

Climate and Energy Security in Alaska



American Security Project

Fact Sheet

—
Sierra Hicks

October 2017

BOARD OF DIRECTORS



The Honorable Gary Hart, Chairman Emeritus

Senator Hart served the State of Colorado in the U.S. Senate and was a member of the Committee on Armed Services during his tenure.



Governor Christine Todd Whitman, Chairperson

Christine Todd Whitman is the President of the Whitman Strategy Group, a consulting firm that specializes in energy and environmental issues.



Nelson W. Cunningham, President of ASP

Nelson Cunningham is President of McLarty Associates, the international strategic advisory firm headed by former White House Chief of Staff and Special Envoy for the Americas Thomas F. "Mack" McLarty, III.



Brigadier General Stephen A. Cheney, USMC (Ret.)

Brigadier General Cheney is the Chief Executive Officer of ASP.



Norman R. Augustine

Mr. Augustine was Chairman and Principal Officer of the American Red Cross for nine years and Chairman of the Council of the National Academy of Engineering.



Ambassador Jeffrey Bleich

The Hon. Jeffrey Bleich heads the Global Practice for Munger, Tolles & Olson. He served as the U.S. Ambassador to Australia from 2009 to 2013. He previously served in the Clinton Administration.



Alejandro Brito

Alejandro Brito is President of Brito Development Group (BDG), LLP. In the last twenty years, Mr. Brito has overseen the design, construction, development and management of over 1,500 luxury housing units in Puerto Rico.



The Honorable Donald Beyer

Congressman Donald Beyer is the former United States Ambassador to Switzerland and Liechtenstein, as well as a former Lieutenant Governor and President of the Senate of Virginia.



Lieutenant General Daniel Christman, USA (Ret.)

Lieutenant General Christman is Senior Vice President for International Affairs at the United States Chamber of Commerce.



Robert B. Crowe

Robert B. Crowe is a Partner of Nelson Mullins Riley & Scarborough in its Boston and Washington, DC offices. He is co-chair of the firm's Government Relations practice.



Lee Cullum

Lee Cullum, at one time a commentator on the PBS NewsHour and "All Things Considered" on NPR, currently contributes to the Dallas Morning News and hosts "CEO."



Nicholas Clark

Nicholas Clark is the CEO and Executive Director of Alexium International. He is also co-founder and Managing Partner at Viaticus Capital.



Admiral William Fallon, USN (Ret.)

Admiral Fallon has led U.S. and Allied forces and played a leadership role in military and diplomatic matters at the highest levels of the U.S. government.



Raj Fernando

Raj Fernando is CEO and founder of Chopper Trading, a technology based trading firm headquartered in Chicago.



Scott Gilbert

Scott Gilbert is a Partner of Gilbert LLP and Managing Director of Reneo LLC.



Vice Admiral Lee Gunn, USN (Ret.)

Vice Admiral Gunn is the President of the Institute of Public Research at the CNA Corporation, a non-profit corporation in Virginia.



The Honorable Chuck Hagel

Chuck Hagel served as the 24th U.S. Secretary of Defense and served two terms in the United States Senate (1997-2009). Hagel was a senior member of the Senate Foreign Relations; Banking, Housing and Urban Affairs; and Intelligence Committees.



Lieutenant General Claudia Kennedy, USA (Ret.)

Lieutenant General Kennedy was the first woman to achieve the rank of three-star general in the United States Army.



The Honorable John F. Kerry

John Kerry is a distinguished fellow for global affairs at Yale University. In 2013, Kerry was sworn in as the 68th secretary of state of the United States. Kerry served for more than twenty-five years as a U.S. senator from Massachusetts.



General Lester L. Lyles, USAF (Ret.)

General Lyles retired from the United States Air Force after a distinguished 35 year career. He is presently Chairman of USAA, a member of the Defense Science Board, and a member of the President's Intelligence Advisory Board.



Dennis Mehiel

Dennis Mehiel is the Principal Shareholder and Chairman of U.S. Corrugated, Inc.



Stuart Piltch

Stuart Piltch is the Co-Founder and Managing Director of Cambridge Advisory Group, an actuarial and benefits consulting firm based in Philadelphia.



Ed Reilly

Edward Reilly is Global Chief Executive Officer of the Strategic Communications practice of FTI Consulting.



LtGen Norman Seip, USAF (Ret)

Lieutenant General Norman R. Seip, USAF (Ret) served in the Air Force for 35 years. His last assignment was Commander of 12th Air Force.

How is Alaska Affected by Climate Change?

Alaska is already feeling the effects of climate change. The Arctic is warming twice as fast as the rest of the world and Alaska is warming at twice the rate of the rest of the U.S. As a result, Arctic sea ice is shrinking, glaciers are retreating, the shores eroding, and the permafrost that underlays much of the state is melting. This reality threatens the security of the state and the country.

Current Environmental Impacts

- The area of the Arctic Ocean covered by sea ice in the summer of 2012 was nearly 50% smaller than the historical average and the ocean could be nearly ice free during the late summer by the 2030s.¹



Yellow marks the 30-year average minimum sea ice extent from 1981 through 2010. NASA image.

- As the amount of sea ice decreases, communities on land will lose the dampening effect it has on storms, making them more intense.
- 80% of Alaskan land is in a permafrost zone.²
 - As permafrost melts, the land “slumps,” or sinks, as ice turns to water.
 - Melting permafrost also accelerates erosion, especially near bodies of water.
- Rising temperatures, wetland drying, drier summers, and more frequent thunderstorms have led to more large wildfires.
 - In 2015, more than 5 million acres burned, with a record 6.5 million acres burned in 2004.³
- Climate change is likely to affect animal biodiversity in Alaska, threatening native communities’ traditional way of life.



Deer Creek Fire in Yukon-Charley Rivers National Park. NPS photo.

Security Impacts

Climate change does not only have environmental implications. It also presents serious challenges to ensuring state and national security.

Infrastructure

- The combination of thawing permafrost, melting sea ice and sea level rise poses a threat to military and civilian infrastructure.
 - Land slumping affects the integrity of buildings, roads, runways, pipelines, water supplies, and sewer systems.
 - The shoreline has eroded enough to damage several Air Force radar early warnings and communications installations that are part of the Long Range Radar program.⁴
 - At the Cape Lisburne Long Range Radar Site, where the runway is about 80 feet from the coast, the Air Force spent \$47 million to protect the runway and ensure viability of the site.⁵
 - Access to training areas has been affected as well; with thawing permafrost, the ground becomes impassable and trainings must be put on hold, affecting troop readiness.
- Due to melting permafrost, the Environmental Protection Agency estimates that the cost of maintaining public infrastructure is likely to increase by 10-20% in next 20 years.⁶
- Due to melting, the winter travel season in some areas has decreased by half since 1970.⁷

Communities

- As natural disasters become more extreme and frequent, people are being forced to move.
 - The village of Newtok on the west coast of Alaska has requested federal funds to assist in the ongoing relocation and reconstruction of the entire community, because their homes are sliding into the Ninglick River.
 - Engineers estimate that the village is losing 70 feet of land per year.⁸

Transportation

- As Arctic ice melts and the ocean opens to more international shipping, there is potential for conflict among nations. The amount of ship traffic increased 50% from 2010-2014 and is expected to increase 500% from 2015 to 2025.⁹
 - Increased commercial activity in the region could magnify already tense disputes over territory.



CGC Healy icebreaker. USCG photo.

Opportunities for Increased Security

The effects of climate change are serious, indisputable, and require concerted action. Alaskans must find ways to adapt to the effects of a changing environment. Officials should push for heavy infrastructure spending, with a focus on building infrastructure, like the roads, buildings, and ports, that is adapted and resilient to the effects of climate change, including more extreme weather, land slumping, and coastal erosion.

In addition, Alaska can invest in more reliable and clean sources of energy. Harnessing alternative sources of energy not only reduces the output of carbon emissions, but also helps military bases reduce their vulnerability to energy disruptions from the local power grid.

Renewable Energy Cases in Alaska

Kodiak

Since 2001, the average price of electricity has risen 50% nationally, while the average in Kodiak, AK has dropped 5%.¹⁰ The Kodiak Electric Association made the decision in 2009 to source 100% of the community's electricity from renewable sources by 2020. Through the use of hydro and wind power, the community has achieved 99.7% of its goal. The new renewable energy infrastructure is expected to pay for itself in cost savings within the decade.



**Wind turbines in Kodiak, AK.
Image Source: ABB Group.**

Joint Base Elmendorf-Richardson

Joint Base Elmendorf-Richardson is one example of a military base that has started to diversify its energy supply. The base is using methane from a municipal solid waste landfill to generate about 56,000 megawatts annually, or 36% of the bases' electricity need.¹¹ Savings are estimated to be \$30 million over the lifetime of the facility.¹² The base is considering both wind and tidal energy production, but has found that solar energy is not viable, due to low-sunlight conditions in Alaska.

Microgrids, which would allow bases to separate themselves from commercial power grids, can enhance energy security and ensure mission effectiveness. Though the base would remain connected to the commercial power grid, having a microgrid would allow the base to prioritize critical mission activities in the event of a power cutoff. Isolated communities could also benefit from renewable energy sources. Alaska is estimated to be home to more than 90% of America's river current and tidal energy, but only 200 remote communities utilize any renewable energy.¹³ Like Kodiak, other communities could shift from relying on diesel generators and volatile fuel deliveries to producing most, if not all, of their energy on their own grid, increasing their energy resilience.

There is significant room for communities to move towards renewable energy infrastructure that can create jobs, bring electricity costs down, and decrease carbon emissions. Adapting to the impacts of climate change will require both the civilians and the military in Alaska to invest in infrastructure, energy efficiency, and other resiliency building measures. Alaska is warming twice as fast as the continental United States, providing an example for what the effects of climate change could look for the rest of the country.

Endnotes

1. National Aeronautics and Space Administration. Global Climate Change: Vital Signs of the Planet. “Arctic Sea Ice Minimum.” 2017. <https://climate.nasa.gov/vital-signs/arctic-sea-ice/>.
2. United States Environmental Protection Agency. “What Climate Change Means for Alaska.” 2016. <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ak.pdf>.
3. Chris Mooney. “5 Ways Climate Change Is Already Affecting Alaska.” *Chicago Tribune*. August 31 2015. <http://www.chicgotribune.com/news/nationworld/ct-alaska-climate-change-20150831-story.html>.
4. Laura Parker. “Who’s Still Fighting Climate Change? The U.S. Military.” *National Geographic*. February 7, 2017. <http://news.nationalgeographic.com/2017/02/pentagon-fights-climate-change-sea-level-rise-defense-department-military/>.
5. Zachariah Hughes. “Erosion threat at remote military radars decades ahead of schedule.” *Alaska Public Media*. July 4, 2016. <https://www.alaskapublic.org/2016/07/04/erosion-threat-at-remote-military-radars-decades-ahead-of-schedule/>.
6. U.S. Global Change Research Program. “The National Climate Assessment.” 2014. <http://nca2014.globalchange.gov/report/regions/alaska#statement-17122>.
7. United States Environmental Protection Agency. “What Climate Change Means for Alaska.” 2016. <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ak.pdf>.
8. Rachel Waldholz. “Alaska Village, Citing Climate Change, Seeks Disaster Relief in Order to Relocate.” *National Public Radio: All Things Considered*. January 10, 2017. <http://www.npr.org/2017/01/10/509176361/alaskan-village-citing-climate-change-seeks-disaster-relief-in-order-to-relocate>.
9. U.S. Department of the Interior: National Park Service. “State of the Park Report for Bering Land Bridge National Preserve.” June 2017. <https://www.nps.gov/stateoftheparks/bela/naturalresources/shiptraffic.cfm>.
10. David Shaw. “What Rural Alaska Can Teach the World About Renewable Energy.” *Scientific American*. March 26, 2017. <https://www.scientificamerican.com/article/what-rural-alaska-can-teach-the-world-about-renewable-energy/>.
11. Staff Sgt. Robert Barnett. “Elmendorf Saves Through Alternative Energy.” *United States Air Force*. January 9, 2015. <http://www.af.mil/News/Article-Display/Article/559956/elmendorf-saves-through-alternative-energy/>.
12. Heather Clancy. “Alaska military base using landfill gas for electricity.” *ZD Net*. August 3, 2012. <http://www.zdnet.com/article/alaska-military-base-using-landfill-gas-for-electricity/>.
13. Ibid.

The American Security Project (ASP) is a nonpartisan organization created to educate the American public and the world about the changing nature of national security in the 21st Century.

Gone are the days when a nation's security could be measured by bombers and battleships. Security in this new era requires harnessing all of America's strengths: the force of our diplomacy; the might of our military; the vigor and competitiveness of our economy; and the power of our ideals.

We believe that America must lead in the pursuit of our common goals and shared security. We must confront international challenges with our partners and with all the tools at our disposal and address emerging problems before they become security crises. And to do this we must forge a bipartisan consensus here at home.

ASP brings together prominent American business leaders, former members of Congress, retired military flag officers, and prominent former government officials. ASP conducts research on a broad range of issues and engages and empowers the American public by taking its findings directly to them via events, traditional & new media, meetings, and publications.

We live in a time when the threats to our security are as complex and diverse as terrorism, nuclear proliferation, climate change, energy challenges, and our economic wellbeing. Partisan bickering and age old solutions simply won't solve our problems. America – and the world - needs an honest dialogue about security that is as robust as it is realistic.

ASP exists to promote that dialogue, to forge that consensus, and to spur constructive action so that America meets the challenges to its security while seizing the opportunities that abound.



American Security Project

www.americansecurityproject.org