

How Paris Prepares Us: The Obama Administration's Role in Addressing Global Climate Change


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Today

- Introduction to the Office of Science and Technology Policy (OSTP)
- Brief discussion on climate change—why is action so important?
- Climate agreement in Paris
 - How it was accomplished
 - Why we're not done and what's next
- Examples of OSTP leadership on climate change



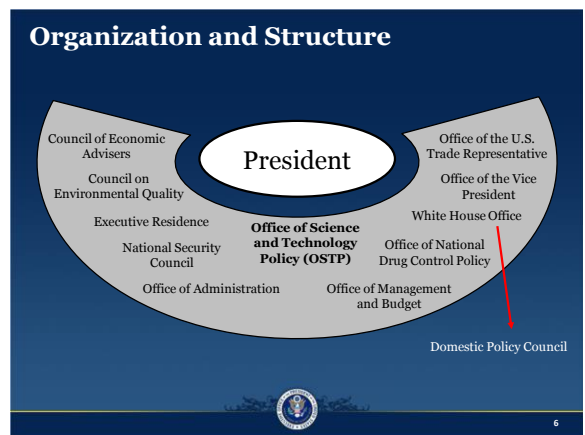
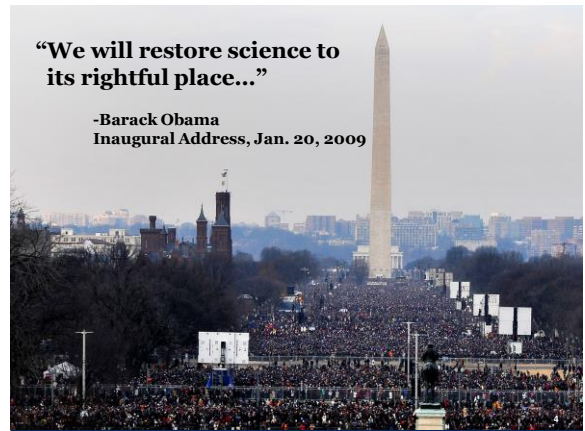
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History

- Established by Congress in 1976 to:
 - Advise the President and others within the Executive Office of the President on the effects of science and technology on domestic and international affairs.
 - Lead interagency efforts to develop and implement sound science and technology policies and budgets.
 - Work with the private sector; state, tribal, and local governments; the science and higher education communities; and other nations toward this end.



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Environment & Energy (E&E) Division

That bright blue ball rising over the moon's surface, containing everything we hold dear – the laughter of children, a quiet sunrise, all the hopes and dreams of posterity – that's what's at stake. That's what we're fighting for. And if we remember that, I'm absolutely sure we'll succeed.
- Barack Obama, June 25, 2013

- **Priorities:**
 - Tackle the issue of **climate change**
 - Build the foundation for a **clean energy economy**
 - Protect **our environment**




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We are on a global pathway to ever-more dangerous climate change

National Climate Assessment (NCA)

- 4-year report summarizing current and future impacts of climate change, developed by a team of more than 300 experts
 - Most recent NCA(3) released May 2014



All content in the 2014 National Climate Assessment is available in a dynamic format online.

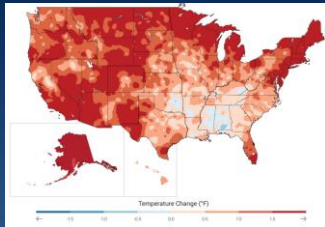


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We are on a global pathway to ever more dangerous climate change

National Climate Assessment (NCA): Key findings

- Earth's climate is changing at a pace and in a pattern not consistent with natural influences.
- Dominant driver is the human-caused buildup of CO₂ and other heat-trapping substances in the atmosphere.



Recent U.S. temperature changes compared to averages from the early- to mid-20th century show substantial warming in recent decades. Source: NCA.



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Harm is already occurring

National Climate Assessment (NCA): Key findings

- The changes in climate are already causing harm in many parts of the world and United States.



Flooding in New Orleans after Hurricane Katrina, 2005. Source: FEMA/Jocelyn Augustino

Drought in Texas' Fisher Lake, 2011. Source: AP Photo/Tony Gutierrez.


Wildfires in Colorado, 2012. Source: AP Photo/The Gazette, Christian Murdoch



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Sustained Assessment Process

- NCA is an important product, but the ongoing process to inform it is emerging as equally important
- Sustained assessment includes:
 - Development of a set of "climate indicators"
 - Special reports underpinning the quadrennial assessment
 - State of the Carbon Cycle (in development)
 - Climate Science Special Report (in development)
 - Climate Change, Global Food Security, and the U.S. Food System (2015)
 - The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment (April 2016)



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THE IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH

IN THE UNITED STATES:
A SCIENTIFIC ASSESSMENT



U.S. Global Change Research Program

Health2016.globalchange.gov

Historic Agreement in Paris at COP21



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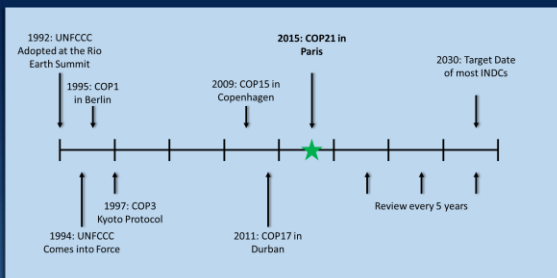
Conference of the Parties (COP21)

- Resulted in historic Paris Agreement
- Ambitious agreement
 - Goal (2100) is temperature change of 2° C (or less)
 - Aim at limiting to 1.5° C if possible
 - Ambitions ratchet up over time
- Mitigation and adaptation through 2025-2030
- Agreed to help developing countries with impacts
- Transparency and accountability in national emissions
- Developing countries supported as they pursue clean and climate resilient growth.
- **Agreed to by all 195 countries at COP21**



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COP21 was Decades in the Making



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What was different?

- Four reasons:
 1. Clearer signs of climate change
 2. Leadership by two largest emitters – US and China
 3. Clean energy more economic
 4. Bottom-up pledges (INDCs)



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1. Increasing consensus around attribution

- FAR: (1992) The size of the warming is **broadly consistent** with predictions of climate model.
- SAR: (1995) The **balance of evidence** suggests a discernible human influence on global climate.
- TAR: (2001) There is new and **stronger evidence** that most of the warming observed over the last 50 years is **attributable** to human activities.
- AR4: (2007) **Most of the observed increase** in global average temperatures since the mid-20th century is **likely due** to the observed increase in anthropogenic greenhouse gas concentrations.
- AR5: (2014) Human influence on the climate system is clear. It is **extremely likely** that human influence has been the **dominant cause** of the observed warming since the mid-20th century.



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2. Leadership by major emitters

- United States: largest emitter per capita
- China: largest emitter overall
- Joint announcement with China in 2014 on climate change and clean energy cooperation was a key factor in international optimism around COP21



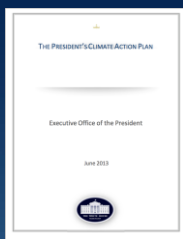
President Obama shakes hands with Chinese President Xi Jinping after their November 2014 press conference in Beijing announcing a landmark bilateral climate agreement.



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President's Climate Action Plan (CAP)

- Released in June 2013
- Outlines executive actions to address climate change while sparking American innovation and economic growth
- Composed of three key pillars:
 - Cutting carbon pollution in America
 - Preparing the United States for the impacts of climate change
 - Leading international efforts to address climate change



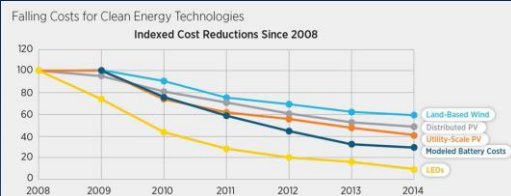
CAP: Cutting carbon/GHG pollution

- Focus areas:
 - Reducing carbon pollution from power plants and the transportation sector
 - Reducing other greenhouse gases (GHGs)
 - Accelerating U.S. clean-energy leadership
 - Building a 21st century clean-energy infrastructure
 - Cutting energy waste
- Demonstrated a strong commitment to reducing emissions and prepared the United States for the Paris COP21 negotiations



3. Technology progress

DOE, "Revolution Now", 2015



- Since 2008—in the United States, costs have dropped 40% for wind power, more than 50% for solar photovoltaics, 70% for batteries for electric vehicles, and 90% for light-emitting diodes.



4. Going to bottom-up commitments



- The Durban Platform for Enhanced Action called on nations to develop "Intended Nationally Determined Contributions" (INDCs)
- 188 countries, representing 98.7% of global emissions, have submitted an INDC.

<http://cait.wri.org/indc/#/map>



INSIGHTS | PERSPECTIVES

CLIMATE POLICY

Can Paris pledges avert severe climate change?

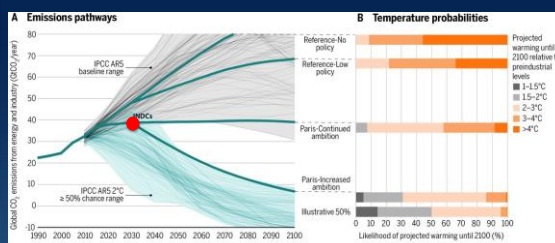
Reducing risks of severe outcomes and improving chances of limiting warming to 2°C.

By Allen A. Fawcett,¹ Gokul C. Iyer,^{2*} Leon E. Clarke,³ James A. Edmonds,⁴ Nathan E. Hallman,⁵ Haewon C. McJeon,⁶ Joeri Rogelj,⁷ Reed Schuler,⁸ Jameel Alsalam,⁹ Ghassem R. Asrar,¹⁰ Jared Creason,¹¹ Minji Jeong,¹² James McFarland,¹³ Ampriya Munda,¹⁴ Wenjing Shi¹⁵

- Analyzed Paris from a risk management perspective and pose two key questions:
 - How much does Paris and the INDCs reduce the probability of the highest levels of temperature change?
 - How much do they improve the odds of achieving the international goal of limiting temperature change to 2°C?



"The Judgment of Paris" – a new analysis



Global CO₂ emissions and probabilistic temperature outcomes of Paris.

Allen A. Fawcett et al. Science 2015;science.aad5761



What's next?

- Ensure ambition continues to increase
- Track progress on:
 - Mitigation
 - Adaptation
 - International Engagement



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Mitigation: Mission Innovation

- November 2015 (at COP21): President Obama joined world leaders in announcing “Mission Innovation”
- 20 countries committed to doubling their respective clean-energy R&D over five years.
- Launched in parallel with the Breakthrough Energy Coalition, an initiative spearheaded by Bill Gates to invest extraordinary amounts of private capital in clean energy



President Obama joins other world leaders in launching Mission Innovation at COP21 in Paris, November 2015



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Mitigation: Methane Emissions

- Methane is the second most important greenhouse gas and a relatively new area of regulatory focus
- In January 2015, the Obama Administration announced a goal to reduce methane emissions from the oil and gas sector by 40-45 percent from 2012 levels by 2025
- OSTP focuses on measurement science and technology for methane



An infrared image of the Aliso Canyon methane plume from aircraft. From an Environmental Defense Fund video released around December 20, 2016.



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Adaptation: Providing Data and Tools

Climate Data Initiative (CDI) and Climate Resilience Toolkit (CRT)

- CDI launched March 2014; CRT launched November 2014
- CDI & CRT build on Administration commitments to (1) strengthen resilience to climate change, and (2) make government-held data more accessible
- Other efforts to leverage Federal data for climate preparedness:
 - Innovation challenges and prizes
 - Stakeholder engagement
 - Multi-sectoral commitments



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International Engagement: Climate Services for Resilient Development

- September 2014 (UN Climate Summit): Partnership announced
- June 2015: Partnership launched
 - \$34+ million in initial financial and in-kind contributions
 - Eight founding partners: U.S. Government, American Red Cross, Asian Development Bank, Esri, Google, Inter-American Development Bank, Skoll Global Threats Fund, U.K. Government
- Initial efforts focused on Colombia, Ethiopia, and Bangladesh

Representatives of founding partner organizations and initial focus countries at the partnership launch event in June 2015.



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International Engagement

- Science and technology collaboration – Joint Committee Meetings (JCMs); other engagement
- Role in Paris agreement:
 - Ensuring ambition continues to increase
 - Meeting and tracking global goals for adaptation
 - Lead on transparency and data sharing
 - Potentially complement agreement's transparency and GHG reporting mechanism with additional verification methods



Dr. Holdren at South Korea JCM



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OSTP leadership on related topics



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Global Change

- U.S. Global Change Research Program (USGCRP): advance knowledge of global change, and mobilize knowledge into action



Landing page of the USGCRP website.



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Arctic

- Polar regions are so remote...so why so important?
 - National security, maritime operations, energy and economic benefits, environmental stewardship, etc.




- What happens in the Arctic doesn't stay in the Arctic!



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Arctic

- August/September 2015: POTUS trip to the Alaskan Arctic
 - Shined a spotlight on Alaska as “the frontlines of our fight against climate change.”
 - 3-day trip that included POTUS engagement at:
 - GLACIER Conference
 - Exit and Bear Glaciers in Seward
 - Communities of Dillingham and Kotzebue



President Obama collecting meltwater from Exit Glacier in Alaska



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Arctic



Marine Exchange of Alaska (Juneau)



Cold Climate Housing Research Center (Fairbanks)



Permafrost Tunnel (Fairbanks)



GLACIER Summit (Anchorage)



ANSEP (Anchorage)



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Water: A Forward-looking Opportunity





Not enough water Too much water Poor quality water

How can innovative solutions contribute to better stewardship of our existing water resources to ensure a sustainable and resilient water future?



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White House Water Summit



OUTCOMES:

- More than 150 institutions announced new efforts and commitments in support of the Summit goals
 - A Presidential Memorandum and Action Plan on drought
 - Nearly \$4 billion in private capital investments in water-infrastructure projects
 - More than \$1 billion from the private sector over the next decade for R&D for new technologies
 - Nearly \$35 million of Federal grants this year for science
 - Release of a new National Water Model



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Climate Education and Literacy Initiative

- Launched in December 2014
- Goal: enhance climate literacy of students and citizens across the United States
- Connect American students and citizens with best-available, science-based information about climate change
 - Increase learning opportunities
 - Enhance professional development and training
 - Provide educators with informational resources

OSTP Director John Holdren (center) recognizes "White House Champions of Change for Climate Education and Literacy" in February 2015.



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Looking forward

It's easy to be cynical and to say climate change is the kind of challenge that's just too big for humanity to solve...[but] it's exactly the kind of challenge that's big enough to remind us that we're all in this together.

- Barack Obama, August 3, 2015



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Thank You



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