Climate Just Working Group to support the Council in addressing issues related to environmental justice. Another part of this 2019 law amended the *Community Risk and Resiliency Act of 2014* to explicitly consider and mitigate for sea level rise and other future flood risks. To assist in the law's implementation, state agencies released a suite of implementation guidance documents: (1) *Using Natural Measures to Reduce the Risk of Flooding*, (2) *State Flood Risk Management Guidance*, (3) *Estimating Guideline Elevations*, and (4) *Guidance for Smart Growth Public Infrastructure Assessment*. To further guide communities in assessing risk and implementation of adaptation and mitigation measures, New York State started the Climate Leadership Coordinator Services in support of the 2009 Climate Smart Communities Program. The coordinator services are a group of qualified organizations that assist municipalities in achieving their individual and statewide climate action goals. New York State has also played a leading role in addressing climate impacts on and emissions reduction opportunities within the agriculture sector by passing *The Soil Health and Climate Resiliency Act* in June 2021, which creates

more sustainable and resilient farming initiatives to limit farm run off, and increase soil health and resiliency.

Pennsylvania

In January of 2019, Governor Wolf signed *Executive Order 2019-01* requiring the Commonwealth to reduce its emissions (from 2005 levels) by 26% by 2025 and 80% by 2050. It also established the GreenGov Council charged with implementing these goals. To help local governments with climate action, in July 2019, the state created the Local Climate Action Program, which paired college students with local governments to assist in creating a climate action plan for the municipality. At the time of this writing, 53 local governments have used the program. Later that year, in October, Governor Wolf signed *Executive Order 2019-07* requiring the Department of Environmental Protection to create a rulemaking package to limit CO_2 emissions from fossil fuel-powered electric generators. The *Pennsylvania Climate Change Act of 2008* requires climate action plans and impact assessments to be updated every three years.

The most recent scientific report, *Pennsylvania Climate Impacts Assessment 2021*, not only updates climate projections for the Commonwealth, but it employs a risk-based approach to analyzing the consequences of climate hazards across different sectors, enabling a prioritization of adaptation actions in the sectors facing the most severe consequences of climate change. The related *Pennsylvania Climate Action Plan 2021* identifies 18 strategies across economic sectors to support achievement of the mitigation goals. For each strategy, the time frame for implementation, amount of emissions reduction to expect, and related economic costs and benefits are presented. In addition, a number of emerging enabling technologies that can help are also presented. The Action Plan also charts specific adaptation pathways to address the hazards identified in the Impacts Assessment, with a particular focus on human health and equity.

New Jersey

Mitigation

The *Global Warming Response Act (2007)* established two targets for emissions mitigation: an 80% reduction from 2006 levels by 2050 and the goal of reaching 1990 emission levels by 2020 (this 2020 target was achieved). In January 2018, Governor Phil Murphy signed *Executive Order No. 8* requiring state agencies responsible under the *Offshore Wind Economic Development Act of 2010* to promote offshore wind energy in order to meet the goal of acquiring 3,500 MW of offshore wind energy by 2030. This goal was updated in November 2019 by *Executive Order No. 92* increasing the state's acquisition of offshore wind power to 7,500 MW. Through *Executive Order No. 28* in May 2018, Governor Murphy directed the Board of Public Utilities to create an energy plan to achieve 100% clean energy by 2050, while bolstering the state's reputation as a leader in offshore wind and energy storage. This led to the creation of the *2019 Energy Master Plan* which identified seven strategies to achieve the 100% clean energy by 2050 goal. In 2020, the state released its *80x50 Report*, evaluating progress towards and identifying pathways to reduce emissions by 80% below 2006 levels by 2050, as called for in the original 2007 legislation.

Adaptation

Gov. Murphy issued *Executive Order No. 89*, creating the Interagency Council on Climate Resilience, charged with developing and implementing a statewide climate change resilience strategy. The order also created the Climate and Flood Resilience Program to develop a Scientific Report on Climate Change every two years highlighting climate effects on New Jersey. This led to the development of the 2020 *Scientific Report on Climate Change* and the 2021 *Climate Change Resilience Strategy*.

Coordinated Action

Along the way, the state commissioned a study to better understand the integration of the needs and challenges of under-represented and socially vulnerable populations into coastal hazards planning (*Herb and Auermuller, 2020*). Gov. Murphy issued *Executive Order No. 100* in January directing the Department of Environmental Protection to adopt Protecting Against Climate Threats (PACT) regulations establishing a statewide greenhouse gas emissions monitoring and reporting program and requiring the integration of climate considerations into regulatory and permitting processes. To better coordinate implementation and evaluation of climate action across the state while capitalizing on "green economy" growth opportunities, Gov. Murphy signed *Executive Order No. 221* in February 2021 which established the Governor's Office of Climate Action and the Green Economy.

Delaware

In January 2017, Governor John Carney committed the state to achieve emissions reductions of 26-28% below 2005 levels by 2025, consistent with the Nationally Determined Contribution submitted by the United States under the Paris Agreement. To provide a pathway towards achieving those goals, the state prepared *Delaware's Climate Action Plan* in November 2021 that was informed by a series of both public listening sessions and technical expert workshops. To expand mitigation ambition under this plan, the state passed an updated *Renewable Energy Portfolio Standards Act* in 2021, mandating the state receive 40% of its energy from renewables by 2035. Delaware has been at the forefront of state-level action when it comes to integrating the best available science into climate decisionmaking, for example, through its *Recommendation of Sea Level Rise Planning Scenarios for Delaware* (*Callahan et al., 2017*). Through various mechanisms, including the Open Space Program and the Coastal Zone Act Program, Delaware has permanently protected an estimated 90% of its coastline.

Maryland

Mitigation

Following the *Greenhouse Gas Emissions Reduction Act (GGRA) – Reauthorization* in 2016, the state was required to achieve a 40% emissions reduction below 2006 levels by 2030. Using recommendations from the Maryland Commission on Climate Change's *2020 Annual Report*, the Maryland Department of the Environment produced the *2020 GGRA Plan* in February 2021, creating an approach to achieve a nearly 50% emissions reduction by 2030, and net zero emissions by 2045. In its *2021 Annual Report and Building Energy Transition Plan*, the Maryland Commission on Climate Change highlighted strategies

state decisionmakers could adopt to achieve their emissions reduction targets and plan for climate change.

Adaptation

In May 2014, *HB615* was signed into law, establishing the Coast Smart Council with the responsibility of adopting and overseeing certain criteria to address climate impacts on capital projects. In May 2018, *HB1350* was signed into law, expanding and strengthening the "Coast Smart" siting and design criteria to better manage sea level rise and improve coastal adaptation efforts. The legislation also requires: (1) the state to establish a plan to adapt to saltwater intrusion, (2) the state to build criteria for hazard mitigation funding for sea level rise and coastal flooding, and (3) local jurisdictions that experience nuisance flooding to submit a plan to address this climate impact. In 2018, Maryland launched the Climate Leadership Academy, a novel program to provide standardized climate training and support to state and local government officials, citizens, the private sector, and nonprofits. In May 2020, the state passed *SB457* allowing local governments to create a Resilience Authority in charge of funding and managing infrastructure projects to address climate change. The state also has a *2020 Ocean Acidification Action Plan* which shares the impacts of ocean acidification on Maryland and covers actions to build resilience to ocean acidification.

West Virginia

Our assessment revealed no formal, statewide climate action policies or laws for the State of West Virginia.

Washington, DC

Washington, DC has three climate-related plans that guide much of their climate action. Each was released around 2018 after extensive stakeholder and expert input. And most provide annual progress reports.

(1) *Sustainable DC 2.0*: This is a comprehensive plan to make DC "the greenest, healthiest, most livable city" by tackling climate change and restoring the natural environment, while also addressing the economic and social needs of residents. It was informed by conversations with over 2,000 residents and surveys of thousands more. The plan includes 167 actions and 36 goals across 13 separate topics, is aligned with existing plans such as DC's Economic Strategy and State Wildlife Action Plan, and has inspired follow-on work such as Zero Waste DC and Carbon Free DC.

(2) *Climate Ready DC*: This lays out the city's strategy to become more resilient to future climate change, highlighting actions such as investments in expanding the city's tree canopy, managing stormwater, and greening its construction codes to prepare for hotter summers and heavier rains. A key innovation in this process was the creation of an analysis tool that provides a look at the climate resilience of the District's affordable housing stock, while also gauging the potential for solar and battery storage in various neighborhoods.

(3) *Clean Energy DC*: This is the city's energy and emissions mitigation plan. The plan aims to reduce

emissions by 56% in 2032 compared to 2006 levels—while also achieving carbon neutrality by 2020—through the implementation of 57 discrete actions for the District's building stock, energy infrastructure, and transportation system. In January 2019, the Clean Energy DC Omnibus Amendment Act enshrined into law the requirement that electricity supplied to the District be 100% renewable by 2032.

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