



EVENT SUMMARY

SECURITY & CLIMATE CHANGE: ISSUES AND PERSPECTIVES FOR THE PACIFIC COAST

San Diego, California

The Veterans Museum, Balboa Park

February 21, 2017

This one-day event (see agenda below) brought together members of the security community, local, state and federal government, academia, local non-profits, the private sector and others to discuss climate change, national security, local resilience, regional innovation and the interconnections between these fields.

The event aimed to:

1. Raise awareness and strengthen a community of practice around climate security issues as they affect the West Coast, with an eye toward Asia-Pacific.
2. Situate local issues in a global context, including the relevance of Pacific-facing military installations for US strategic interests in a climate-changed future.
3. Discuss the relationship between military installations and surrounding communities, and the importance of local and regional climate resilience (energy, water, transport infrastructure, etc.) for the strength of the installations themselves.

The event's thesis:

The US is a Pacific nation. The Asia-Pacific is one of the most disaster prone/climate vulnerable regions of world with a rapidly-growing population. It's also the most militarized part of the world, and home to both rising powers and a number of failed states - including states with nuclear capabilities. As well as home to some of our closest allies. The US military hosts numerous coastal installations across the region (including on its own West Coast), and the U.S. is slowly but surely "rebalancing" towards this critical part of the world. Considering this reality, addressing climate change risks in the region should be a core element of U.S. national security and foreign policy, not least as that response presents significant opportunities for the United States, both at home and abroad. We are at a critical moment in time when we must decide whether or not we will lead in addressing the most pressing challenges of the 21st century. This conference aims to start answering that question.

Advisory Board

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Swathi Veeravalli,
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of Engineers

Key themes:

The US military addresses climate change for practical, mission-related reasons.

“All of this innovation is taking place not because they’re tree huggers but because they have a mission, they’re trying to protect the war fighter and trying to win the war.” – Congressman Scott Peters, US House of Representatives, 52nd Congressional district

- Climate change will impact US military’s readiness, operations and strategy. In response, the military is addressing climate change in a range of ways: diversifying its energy portfolio, defending coastal installations from sea level rise, adapting training areas and improving water management, amongst other measures.
- The military’s focus is on the mission impact of climate-related risks. Regardless of their origins, the military assesses risks to mission and determines how to operate.
- While energy diversification may use renewable technologies, the primary motivation is reducing dependency on traditional energy sources, especially where that dependency creates a risk factor related to the military’s ability to complete its mission.
- Energy innovation in the Navy has long been motivated by energy security; they’ve transitioned from coal to nuclear to renewables to power ships. Oil price spikes affect their budget and broader mission, and they are now building hybrid ships to avoid these.
- In the same vein, the Department of the Navy made the biggest purchase of renewable energy by any federal department in 2015, a 210 MW direct-current solar facility which will provide power to 14 land-based Navy and Marines facilities in the Southwest (including San Diego).
- Much of the innovation in the federal government in energy is happening in the military, not because of an ideological perspective about climate, but rather, as with the private sector, they realize there is a threat as well as a business case for it.



“We’re doing it – not because it’s green, but because it increases our war fighting capability, makes us less predictable, less reliant on single lines of communication and logistics. We do it because it improves our ability to do our job. We approach it from a war fighting enhancement and operational capability and efficiency perspective.” – Rear Admiral Yancy B. Lindsey, Commander Navy Region Southwest

San Diego-area installations are affected by and are addressing these challenges

- DoD energy projects in the Southwest are diversifying their energy portfolio, making the military less dependent on a single energy source, whether that be backup generators, the regional grid, or others.

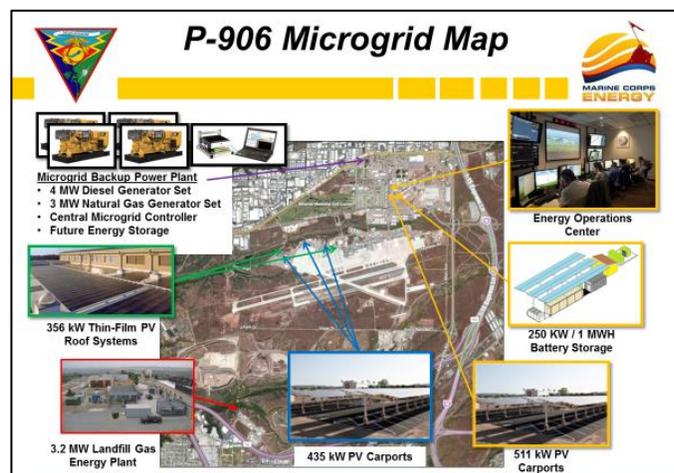
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- Marine Corps Base Camp Pendleton has a microgrid with a flywheel and batteries; it can be connected to the grid. Marine Corps Air Station Miramar is also installing a microgrid (discussed below). Adaptation and resilience are site-specific, as different locations have different strengths (e.g. solar or wind potential).
- Climate change necessitates water security measures as well as energy security measures for the military. The energy/water nexus is complex – for example, energy is needed to treat and move water – but it is not broadly understood, according to one speaker.
- Water quality and availability issues are impacting area military installations and precipitating a variety of responses. Naval Base Point Loma is dealing with saltwater infiltration to its water source. Naval Base Coronado is assessing ways of extracting value from sewage flows. Naval Auxiliary Landing Field San Clemente Island has no water source, so it must be delivered by barge. The Navy is “always looking for ways to generate water out there.” Naval Outlying Field San Nicolas Island supports the Pacific Missile Test Center; wind turbines installed there will generate enough electricity to meet all the island’s needs and could also power a desalinization plant to improve the installation’s water security.
- Further afield, the 1 million-acre Naval Air Station China Lake is dependent on the Indian Wells Valley aquifer to be a viable installation, in order to conduct research, development, evaluation and testing of navy weapon systems. The aquifer is being depleted at an increasingly rapid rate; without it, the base is no longer viable. The Navy is therefore part of the effort to examine how the state and local area might manage the aquifer.
- One senior military speaker noted the need for more frequent, higher-level conversations that lead to policies, regulations and resources that make some of the military’s climate risk management measures more actionable, “not only on our installations but also in communities and the nation.”

“The things that the Marine Corps and Navy are doing in the Southwest are directly relevant to installations elsewhere. They provide a critical testbed for these technologies to be applied not just to US installations but to our friends and partners throughout the Asia-Pacific. On collaboration, we’ve spent years developing joint ventures between DoD, DOE, places like Stanford, Google and other tech companies, to pull together the best and brightest minds in this area. How do you develop the best micro grid, the most resilient systems? What are the conditions they can operate in; how can this be applied to DoD and how can they take these out and map them onto places that are also at risk in Asia-Pacific? That’s been very successful.” – Commander David Slayton (USN-Ret.), The Center for Climate and Security Advisory Board

Case study: Marine Corps Air Station Miramar

- The microgrid being installed at MCAS Miramar is the largest investment the Marine Corps has put into an energy project. It will enable them to use on-site renewable resources to provide 100% backup power.
- The microgrid will have both conventional (gas and diesel) and renewable energy sources in the portfolio; conventionals can help stabilize the grid to allow a higher penetration of renewables, until renewables take over as the primary source with conventionals as an as-needed backup.



- What the Marine Corps is doing at Miramar resonates for the rest of the Marine Corps.

“The micro grid isn’t a mitigation to a blackout, it’s preparing for something much more grand that we don’t know. We don’t know what the threats are, and we don’t know what the cause of the situation might be, but we are going to be ready for it. [This technology can] help both the military, the Marines the Navy, as well as the community. If Miramar is up and running, that gives the Marines the capability to respond in any way they see fit in their future and their mission to protect the country.” – Mick Wasco Energy Program Manager, Marine Corps Air Station Miramar

Climate change will affect what the military does and how it does it

- Domestically, military involvement in emergency response, such as swift water rescue or firefighting, requires training and specialized equipment. The time and resources required for equipping and training effectively may compete with other military priorities.
- Internationally, increasing demand for humanitarian rescue operations may also come up against finite capacities in terms of personnel, equipment and time, as well as competing military priorities. This may force decision-making on which humanitarian crises to prioritize responding to.
- For more information on this topic, see climatesecurity101.org

“We see the effects of climate change as giving us more business, business quite frankly that we don’t need, and that’s going to be a challenge, not just on our equipping and training but our ability to deploy in other areas.” – Gen. Ron Keys (USAF-Ret.), The Center for Climate and Security Advisory Board



Climate change will impact the US military’s mission in Asia-Pacific

- A “significant number of people will have direct and serious consequences [of climate change], not only for the region of Asia-Pacific but also for us back here in the US,” according to one speaker.
- Climate change may interact with underlying drivers of instability including resource stress, food insecurity, natural disasters and other hazards to increase the risk of fragility and state failure.
- Intelligence-sharing with other countries is an opportunity to collaboratively work with international partners to examine potential climate-related fragilities. For the intelligence community, understanding how climate relates to drivers of instability and how climate may affect vulnerable regions, as well as the potential consequences for the US, is required to do this effectively.
- Humanitarian assistance and disaster response is an important component of the US’s relationships with Asia-Pacific nations. Communicating with them to establish baseline knowledge and support to examine current challenges and better anticipate future challenges is important to participate the increase in demand for humanitarian assistance and disaster response missions.

- Being adequately prepared for humanitarian assistance and disaster response missions, much of which falls on the military's shoulders, requires a whole of government approach to plan, prepare for and be ready to execute these missions. The budget for humanitarian assistance and disaster response in DoD has continued to grow; better anticipating future needs means being better able to respond.

“The challenges are – if [Commander Navy Region Southwest] Adm. Lindsey doesn't have a place for people to train and for people to live [as a result of climate impacts], it's the same overseas. If there's not that sense of stability to be able to operate, there's not the anticipation of stability, then that creates instability. What are some of the factors that are going to lead to destabilizing actions or contexts that could destabilize some of the governments that we have to work with, or nations that we depend on hosting our warships overseas?” – Cmdr. David Slayton (USN-Ret.), Advisory Board, The Center for Climate and Security

The Asia-Pacific rebalance will have local impacts for the Pacific Coast

- The Asia-Pacific rebalance will increase the number of ships in the San Diego area from 50-55 into the high 70s.
- This will impact the local community, bringing around 25,000 additional sailors and their families, which will increase demand on local infrastructure including housing and transportation systems in an area where, according to one speaker, “there is not a lot of room for growth.”
- This requires work on area critical infrastructure, including housing and transportation access to and from area military installations. So far, this process has involved an assessment of the impact on the local community, as well as communication, engagement and partnering with community agencies regarding DoD plans.

Coordination and collaboration between military installations and surrounding communities can strengthen both

- Military installations are a part of the surrounding community, often sharing energy, water and transport infrastructure and housing personnel. As one speaker put it, resilience at the installations needs to be complemented by resilience in the community, in order for the military to be operational and accomplish its national security mission.
- Legislation in California (Senate Bill 379) requires local governments to incorporate climate risk and adaptation into planning in actionable ways. These long-term planning processes that local governments are undergoing provide an opportunity for DoD facilities to actively engage surrounding communities in deeper discussions around critical infrastructure, land use and other points of mutual interest and interconnection.
- Funding opportunities exist to improve coordination amongst local actors studying climate risk and resilience, for example through California's Office of Economic Adjustment or other grants. Community Liaison Plans Officers can assist communities in putting together proposals for joint climate impact studies between, for example, local municipalities and the DoD, to eliminate gaps and seams that may exist between different actors' resilience planning.

“The translation of many of the successes are feeding themselves into community planning projects... Climate Action Plans are being developed in the communities which are taking into effect some of the results that the military has in fact enjoined over the last 20+ years of research and implementation and development.” Rear Admiral Leendert “Len” Hering Sr. (USN - Ret.), Executive Director, Center for Sustainable Energy

Disaster response and resilience can be strengthened by civilian-military (civ-mil) coordination

- Joint training, exercises, communication and collaboration between military and civilian disaster response authorities strengthen processes through which the military can support disaster response when needed, for example between military pilots and helicopters and Cal Fire (the California Department of Forestry & Fire Protection).
- This Defense Support of Civil Authorities is a successful model for civ-mil collaboration; one speaker suggested that it provides a framework to address broader issues around managing climate-related risks, saying that, “Opportunities exist to expand on what we do in a crisis and open the aperture a little bit on how we work together to move forward.”
- Other instances of civ-mil cooperation in managing disasters were cited, including:
- During the 2007 wildfires in Southern California, the electricity grid was in danger of collapse. To keep the grid up, large customers needed to come off; civil authorities approached the Navy, the largest customer able to act swiftly in a unified way. The Navy was able to bring 43 ships off of the grid and make 16 MW of power almost instantaneously, in order to prevent the grid from collapse.
- Naval Submarine Base New London, in Connecticut, is installing a generator and microgrid which can provide power to the base if a disaster knocks out the grid, but can also power key nodes in the community essential to effective disaster response (police, firefighters, hospital, gas station etc.). The Navy is allowing their real estate to be used for a generation asset of this kind, in part because it is “good for us but also good for the communities in which we live.”

San Diego and the Southwest are a unique testbed for civ-mil cooperation, renewables innovation and ambitious, bipartisan climate resilience plans

“Here in San Diego we have a long history of working with our military and our world-class research institutions. Working together, we have made San Diego a leader in aerospace innovation, drones and unmanned systems. I have no doubt that by working together we will lead the way in creating a more sustainable future here and around the globe.” – Mayor Kevin Faulconer, City of San Diego

- The San Diego area has become an incubator and “microcosm of opportunity” for initiatives that demonstrate how collaboration between the military, industry and municipalities can work effectively to manage climate risk.
- San Diego has a strategic military port, and one in five jobs in the city are military. These jobs support the local economy; in addition, the research & development done around the military seeps into other activities and initiatives in the region – for example, science and innovation in the energy sector is connected to the area’s highly-rated clean tech clusters. San Diego is experiencing a boom in the solar industry which is bolstering the economy – it’s the fastest growing industry in the area.
- The city is number five in the nation for patent intensity, in part because of the innovation facilitated by the unique composition of actors in the area. Because the military and associated innovation are important components of the local economy, the city government and other entities want to ensure that, in the words of one representative, “the military are supported at home so that they can go out and be successful in their missions.”

- San Diego adopted an ambitious climate plan in December 2015, which set a 100% renewable energy goal for the entire jurisdiction by 2035, as well as targets for waste, water, emissions and climate resilience. The plan sets out preparations for expected climate impacts, including rising sea levels, drought, heat waves, wildfires, extreme precipitation events and others.
- This is “one of the few cities in the nation making climate a bipartisan issue”; Republican Mayor Kevin Faulconer says, “I look my constituents in the eye every day and I see what they’re struggling with. It’s not a political issue is just a reality we have to address.”
- What’s worked in San Diego and the Southwest region can inform best practices elsewhere.



“We look at how extreme drought and extreme precipitation will impact the whole community. We’re an integrated community and are very dependent on each other. We have to think about extreme events in an emergency context – how are we all linked together, how do we need to depend on each other and how can we use each other to build a stronger economy and community as one. How can we build stability – we want to have that, and it doesn’t matter about politics. We want to put that leadership out there. Those are the opportunities going forward.” – Cody Hooven, Chief Sustainability Officer

Government and civil society organizations facilitate collaborative action on managing climate risk in San Diego, in which the security community play a part:

- The San Diego Regional Climate Collaborative brings together public agencies working on climate change to collectively address challenges. For example, given that sea level is rising at San Diego’s port, the airport and Naval Amphibious Base Coronado, which are adjacent to each other, rather than studying each separately the Collaborative facilitates combining efforts and sharing resources.
- There are currently 14 different sea level rise and coastal resilience projects happening in San Diego County. The scientific basis for understanding area sea level rise vulnerabilities have been established in part by local researchers, federal institutions and Navy- and military-sponsored research.
- The Climate Collaborative’s sea level rise working group meets monthly to leverage local resources to establish a common understanding of which assets and infrastructure (and branching into what communities) they will prioritize protecting.

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- The San Diego Association of Governments (SANDAG), is a decision-making forum for elected officials throughout San Diego county, which has a Military Liaison and Working Group. This structure facilitates conversations and sharing of best practices around, for example, the military’s resiliency innovations and management of their critical infrastructure and aging infrastructure issues, which may be of use to other local actors.
- Navy/military participation adds value to these efforts, as:

“There are a lot of lessons we could be learning from their approach to preparedness, risk management, long-term investment and long-term return on investment. Local governments tend to operate on a shorter-term; militaries think longer-term and think risk all the way through to the very end.” – Laura Engeman, Director, San Diego Regional Climate Collaborative



Climate change necessitates new forms of collaboration, including between military, civil authorities, academia, state & federal government, the private sector and others

- San Diego helped start the Alliance of Regional Collaboratives for Climate Adaptation, which includes a growing number of regions in California. In the absence of a more formal governance structure, this Alliance met the need for coordinating at the regional scale to address climate risk, which allows for sharing resources, jointly funding infrastructure projects and applying for grants, etc. This model is working and is starting to occur in other parts of the country. It could also benefit from involving DoD representatives.
- There is a need to think outside the box and include not just the military and local government in these discussions, but other stakeholders that are part of this challenge, e.g. the contractors who will be designing and building adaptation infrastructure.

“We’re at a point when we realize we need to be working together. Climate change is changing the fundamental understanding of what the future will be like, and it requires a much higher level of coordination than we’ve ever had to do before. We are getting to a point in history where if we don’t all start working together and moving forward quickly together, we’re going have to deal with an emergency after emergency after emergency rather than proactively planning.” – Michael McCormick, Senior Planner, Governor’s Office of Planning and Research

AGENDA

08:30 –09:00 REGISTRATION & COFFEE

09:00 – 09:15 OPENING REMARKS

Mr. Kevin Faulconer
Mayor, City of San Diego

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- 09:15 – 09:20 SCREENING:
CLIPS FROM ‘THE AGE OF CONSEQUENCES’
Feature-length documentary on climate change and security
- 09:20 – 10:30 FIRST SESSION:
**PREPARING FOR A CLIMATE CHANGED FUTURE:
ADDRESSING STRATEGIC CLIMATE RISKS REGIONALLY AND GLOBALLY**
Chair: Lara Iglitzin, Executive Director, Henry M. Jackson Foundation
- Congressman Scott Peters**
United States House of Representatives, 52nd Congressional district
- General Ron Keys (USAF-Ret.)**
Advisory Board, The Center for Climate and Security
- Ambassador Reno Harnish (Ret.)**
Former Director, Center for Environment and National Security, Scripps Institution of Oceanography
- Cody Hooven**
Chief Sustainability Officer, City of San Diego
- 10:30 – 10:45 COFFEE BREAK
- 10:45 – 12:00 SECOND SESSION:
RESILIENCE FOR PACIFIC-FACING MILITARY INSTALLATIONS AND COMMUNITIES
Chair: Bessma Mourad, Program Officer, Water, Skoll Global Threats Fund
- Rear Admiral Yancy B. Lindsey**
Commander, Navy Region Southwest
- Commander David Slayton (USN-Ret.)**
Advisory Board, The Center for Climate and Security
- Laura Engeman**
Director, San Diego Regional Climate Collaborative
- Mick Wasco**
Energy Program Manager, Marine Corps Air Station Miramar
- 12:00 – 13:00 LUNCH
- 13:00 – 14:00 THIRD SESSION:
BREAKOUT DISCUSSIONS
- Climate Security Risks in Asia-Pacific
 - Strengthening Coastal Communities and Military Installations
 - Addressing Global Climate Risks at the State and Local Level
- 14:00 – 15:00 FOURTH SESSION:
**SHAPING FEDERAL, REGIONAL AND LOCAL RESPONSES TO CLIMATE RISK AND
RESILIENCE OPPORTUNITIES**
Chair: Emily Young, Executive Director, Nonprofit and Philanthropic Institute,
School of Leadership and Education Sciences, University of San Diego

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Rear Admiral Leendert “Len” Hering Sr. (USN - Ret.)
Executive Director, Center for Sustainable Energy

Captain Joe Stuyvesant (USN – Ret.)
Executive Director, Navy Region Southwest; DoD Representative, SANDAG Board of Directors

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