

NATIONAL INFRASTRUCTURE ADVISORY COUNCIL

September 19, 2023, NIAC Meeting

1:00 PM – 5:00 PM ET

CALL TO ORDER AND OPENING REMARKS

Ms. Celinda Moening, Cybersecurity and Infrastructure Security Agency (CISA) and Alternate Designated Federal Officer (ADFO) for the President's National Infrastructure Advisory Council (NIAC), called the September 19, 2023, NIAC Quarterly Business Meeting (QBM) to order. She informed attendees that the NIAC is registered under the Federal Register Number docket number CISA-2023-0012 and is a Federal advisory committee, governed by the *Federal Advisory Committee Act* (FACA). As such, the meeting was open to the public and would be recorded. She noted that the NIAC received one public comment and announced that written comments would be accepted following the procedures outlined in the meeting's Federal Register Notice. Following roll call of members present in the room and on the phone, Ms. Moening turned the meeting over to the NIAC Chair, Mr. Adebayo Ogunlesi, Global Infrastructure Partners.

Mr. Ogunlesi thanked all those in attendance, especially the Chair of the Electrification Subcommittee, Mr. Gil Quiniones, ComEd, and the rest of the subcommittee members for their hard work on the draft report titled *Managing the Infrastructure Challenges of Increasing Electrification*. He turned the floor over to the other speakers for their remarks. The NIAC Vice Chair, Ms. Maria Lehman, GHD, echoed Mr. Ogunlesi's remarks and applauded the Electrification Subcommittee for their contribution to the report. She praised the NIAC for completing three comprehensive reports in just one year.

Ms. Caitlin Durkovich, Deputy Assistant to the President and Deputy Homeland Security Advisor for Resilience and Response, welcomed everyone and thanked the Chair and the members of the Electrification Subcommittee for the work done on the report, and passed the floor to Mr. Nitin Natarajan, Deputy Director of Cybersecurity and Infrastructure Security Agency (CISA).

Mr. Natarajan welcomed and thanked NIAC leadership and members for their commitment and dedication that resulted in producing three significant reports within one year. With regard to the Electrification Subcommittee's report, Mr. Natarajan acknowledged the development of heat pumps, electric vehicles (EV), and changes in the iron and steel industry that would transform the energy grid composition and capacity needs in the future. He also mentioned that CISA's main goal is to minimize the risks of physical impediments and cybersecurity threats driven by climate change. He cited several recent threat incidents, including the February 2021 prolonged polar vortex in Texas, the July heatwaves that severely impacted the Southwest U.S., and the tragic wildfire in Maui, Hawaii in August. He stated that the proposed solutions in the power grid and electrification decarbonization would deeply impact other sectors like transportation, communication, finance, and critical manufacturing and would soon change the how the country views the energy grid. According to him, this would require a more collaborative effort to build a resilient and sustainable energy grid in the future.

The President's National Infrastructure Advisory Council

Minutes for the September 19, 2023, NIAC Meeting

Dr. Liz Sherwood-Randall, Assistant to the President and Homeland Security Advisor expressed her gratitude to the NIAC Chair and Vice Chair, NIAC members, and all participants. She and the Biden Administration were grateful for the report on electrification challenges as the report resonated with the recommendations in relation to threats and the climate changes. She added that some of the recommendations are in line with work that has already been implemented and align with major investments made by the Administration in resilient infrastructure and resilient communities. Furthermore, Dr. Sherwood-Randall suggested that Electrification Subcommittee members should engage in a dialogue on the findings and recommendations with the White House Office of Domestic Climate Policy (Climate Policy Office) and the National Economic Council (NEC) as well as groups focused on state and local governments relationships, which have not yet participated in the process. According to her, the process would build a stronger enterprise and be mutually beneficial. It would contribute to more effective implementations of policies and more precisely direct Congressional funding designated for building a resilient infrastructure.

With reference to the future study topics, Dr. Sherwood-Randall advised NIAC to utilize its past work experience and provide solutions on how to tackle the issue of extreme heatwaves in the country. She claimed that so far, the country's actions had not been fast enough to outpace the impact of climate change on our communities and infrastructure. She wondered how the NIAC would structure the collaborative work with the White House offices to address the life-threatening heatwaves' impact on communities, caused by climate change.

Mr. Ogunlesi asked Dr. Sherwood-Randall whether the NIAC should brief the White House constituents on all three reports or just the Electrification Subcommittee's report. Dr. Sherwood-Randall confirmed that she meant only the Electrification Subcommittee's report. Mr. Ogunlesi thanked Dr. Sherwood-Randall and promised to coordinate the briefings with Ms. Durkovich. Then, he gave the floor to Ms. Kemba Walden, Acting National Cyber Director, Office of the National Cyber Director (ONCD) to brief members on the National Cybersecurity Strategy Implementation Plan and cyber regulatory harmonization.

NATIONAL CYBERSECURITY STRATEGY IMPLEMENTATION PLAN AND CYBER REGULATORY HARMONIZATION

Ms. Walden presented an overview of the Biden-Harris Administration's 2023 *National Cybersecurity Strategy* and, with it, the *National Cybersecurity Strategy Implementation Plan*.

Ms. Walden emphasized two major shifts represented in the *National Cybersecurity Strategy*. The first acknowledges the cybersecurity risks posed by individuals and those least capable of bearing the risks. The second shift favors long-term investments to ensure resilience in cyberspace. The White House subsequently published its *National Cybersecurity Strategy Implementation Plan* to accompany the strategy with 69 high-impact Federal initiatives.

Ms. Walden said that ONCD is responsible for coordinating 14 of the 69 initiatives in the implementation plan, and CISA is responsible for approximately 10 similar initiatives. She emphasized the following three initiatives of the 14 that the ONCD is responsible for:

1. securing the clean energy transition;

The President's National Infrastructure Advisory Council

Minutes for the September 19, 2023, NIAC Meeting

2. cyber regulatory harmonization; and
3. national cyber workforce and education strategy.

She shared that the ONCD promotes the first initiative of building new, ecofriendly critical infrastructure that is secure and resilient by design. The *National Cybersecurity Strategy* outlines a strategic objective on securing the clean energy transition. Regarding the second initiative, duplicative regulation leads companies to focus more on compliance than on security, resulting in higher costs for customers – working families and state, local, tribal, and territorial governments. While addressing the third initiative, cyber workforce, and education, Ms. Walden referenced the NIAC's 2021 *Workforce and Talent Management Study* by pointing out the future of the cyber workforce, as observed with generative artificial intelligence (AI).

Ms. Deneen DeFiore, United Airlines, wanted to know how to implement NIAC recommendations that are practical and adaptable without having a clear authority from Congress or a Federal agency. Dr. Conrad M. Vial, Sutter Health, emphasized the disparity in cyber preparedness for disadvantaged clinics targeted by cybercriminals, as opposed to larger systems with more funding. He asked Ms. Walden how the *National Cybersecurity Strategy Implementation Plan* addresses the problem of funding. Ms. Walden replied the *Strategy* aims to help those that are under-resourced.

Ms. Christine Fox, Johns Hopkins Applied Physics Lab, asked how AI and the new technological advances could help to fix human vulnerabilities while opening new ones. She listed three critical pieces of AI to evaluate, including compute power, data (fuel), and algorithms. Therefore, she said it's important to learn how to protect data while using generative AI models and analyze data without violating its privacy. Mr. Michael D. Hayford, NCR Corporation, noted that cybercrime activities are increasing and more frequently involve foreign and state-sponsored foreign actors. He asked if the plan offers a more holistic approach of cyber protection against foreign actors attacking corporate America. Ms. Walden replied that the problem is addressed in the second pillar of the *National Cybersecurity Strategy*, focusing on ransomware.

Mr. Jorge Ramirez, GCM Grosvenor, asked if election security is addressed in the strategy. Ms. Walden deferred the question to Ms. Durkovich and Mr. Natarajan to respond. Ms. Durkovich stated that 2024 election security is a continued priority for the Administration and CISA provides the election officials with the tools to secure the elections. Mr. Natarajan echoed Ms. Durkovich response and stated that CISA is looking at both cyber and physical aspects of security.

Final Report of Electrification Subcommittee

Mr. Ogunlesi turned the floor over to Mr. Gil Quiniones, ComEd CEO and Chair of the Electrification Subcommittee, to present the subcommittee's report, titled *Managing the Infrastructure Challenges of Increasing Electrification*. Mr. Quiniones explained that the subcommittee received 12 briefings with 27 panelists who provided keen insight, perspectives, and recommendations. Mr. Quiniones shared the challenges of addressing Electrification issues, which included: coordinating a common approach to managing new loads across regions and

The President's National Infrastructure Advisory Council
Minutes for the September 19, 2023, NIAC Meeting

jurisdictions; coordinating grid-edge technologies; and managing cyber and physical security risks to the grid.

Mr. Quiniones' key takeaways after the subcommittee briefings included the following:

1. Electrification is growing and will continue to increase.
2. The potential increases in demand and the number of connected devices pose significant challenges.
3. All infrastructure owners, operators and vendors in the public and private sectors must work together to see electrification transitioned effectively.

Before discussing the report, Mr. Quiniones wanted to define electrification as the subcommittee defined it in the report, which is the transition from using fossil fuel-based energy sources to using electricity as the main source of energy. Mr. Quiniones pointed out electrification is being sustained by four key forces:

1. There are profound innovations in battery technologies, heat pumps, and electric motors, which enable more efficient application of electricity to transportation and building heat than ever before.
2. Although technical advancements continue, consumer preferences are changing. Technologies like induction cooktops are surprising users with functionality that exceeds expectations, while also providing a pathway to reduce greenhouse gas emissions and saving consumers money.
3. Corporate policies and investor preferences are pushing private companies to adopt technologies that are lower emission and higher efficiency.
4. Policy changes, especially at the Federal level, are driving electrification. For example, the Inflation Reduction Act, the Bipartisan Infrastructure Investment Jobs Act, and the CHIPS and Science Act have set the national stage.

Based on the scope of the NSC tasking, the subcommittee observed the impacts of electrification on five key sectors, including energy, transportation, communications, finance, and critical manufacturing. As a result of the subcommittee's numerous briefings, they found that the energy sector is the apex sector, connecting the other four. In the transportation sector, EVs are becoming more prevalent, and there is a growing electrification trend at airports and shipping. There is also a challenge with EVs when considering mass evacuation traffic. In the communications sector, there are many downstream risks; while in the finance sector, the NIAC found no significant risks. In the critical manufacturing sector, the NIAC found that there would be heightened costs for building materials, like concrete.

Mr. Quiniones continued to summarize several of the risks presented in the report and then highlighted each of the eleven recommendations, which were categorized into four groups. In the first group, labeled "adequacy," the NIAC recommended a reliability-forward strategy, the need for advanced modeling and planning, and supply chain concerns. In the second group, labeled "efficiency," the NIAC recommended that the Department of Transportation and the Department of Energy work together to create a roadmap for electrification, increased research and development (R&D) support, and education policy initiatives, as human capital is necessary for the transition to electrification. In the third group, labeled "security," the NIAC recommended CISA lead a national security assessment. In the fourth group, labeled "unity," the NIAC recommended a task force for challenges in permitting, an interagency task force for grid-edge

The President's National Infrastructure Advisory Council
Minutes for the September 19, 2023, NIAC Meeting

technologies, a joint task force modeled on the joint Federal Energy Regulatory Commission (FERC) and National Association of Regulatory Utility Commissioners (NARUC) task force, and increased coordination among utilities.

Mr. Quiniones asked if the subcommittee members would like to add any additional comments about the report. Mr. Alan Armstrong, Williams Inc., emphasized a critical issue in the report – the benefits of electrification will not be realized if the pace of renewables does not match the pace of electrification. He also pointed out the importance of cost and the need to invest in lower-cost heat pumps. Ms. Beverly Scott, Beverly Scott & Associates, thanked the subcommittee for centering the recommendations on equity. She wanted to emphasize the need for community engagement and involving critical constituencies.

Mr. Christopher Wiernicki, American Bureau of Shipping, pointed out that to reach the 2050 goal of net-zero emissions, electrification will become part of a bigger solution, which will require the use of alternative fuels like hydrogen. He appreciated that the report showcases a risk energy framework that can be used moving forward to influence decisions, whether they're policy decisions, incentives, or assessing catastrophic or operational risks.

Ms. Clara Pratte, Strongbow Strategies, agreed with Mr. Armstrong's point that the report discusses a future of electrification rather than the current state – the nation's current energy usage is not net zero. She encouraged the subcommittee to add more information about alternative fuel that is being used internationally and how it could affect electrification efforts in the states.

Ms. Madhu Beriwal, Innovative Emergency Management Inc., pointed out the effect of climate change on electrification. She questioned how to integrate cleaner energy over time with utility companies managing distributed energy sources, which, she said ties back to Dr. Sherwood-Randall's topic suggestion about extreme heat.

Mr. Anthony Thomas, Windstream Communications, emphasized the importance of peak modeling. In an increasingly renewable world, there are challenges in the reliability of the grid, especially considering climate change. In addition, he brought up the point that the country is limited in storage for renewables. Ms. Patricia Sims, Drake State Community and Technical College, suggested refocusing on the workforce aspect. She said that there is an opportunity for the Department of Education to reprioritize basic cyber skills and partner with state and local agencies to train young people.

Ms. Lehman suggested adding regulatory harmonization across agencies to the report. Mr. Quiniones replied and stated that in the briefing with the NARUC, NARUC representatives said that the transmission policy task force was effective. In addition, he said that the subcommittee will amend the report to integrate the work that has already been done in the cyber area and to ensure the NIAC's recommendations align with the White House's efforts. Lastly, Mr. Vance Taylor, California Governor's Office of Emergency Services, discussed the importance of risk management, especially from his perspective in California, where they have seen issues around power shutoff.

The President's National Infrastructure Advisory Council
Minutes for the September 19, 2023, NIAC Meeting

PUBLIC COMMENT

Mr. Dana Goward, President of the Resilient Navigation and Timing (RNT) Foundation, registered to comment via phone. Mr. Goward said that positioning, navigation, and timing (PNT) signals from global positioning systems (GPS) underpin virtually every technology and infrastructure, including those for precision agriculture, telecommunications, networks consumer financial transactions surveying centimeter-level excavation, and construction. The major issue has yet to be addressed by the Federal government. The RNT Foundation urged the NIAC to learn more about this issue and make appropriate recommendations.

COUNCIL DELIBERATION AND VOTE

Mr. Quiniones asked the NIAC to continue its discussion on the Electrification report and invited non-subcommittee members to comment. Dr. Vial underscored the issue of intermittency of renewable energy in the health care sector, where energy is needed continuously. Another concern that Dr. Vial addressed related to energy density, citing energy density as the reason why large shipping vessels cannot be powered by the electric motors that exist today. Lastly, he discussed the issue of rising costs for electricity: significant investment in renewables to advance their availability and integration in power generation is extremely costly. The rising prices challenge equitable distribution of electrification benefits. Mr. Quiniones agreed with Dr. Vial's points and added his gratitude to the Biden Administration's strong policy on addressing under-resourced communities and environmental justice, which he noted to cite in the final report.

Mr. Joshua Descant noted that it is necessary to see the full cross-sector picture, especially from the communications lens, which he said the report accomplished. He asked if the subcommittee had any discussions around the topic of AI. Mr. Quiniones responded that, yes, the need for planning tools and standardization on uses of AI came up in conversation. However, the other topic that arose in conversations was the planning horizon. The NSC's charge was for short/medium term, so the report is based on outcomes by 2030. To address topics like AI, Mr. Quiniones stated that the subcommittee would need to address a longer planning horizon.

Dr. Norma Jean Mattei, University of New Orleans, asked about the existing level of storage for renewables. Mr. Quiniones said that the storage issue came up in subcommittee discussions, but that the Administration's policies ensure funding is available to find technologies that extend existing carbon-free resources, nuclear, and energy-pumping resources for alternative fuels. However, he acknowledged the need for more R&D for long duration storage, which will involve a combination of preserving what currently exists (hydropower, nuclear, etc.) and investing in new technology like small modular nuclear reactors.

Mr. Hayford noted that when the report discusses the resiliency of the electrical grid, it's not the electrical grid of today, but the electrical grid of tomorrow. He believes that this point should be emphasized more clearly in the report. Ms. Fox asked if the subcommittee had considered dividing the work for the report into two sides: one report for delivery and another for supply. Mr. Quiniones responded that the subcommittee attempted to address both the supply and delivery sides in the same report, and they did hear from many briefers on the supply side. He said that the subcommittee will try to add more content to the supply side of the report.

The President's National Infrastructure Advisory Council

Minutes for the September 19, 2023, NIAC Meeting

Mr. Armstrong pointed out that the NSC's charge was not to address the purpose or benefits of electrification, but to address the risks only. He agreed with Dr. Mattei's point that the issue of storage was not addressed accurately and that the report should touch more on intermittency.

Ms. Beriwal added her perspective, having served on both the Water and Electrification Subcommittees, that both areas are greatly affected by climate change and require regulatory action. She suggested presenting both the Electrification Subcommittee's report and the Water Subcommittee's report to the White House's Climate Policy Office and NEC.

Ms. Lehman followed Ms. Beriwal's comment about the water sector and climate change. She noted that other parts of the world use pump storage for water, and she presented the idea that having large storage facilities in high-flood areas would enable the stored water to become a battery for the power needed to generate. She noted that the NIAC's *Cross-Sector Collaboration to Protect Critical Infrastructure* report is extremely relevant when discussing the integration of electrification and water challenges.

Ms. Durkovich added several points of feedback. She thanked the subcommittee for their work on the report. She reiterated Dr. Sherwood-Randall's comments about making sure the report aligns with the policies already in place by the Administration and encouraged meeting with the White House councils to ensure the recommendations are actionable. Ms. Durkovich also noted that in the "security" recommendation, the NIAC suggests CISA lead a national cyber assessment, but Congress had already tasked that to the Office of Cybersecurity, Energy Security, and Emergency Response at the Department of Energy.

Regarding the conversation about the distribution of energy storage, Ms. Durkovich said she saw firsthand the challenges that storage laws caused in the recent events in Maui, HI, and made the following two points about the report. First, increasing battery storage increases the vulnerabilities that must be addressed if more climate-driven emergencies occur in communities that are traditionally reliant on solar for energy resources. If this is an important part of generation, Ms. Durkovich asked what happens when an entire community relies on that single source of generation. Second, she noted the importance of the NIAC's recommendation about emergency preparedness response. In the Electric Sector Coordinating Council's (ESCC) Wildfire Subcommittee, she said that face-to-face meetings have been extremely valuable for information sharing between the sector and the various government entities involved (i.e., the Department of the Interior, the U.S. Department of Agriculture, and the Forest Service). Mr. Quiniones asked if the subcommittee should more specifically cite the ESCC, to which Ms. Durkovich concurred.

After there were no additional comments, Mr. Ogunlesi suggested the NIAC delay the vote until the December 2023 QBM, giving the Electrification Subcommittee additional time to implement the feedback presented.

The President's National Infrastructure Advisory Council
Minutes for the September 19, 2023, NIAC Meeting

ADDITIONAL STUDY TOPICS DISCUSSION

Mr. Ogunlesi opened the floor for discussion on the next potential study topics tasked to the NIAC. Currently, the NSC had five suggested topics, in addition to the topic of extreme heat that Dr. Sherwood-Randall suggested.

Ms. Lehman said that the topic involving critical infrastructure for pandemic and emergency response is a subset of a bigger issue involving the impacts of climate change on critical infrastructure, and she added Dr. Sherwood-Randall's suggested topic of heat stressors in the umbrella topic as well. Mr. Pasquale Romano, ChargePoint, agreed with Ms. Lehman's assessment of the topic and added that the problem is not only with temperature, but with flooding as well. Ms. Durkovich asked the NIAC to consider the minimum standards expectations that we have of owners and operators in ensuring resilient outcomes to floods, heat, and potential other occurrences, if the climate crisis we are witnessing now continues for a long time.

Ms. Pratte discussed her concern with the fact that telecommunications infrastructure is state-run (for 911 emergency services). She questioned whether there is a baseline standard for the states' emergency responses and whether the telecommunications infrastructure piece could be added to the topic.

Ms. Camille Batiste, Archer Daniels Midland, asked why pandemic response was combined with natural disaster response in the topic, especially when the conversation is focusing on climate change. Ms. Lehman responded that they are both infrastructure stressors that have increased in recent years. The pandemic was considered a "hundred-year" occurrence, but she said that the world will see another one before another hundred years pass. The same concept can be applied to "hundred-year" natural disasters that are occurring more frequently.

Dr. Vial commented that the pandemic piece represents an extension from a timeframe perspective. The extended timeframe is a different challenge from the more acute devastation of a natural disaster. He said that these challenges beg the question that the NIAC's *Cross-Sector Collaboration to Protect Critical Infrastructure* report was meant to address how the nation can, at different levels and across sectors, address these challenges in a more coordinated fashion than they were during the pandemic. In the case of pandemic response, the pandemic existed for a period substantial enough for collateral damage to project forward in time, from a supply chain perspective and from a workforce stress resilience and replenishment perspective. He suggested using the NIAC's *Cross-Sector Collaboration to Protect Critical Infrastructure* report to inform the new topic.

Ms. DeFiore agreed that, in her industry too, the pandemic required a sustained approach, which is increasingly necessary as climate change progresses. She suggested angling the topic around sustained response, where crisis managers are prepared for continual crisis management. Ms. Fox agreed that the pandemic was global and simultaneous, and similarly, natural disasters are happening more frequently, which leads to a growing stress. But she still felt that the two are different issues and wondered whether it would be best to look at the cross-cutting themes or try to address both at the same time. Mr. Ogunlesi agreed that the two topics are different and require two different types of responses. However, he said what brings the two together, is when

The President's National Infrastructure Advisory Council
Minutes for the September 19, 2023, NIAC Meeting

(as first vocalized by Ms. Lehman) 100-year storms start happening every two years or more frequently, requiring a more sustained, pandemic-like response.

Ms. Durkovich gave her perspective on the Federal side, using the disasters in early August as an example. While a wildfire devastated Hawaii, there was concurrently a tropical storm warning in Southern California as well as an earthquake in the same area. She said the government is testing the limits of its emergency management capability, which is unsustainable. Mr. Natarajan agreed and asked which part is within the scope to tackle. He mentioned that there is a workforce element to this issue – an entire generation and every sector through the supply chain is impacted by the pandemic.

Ms. Lehman suggested rethinking the entire emergency response framework. Mr. Descant suggested looking through the lens of imagining the worst for certain regions to best prepare for unusual scenarios. He also suggested a knowledge transfer, where regions that are used to experiencing a certain type of disaster can share their expertise.

Ms. Beriwal added to the discussion, suggesting that the policy frameworks and legislation must be changed. The current policies depend on discrete disasters occurring separately and distanced by a period of normalcy, but that is no longer the current norm. In addition, she noted the strain on the Federal Emergency Management Agency (FEMA) and said that the Stafford Act was not meant for the current magnitude. Ms. Beriwal added that the current method for hazard and risk assessment is not meeting the mark for all the evolving threats, which now include cyber.

Mr. Quiniones returned to the topic of extreme heat and extreme cold. His company, ComEd, works with the Argonne National Lab in Northern Illinois to model the future climate for the specific region. They can project what the weather will be in Northern Illinois in 2030, 2040, and 2050, to gather data-driven implications to the industry. In the 2050 model, the climate in Northern Illinois will be more akin to Central Missouri in terms of heat and humidity. This means that ComEd is making decisions now to adjust their infrastructure to manage the changing cooling-off period. Mr. Quiniones stated that Argonne National Labs could theoretically produce similar climate models for the entire country and make that information available to the various critical sectors to make decisions for the future of infrastructure.

Ms. Lehman spoke to the policy efforts of the Administration, saying that the Providing Research and Estimates of Changes in Precipitation (PRECIP) Act was passed to enable the collection of more data. The data is now available to practitioners as quickly as possible, and standards can now be written and expedited to ensure infrastructure is not built in areas that will flood within several years. Ms. Lehman suggested having a baseline standard for priority infrastructure, like schools and hospitals, that must be available to students and patients. Mr. Ogunlesi asked the NIAC to synthesize the conversation into a potential study topic.

Mr. Romano touched on Ms. Lehman's comment about the 100-year flood and noted that the idea is to reset the statistics and the threshold for what is considered a one-off emergency. He explained that there is a cost element because the increasingly frequent weather events are using the emergency response process, which is very expensive and reactive. He suggested first defining the scope in terms of thermal, flood, and drought, then deciding which to address. Then, the NIAC may redefine what constitutes a "hundred-year flood." Mr. Ogunlesi asked the NIAC

The President's National Infrastructure Advisory Council

Minutes for the September 19, 2023, NIAC Meeting

members if they agree on the following potential topic: recommendations on how to redesign the response system for climate-related natural disasters.

Mr. Romano continued, stating that due to sea level rise, redevelopment is essential. He recognized the economic challenge, since sea level rise will affect property values, entrenched investments, forestry management, building code changes for materials, and proximity of vegetation around houses. He noted that the problem of changing the emergency threshold is inevitably unaffordable.

Dr. Vial added that there is a people aspect to convincing local communities to prepare for disasters themselves. Many communities believe if they experience a hundred-year flood, FEMA will help. He stressed that the skillset for dealing with natural disasters must be brought up to the level commensurate with the new sustained challenge, and that skillset must become available to local communities. Ms. Fox agreed that what the discussion amounts to is redefining response and therefore is the responsibility of the community, state, or local area for their emergency response.

Mr. Ramirez questioned if the Federal government could have a longer horizon for infrastructure to prepare for the infrastructure needs for a hundred years in the future. He noted that insurance companies know that the risk for disaster will be higher, and their response is to pull their money out. Ms. Beriwal reminded the NIAC members to stay within the scope of what will be implementable.

Ms. Lehman suggested the following draft topic: resetting response to meet current sustained climate stressors. Mr. Romano clarified that it's the threshold that must be reset. He said that the statistics must change to redefine what is a normal versus an extreme event. He suggested reallocating the money that FEMA uses reactively to proactively construct infrastructure for the future.

Ms. Durkovich clarified that emergency response is expensive for every agency, not just FEMA. She explained that every state is tasked by FEMA to produce a threat and hazard identification risk assessment, which she said is likely geared to the "hundred-year" type of events. She posed the questions: What are the extreme events that are going to become more normal, more severe, and more frequent; and how do we as a community both mitigate the potential impact and create more resilience? Quoting President Biden, she said that communities must "know how to know" – many of the communities don't understand the full breadth of resources that the Federal government can bring to bear. Equally important, she said, they don't have the capacity to ask and advocate to see it happen. While there are many government aid programs to help with this, they all require grant applications, which in turn require grant writers, thus starting an inequitable cycle.

Ms. Beriwal said that every dollar that is spent on mitigation reduces the future risk by \$6 on average. She agreed that upending the system is necessary so that communities don't use Federal money to put things back the way they were before. She suggested taking a resiliency-forward, mitigation-forward stand. She said response is an important component, but it's really the mitigation that will change this philosophy and underlying that, a much better assessment of risk. Ms. Beriwal nodded to Mr. Quiniones' earlier point about the Argonne National Lab's detailed climate modeling, which she said is extremely needed, since most of the country is relying on

The President's National Infrastructure Advisory Council
Minutes for the September 19, 2023, NIAC Meeting

past knowledge of what has occurred, but it is not a good prologue for the future unstable environment. She said the NIAC is looking at the relationship between hazard and risk on one side and the relationship between response and mitigation on the other side to determine how to be more resilient.

Mr. Wiernicki agreed with the points made and said that a new playbook for the relationship between Federal, state, and local is in order. Ms. Pratte pointed out the impact on vulnerable communities because the country cannot redefine by assuming there is a standard level of preparedness across the board. While a flood in one community may be devastating, it may not have as much of an impact in another. Mr. Ogunlesi suggested another topic with the following title: creating resilient infrastructure for adapting to climate change.

Dr. Vial referenced an analogy in healthcare: managing risk retrospectively based on its design to combat disease is very different from being designed to promote health. By decreasing the burden of disease in communities, cohorts, and populations, one might prevent the need for crisis escalation-driven responses. He suggested creating a playbook that starts with an effective risk stratification from an infrastructure point of view. The ideal is to prevent human loss while mitigating financial loss because one has made investments rather than incurred costs.

Ms. Durkovich agreed with the idea of the playbook; she suggested the NIAC put themselves in the perspectives of the city leaders who would use the playbook for emergency response. She asked the NIAC to consider what would the city leaders need, what would they do, and how would they go about it? She said that this type of document would address both infrastructure and people-process; it becomes the playbook that the NIAC would give to the resilient communities.

Ms. Beriwal said that there are few studies on the secondary and tertiary effects of climate change on a variety of systems, which could be a component of the study. For example, with extreme heat, there are secondary and tertiary effects on the electrical industry and different effects on the water industry. She said the scope may be sufficient to look at a few infrastructure pieces within disaster management. Ms. Durkovich added that the scope must include looking at the local capacity to consider long-term rebuilding and recovery.

Mr. Natarajan asked if CISA is doing enough on the Federal side to help state and local governments as well as companies to assist them in knowing how to advocate for investment. He asked the members to use their expertise and experience to help identify how CISA – and government agencies – can better arm state, local, tribal, and territorial governments, and companies to make those arguments to respective entities. He said that there is no shortage of data across the private sector and academia, but the synthesis of that data to help build the argument may be lacking.

Ms. Durkovich suggested having an umbrella study where there are multiple sub-working groups to work on the various pieces brought up in the meeting. The study would be longer term, over six months to a year. Mr. Hayford clarified that the NIAC wants to define resilient infrastructure for a world that has a different climate. He suggested creating a blueprint to give to developers in floodplains or coastlines to tell them what the property will look like in the future.

The President's National Infrastructure Advisory Council

Minutes for the September 19, 2023, NIAC Meeting

Ms. Beriwal revisited Mr. Natarajan's point that localized data is not often available, which is the problem. Even with the data, she said that they would still have to project it forward into the future because the data is static from the last 10 or 20 years. Further, she asked what the alternatives are and whether, after all the data, they will end up in the same place, having to relocate people from communities in floodplains, for instance.

Ms. Lehman said that they are seeing a paradigm shift for which they will need a framework. She noted that while they say there is not enough money, they can work with the insurance industry. Dr. Vial agreed with Ms. Lehman's financial comments and suggested weaving them into the proposed playbook. He wanted to clarify the point being made that the playbook would be contemporary action planning to support adaptive responses to climate-driven impacts. The playbook would have several chapters, one being how to use the financial system so that it makes its necessary contribution to the overall adaptive response called for. Another chapter would be the people-process part. This would involve redefining standard work for local regional management and leadership so that the blind is not leading the blind.

Ms. Fox suggested including an engineering tree at the beginning of the playbook, involving the situation, the risk factor, and how it fits in. She also agreed with the umbrella project because they could include the earlier idea about resetting the expectation of what response looks like.

Ms. Durkovich suggested that the NIAC continue the discussion about the topic and report back to the NSC.

CONCLUDING REMARKS AND ADJOURNMENT

Ms. Durkovich thanked everyone for their contributions to the conversation. Ms. Lehman thanked the NIAC for the full year of time and effort. She noted that the earlier they can publish the reports, the better. Mr. Ogunlesi thanked the NIAC and everyone for contributing to the discussion and adjourned the meeting.

The President's National Infrastructure Advisory Council
Minutes for the September 19, 2023, NIAC Meeting

September 19, 2023, NIAC Meeting Participants List

NAME

ORGANIZATION

NIAC MEMBERS

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The President's National Infrastructure Advisory Council

Minutes for the September 19, 2023, NIAC Meeting

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