



Issue Brief

Summarizing Recent Governmental Climate Change Publications

July 2014

There has been an outpouring of reports from both domestic and international governmental bodies supporting the existence, causes, and need for action concerning climate change. Below are summaries of a selected number of these publications. Depending on the authoring body, each report has a varying focus, but they all support the common theme that climate change is happening, its causes are anthropogenic, and planning and action need to begin now to address current and future impacts.

The following reports are listed alphabetically by publishing body.

PUBLICATIONS

Assessing Health Vulnerability to Climate Change: A Guide for Health Departments

Author: U.S. Center for Disease Control and Prevention (CDC), Climate and Health Program

Published: July 16, 2014

In July 2014, the Climate and Health program at the Center for Disease Control and Prevention (CDC) released a framework to help health departments prepare for and respond to the effects of climate change linked to the prevalence of infectious diseases (e.g., extreme temperatures, precipitation, drought, storm surge, etc.). This report is the first in a five-part series conducted under the auspices of the CDC's Building Resilience Against Climate Effects (BRACE) framework. The report describes five actions health departments can take to address climate change-exacerbated health vulnerabilities, including: determining the scope of the climate vulnerability assessment; identifying known risk factors of patients; acquiring information on health outcomes associated with the risk factors; assessing the adaptive capacity of health care providers' ability to address and reduce hazardous exposure and its health consequences; and mapping this information to visually display communities and places vulnerable to disease or injury. This localized approach can be used to build climate resiliency by identifying where vulnerabilities exist, tailoring solutions to specific communities, and providing necessary information for public health interventions that reduce the rate of hazardous exposures. This report is the first of a technical series concerning climate and health.

Full report: <http://www.cdc.gov/climateandhealth/pubs/AssessingHealthVulnerabilitytoClimateChange.pdf>

Climate Change and Extreme Heat Events

Author: U.S. Center for Disease Control and Prevention (CDC)

Published: June 6, 2013

In June 2013, the Center for Disease Control (CDC) published a report entitled, *Climate Change and Extreme Heat Events*, which discusses the public health risk of extreme heat caused by climate change. Extreme heat events—or “periods of summertime weather that are substantially hotter and/or more humid than typical for a given location at that time of year”—will become more frequent, last longer, and be more severe due to unchecked climate change. Extreme heat increases discomfort and fatigue, causes heat cramps, increases emergency room visits and hospitalizations, and has caused more than 7,800 deaths in the U.S. between 1999 and 2009. The CDC reports that the number of deaths due to extreme heat is expected to increase, but also notes that many negative health effects attributed to extreme heat events are preventable. While there are a variety of local, state, and federal programs to protect public health in the face of increasing extreme heat events, the CDC recommends that more flexible programs be implemented to further address this serious public health threat.

Full report: <http://www.cdc.gov/climateandhealth/pubs/ClimateChangeandExtremeHeatEvents.pdf>

National Security and the Accelerating Risks of Climate Change

Author: CNA Corporation's Military Advisory Board (MAB) [*Please note: not a government agency.*]

Published: May 13, 2014

In May 2014, the Military Advisory Board (MAB), which is comprised of 16 retired U.S. Generals and Admirals, published a study looking at new threats or opportunities associated with climate change, its impact on the military, and the additional preparation the national security community should undertake to reduce climate risks. The major findings of this study were:

- the United States has made insufficient efforts to adapt to climate change;
- climate change impacts are acting as “catalysts for conflict” and increasing instability in vulnerable areas of the world;
- rapid population growth and changes in global security have made understanding the strategic security risks of climate change more challenging;
- the United States and the rest of the world are not prepared for the pace of melting and increased accessibility of the Arctic;
- distribution of food, fresh water, and energy are linked, and their distribution in the future will have security implications; and
- climate change will impact the U.S. military, infrastructure, economic, and social support systems.

The MAB came up with six recommendations to address these main challenges, including: the United States must lead globally on climate change; the U.S. military should factor climate impacts in all planning and operations; the United States should begin preparing for increasing access and military presences in the Arctic; all climate adaptation should consider impacts on food, fresh water, and energy access and their linkages; climate change impacts should be integrated into infrastructure and risk assessment planning; and the Department of Defense (DoD) should not only assess the impacts of climate change, but should also develop, fund, and implement plans to adapt to climate change at DoD facilities and in nearby communities.

This study is a follow-up to the 2007 Military Advisory Board (MAB) study on climate and national security, which termed climate change a “threat multiplier.”

Full report: <http://www.cna.org/reports/accelerating-risks>

2014 Quadrennial Defense Review

Author: U.S. Department of Defense (DOD)

Published: March 4, 2014

In March 2014, the Department of Defense (DOD) released the 2014 version of its Quadrennial Defense Review (QDR), which provides strategic direction for the Department and establishes its priorities. This report defines climate change as a “threat multiplier.” The authors write that sea level rise, rise in global temperatures, and changing weather patterns due to climate change, when coupled with changing global dynamics, will increase water and food scarcity, cause resource competition, and place burdens on economies, societies, and governance institutions. These impacts will likely lead to conditions—including poverty, environmental degradation, political instability, and social tension—that can enable terrorist activity. The report states that climate change will affect the operations and missions that the U.S. military undertakes, so DOD must increase its resiliency, seek to employ mitigation strategies, and work cooperatively with other nations, especially concerning humanitarian assistance, disaster response, and the Arctic.

Full report: http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf

Annual Energy Outlook 2014 (AEO2014) with Projections to 2040

Author: U.S. Energy Information Administration (EIA)

Published: May 7, 2014

In May 2014, the Energy Information Administration (EIA) released its *Annual Energy Outlook for 2014* (AEO2014), which provides information on factors that shape U.S. energy production, consumption, technology, as well as current and future market trends. The report contains findings that energy-related carbon dioxide (CO₂) emissions are stabilizing due to a shift away from carbon-intensive fuels, such as coal. To arrive at this finding, the report examined three potential scenarios for energy-sector emissions of CO₂ from 2005 to 2040 and four scenarios from 2000 to 2040; six scenarios for electric power-sector CO₂ emissions from 2012 to 2040; and three scenarios for transportation-sector CO₂ emissions from 1995 to 2040. EIA also examined CO₂ emissions, segmented by sector and fuel, in the reference cases 2005 and 2040. These reference and alternative scenarios reveal that improved energy efficiency in the transportation and residential sectors, as well as moving away from carbon-intensive fuels, are helping keep U.S. CO₂ emissions steady. The report’s executive summary has greater detail on CO₂ emissions impacts from changes in the energy and transportation sectors.

In a section pertaining to legislation and regulation updates, EIA noted changes in emissions standards by the Regional Greenhouse Gas Initiative (RGGI), changes in biofuel policy under the *Energy Independence and Security Act of 2007* (EISA2007) and the Renewable Fuel Standard (RFS), and changes to the Renewable Portfolio Standards (RPS) in five states. EIA also discussed the elimination of sunset provisions for various energy tax credits and the expansion of the corporate average fuel economy (CAFE) standards, building code improvements, and appliance standards.

Full report: <http://www.eia.gov/forecasts/aeo/index.cfm?src=Environment-f1>

Climate Change Indicators in the United States, 2014, Third Edition

Author: U.S. Environmental Protection Agency (EPA)

Published: May 28, 2014

In May 2014, the Environmental Protection Agency (EPA) released the third report in five years on climate change indicators in the United States. This peer-reviewed report relies on several government agencies, as well as universities and non-governmental organizations, for its information. The goal of this report is to “help readers understand observed long-term trends related to the causes and effects of climate change, the significance of these changes, and their possible consequences for people, the environment, and society.” The indicators were chosen using criteria that considered their utility, the quality of the data, and the indicator’s relevance to climate change. Unlike the National Climate Assessment, which discusses region-specific climate issues, this report uses broad geographic scales and long time horizons, occasionally pulling from global trends. The 30 indicators included in this report can be separated into six categories: greenhouse gases, weather and climate, oceans, snow and ice, health and society, and ecosystems.

Full report: <http://www.epa.gov/climatechange/science/indicators/download.html>

U.S. National Climate Assessment (NCA) 2014

Author: U.S. Global Change Research Program (USGCRP)

Published: May 6, 2014

In May 2014, the U.S. government released the *Third National Climate Assessment (NCA)*, a comprehensive examination of peer-reviewed science on climate change impacts in the United States. Mandated by the *Global Change Act of 1990*, the report examines climate change over a long-term timescale, observing past trends, current changes, and projecting future scenarios. It finds that the “global climate is changing and this change is apparent across a wide range of observations. The global warming of the past 50 years is primarily due to human activities.” Thirteen federal agencies oversaw the completion of the work under the auspices of the U.S. Global Change Research Program (USGCRP). More than 300 scientists from across public, private, nonprofit and academic sectors volunteered their time as authors.

The report is broken down by climate trends, notable findings, and eight regions of the United States with each region’s specific impacts highlighted. For example, the report highlights that both the Southeast and the Southwest will have to deal with water scarcity due to climate change, but the drought and warming in the Southwest will lead to more wildfires, while the Southeast will need to concern itself with extreme events, such as hurricanes, as well as water availability. The climate trends noted in this report include: increased temperatures; changes in extreme weather events; increases in the intensity, frequency, and duration of North Atlantic hurricanes; increases in the frequency and intensity of severe storms; significant changes in precipitation; increased number of heavy downpours; longer growing season (or frost-free season); reduction in ice volumes and surface extents on land, lakes, and the sea; rise in sea levels and storm surges; and increased ocean acidification. Other report findings concern the negative impact of climate change on human health (especially indigenous people) due to extreme events, decreased air quality, and the spread of diseases; damage to infrastructure; decreased water supply and quality; disruptions to agriculture; and ecosystem impacts. While the report acknowledges adaptation and mitigation efforts underway in the United States, it argues “current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.”

Full report: <http://nca2014.globalchange.gov/>

Climate Change Adaptation: DOD Can Improve Infrastructure Planning and Process to Better Account for Potential Impacts

Author: U.S. Government Accountability Office (GAO)

Published: June 30, 2014

In June 2014, the Government Accountability Office (GAO) released a report, commissioned by the Department of Defense (DOD), to assess the Department's efforts to adapt to climate change and its evaluation of climate impacts. The GAO stated that DOD has observed climate impacts and mission vulnerabilities at some of its 7,591 locations worldwide and has begun assessing impacts at these installations. However, GAO identified some limits to DOD's efforts. Specifically, DOD's current data collection methodology to assess future climate vulnerabilities at its facilities does not have a way to measure interim milestones, which could result in a failure to complete the assessment in a timely and complete manner; installation and natural resource planners lack key definitions and updated guidance to create buildings that are prepared for climate change impacts; and services' processes for approving and funding construction projects do not list "climate change adaptation" as an option, leading installation officials to rarely propose adaptation work. DOD concurred with all GAO recommendations and outlined the steps it is taking to address these shortcomings.

Full report: <http://www.gao.gov/assets/670/663734.pdf>

World Energy Investment Outlook – Special Report

Author: International Energy Agency (IEA)

Published: June 3, 2014

In June 2014, the International Energy Administration (IEA) released a report concerning investments in energy. The *2014 World Energy Investment Outlook - Special Report* looks at the structure and modeling of financial investments in the energy sector, the importance of oil in the Middle East, the future of liquefied natural gas (LNG) investments, the reliability of electricity supply, investments in low-carbon technologies, and how government actions to address climate change can play a role in energy investments. According to IEA, approximately \$1.6 trillion is invested in the global energy supply every year, but that amount needs to rise to \$2 trillion in order to limit temperature rise to below 2 degrees Celsius, adding up to \$48 to \$53 trillion of cumulative investment in energy supply and efficiency by 2035. To meet this goal, investments in energy efficiency must rise from \$130 billion annually to more than \$550 billion annually across the globe by 2035.

Full report: <http://www.iea.org/publications/freepublications/publication/WEIO2014.pdf>

Climate Change 2013: The Physical Science Basis

IPCC Working Group I Contribution to the 5th Assessment Report

Author: Intergovernmental Panel on Climate Change (IPCC) of the United Nations Framework Convention on Climate Change (UNFCCC)

Published: September 30, 2013

In September 2013, the Intergovernmental Panel on Climate Change (IPCC) published its fifth report assessing climate change science. This report reflects the work of 259 climate scientists from 39 different countries, with

input from thousands of additional government officials and experts, and draws on 9,200 peer-reviewed studies and publications regarding climate change. According to the report, "warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased." Critically, the report concludes, "It is extremely likely [95 percent confidence] that human influence has been the dominant cause of the observed warming since the mid-20th century." This is the strongest, most emphatic language yet used by the IPCC to describe its confidence in the human causes of climate change.

Warming will likely reach at least 2 degrees Celsius by the end of the century, leading to increased ice sheet melting, sea level rise, droughts and heat waves, additional ocean acidification as well as changes to precipitation amounts and patterns. The IPCC expects sea levels to rise 26 to 82cm (10-32 inches) by the end of the century, more than its last forecast (7-23 inches). It is important to note that these predictions are conservative. For the first time, the IPCC assigned a global carbon budget to keep warming below an internationally agreed upon target of 2 degrees Celsius (3.6 degrees Fahrenheit), below which the worst effects of climate change should be avoided. The panel estimates that, to meet the 2-degree target, we must not burn more than 1 trillion tons of carbon from fossil fuels, and we have already burned more than half that since the beginning of the Industrial Revolution.

Full report: <http://www.ipcc.ch/report/ar5/wg1/>

Climate Change 2014: Impacts, Adaptation, and Vulnerability
IPCC Working Group II Contribution to the 5th Assessment Report

Author: Intergovernmental Panel on Climate Change (IPCC) of the United Nations Framework Convention on Climate Change (UNFCCC)

Published: March 30, 2014

In March 2014, Working Group II (WGII) of the Intergovernmental Panel on Climate Change (IPCC) released its report on climate change's risk to human society. The *Summary for Policymakers* of WGII encompassed three years of labor, the work of 309 climate scientists and close to 2,000 experts from across the globe, as well as 12,000 peer-reviewed scientific papers, all compiled into one, succinct report. This report centered on the fact that climate risks are happening now and future impacts will likely be more immediate than once believed. Global wheat and maize production are already seeing reductions due to heat stress and all warming scenarios show the global stock of fish declining in the next hundred years, with many species especially at risk due to their sensitivity to ocean acidification. Shrinking glaciers will reduce vital water supply this century, disproportionately impacting the rural poor. Increases in greenhouse gas emissions will impact human health and well-being, with under-nutrition and water-borne diseases expected to increase due to a lack of access to food and clean water. Climate change could also indirectly increase the risk of violent conflicts and displacement of people by exacerbating already stressed environments. A temperature increase of 2 degrees Celsius would cause losses in global income of between 0.2 to 2 percent, with a higher likelihood of losses at the 2 percent end of the range. The report notes that economic losses from climate change are difficult to assess and could actually be much higher.

Full report: http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf

***Climate Change 2014: Mitigation of Climate Change
IPCC Working Group III Contribution to the 5th Assessment Report***

Author: Intergovernmental Panel on Climate Change (IPCC) of the United Nations Framework Convention on Climate Change (UNFCCC)

Published: April 13, 2014

In April 2014, Working Group III (WGIII) of the Intergovernmental Panel on Climate Change (IPCC) released its report on what can be done to mitigate climate change across sectors. Two hundred eighty-five authors from 58 countries, along with close to 900 peer reviewers, contributed to this 2,000-page report which avoids recommending specific policy goals, but instead focuses on providing policy options for different levels of government and economic sectors. The scientists contributing to the IPCC indicate clean technologies will need to overtake traditional fossil fuels in order to temper escalating climate change. With urban populations expected to triple by 2030, energy efficiency, smart infrastructure, and retrofits to buildings will all need to be implemented as part of a global mitigation strategy. The report states that the world can stay below a global rise in temperature of 2 degrees Celsius (3.6 degrees Fahrenheit) compared to pre-Industrial levels. However, to stay below this threshold—which scientists have established as the “danger-threshold”—fossil fuel burning would need to peak in the near future and then fall to between 40 to 70 percent of 2010 levels by 2050 and then continue falling until 2100. Economically speaking, this report states that the most ambitious mitigation plan would only reduce growth by about 0.06 percentage points per year. This doesn’t take into account the co-benefits of climate action, such as improved public health and increased energy efficiency savings, which could further reduce the impact to the global economy and perhaps even lead to a net benefit.

Full report: <http://mitigation2014.org/>

The Cost of Delaying Action to Stem Climate Change

Author: U.S. White House

Published: July 29, 2014

In July 2014, the Council of Economic Advisers (CEA) to the White House released a report examining the economic impacts of delaying action on climate change. The report finds that delaying action on climate change is costly (a 3 degree Celsius global temperature rise over preindustrial levels would cost \$150 billion annually) and that the uncertainty related to future climate impacts underscores the need to act now, as the consequences of these events could be irreversible. This makes climate policy analogous to taking out “climate insurance.” Delay in creating meaningful climate policy can hurt the economy in two ways: first, delay can result in additional warming which will cause more impacts and second, delaying policy now will result in more stringent policy later if future policies aim to meet the same climate goals currently being advocated by leading scientific bodies (i.e., keeping global temperatures below a 2 degree Celsius rise). This report also describes the secondary benefits of taking action now on climate change, such as creating certainty and incentives for the private sector to develop low-carbon technologies. The Council of Economic Advisers cites the Intergovernmental Panel on Climate Change (IPCC) reports, as well as other recent climate literature, when discussing the costs of delayed action; these costs include such impacts as increased atmospheric greenhouse gas (GHG) concentrations and increased economic damages from climate change, but also effects on health, crime, and political stability.

Full report: <http://1.usa.gov/X9cdoS>

UPCOMING PUBLICATIONS OF INTEREST

2nd Quadrennial Diplomacy and Development Review (QDDR): Leading Through Civilian Power

Author: U.S. Department of State (DOS)

The *Quadrennial Diplomacy and Development Review* (QDDR), released in draft form on April 22, 2014, is meant to provide a roadmap for elevating the power of U.S. citizens in advancing the country's interests and coordinating with the U.S. military. The 2010 QDDR included mention of the impact of climate change on global problems. Comments were accepted through June 13, 2014, and the final report will likely be released before the end of 2014.

For more information: <http://www.state.gov/s/dmr/qddr/>

Synthesis Report of the IPCC Fifth Assessment Report

Author: Intergovernmental Panel on Climate Change (IPCC) of the United Nations Framework Convention on Climate Change (UNFCCC)

The final publication of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) is set to be released in November 2014. This report will synthesize the materials provided in the previously released Working Group and Special Reports (see above for more information). Unlike the previous, largely technical reports, the Synthesis Report is meant to be used primarily by policymakers as a stand-alone resource when making decisions related to climate change measures.

For more information: <http://www.ipcc-syr.nl/>

Author: Jenifer Collins

Editor: Laura Small

The Environmental and Energy Study Institute (EESI) is a non-profit organization founded in 1984 by a bipartisan Congressional caucus dedicated to finding innovative environmental and energy solutions. EESI works to protect the climate and ensure a healthy, secure, and sustainable future for America through policymaker education, coalition building, and policy development in the areas of energy efficiency, renewable energy, agriculture, forestry, transportation, buildings, and urban planning.

FOR MORE INFORMATION

A Human Health Perspective on Climate Change, 2009

Author: U.S. Center for Disease Control (CDC)

Full report: http://www.cdc.gov/climateandhealth/pubs/hhcc_final_508.pdf

Short-Term Energy Outlook (May 2014)

Author: U.S. Energy Information Administration (EIA)

Full report: http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf

U.S. Energy-Related Carbon Dioxide Emissions, 2012

Author: U.S. Energy Information Administration (EIA)

Full report: <http://www.eia.gov/environment/emissions/carbon/?src=Environment-b3>

State-Level Energy-Related Carbon Dioxide Emissions, 2000-2010

Author: U.S. Energy Information Administration (EIA)

Full report: <http://www.eia.gov/environment/emissions/state/analysis/?src=email&src=Environment-f4>

19th Annual US Greenhouse Gas Inventory (April 2014)

Author: U.S. Environmental Protection Agency (EPA)

Full report: <http://1.usa.gov/1mKrj9y>

Tracking Clean Energy Progress 2014

Author: International Energy Agency (IEA)

Full report: <http://www.iea.org/publications/freepublications/publication/name-51000-en.html>

The Electrified Future: Sustainable, Secure Systems (May 2014)

Author: International Energy Agency (IEA)

Full report: <http://www.iea.org/ieaenergy/issue6/theelectrifiedfuturesustainablesecureystems.html>

World Energy Outlook Special Report 2013: Redrawing the Energy Climate Map

Author: International Energy Agency (IEA)

Full report: <http://www.iea.org/publications/freepublications/publication/name-38764-en.html>

CO2 Emissions from Fuel Combustion Highlights 2013

Author: International Energy Agency (IEA)

Full report: <http://www.iea.org/publications/freepublications/publication/name-43840-en.html>

Electricity in a Climate-Constrained World - Data & Analyses (2012)

Author: International Energy Agency (IEA)

Full report: <http://www.iea.org/publications/freepublications/publication/name-46883-en.html>

Widespread, rapid grounding line retreat of Pine Island, Thwaites, Smith, and Kohler glaciers, West Antarctica, from 1992 to 2011

Author: U.S. National Aeronautics and Space Administration (NASA) & UC California – Irvine

Full report: <http://onlinelibrary.wiley.com/enhanced/doi/10.1002/2014GL060140/>

State of the Climate 2012

Author: U.S. National Oceanic and Atmospheric Administration (NOAA) in partnership with the American Meteorological Society (AMS)

Full report: <http://www.ncdc.noaa.gov/bams-state-of-the-climate/2012.php>

Explaining Extreme Events of 2012 from a Climate Perspective

Author: U.S. National Oceanic and Atmospheric Association (NOAA)

Full report: <http://www.ametsoc.org/2012extremeeventsclimate.pdf>

United Nations Environment Programme Annual Report, 2013

Author: United Nations Environment Programme (UNEP)

Full report: <http://www.unep.org/annualreport/2013/landing.asp>

The Health Impacts of Climate Change on Americans (June 2014)

Author: U.S. White House

Full report: http://www.whitehouse.gov/sites/default/files/docs/the_health_impacts_of_climate_change_on_americans_final.pdf