

NATIONAL INFRASTRUCTURE ADVISORY COUNCIL

QUARTERLY BUSINESS MEETING AGENDA

June 14, 2018

1:00 PM – 4:00 PM EDT

U.S. Access Board

1331 F Street NW, Suite 800, Washington, D.C., 20004

I. OPENING OF MEETING

Ginger Norris, Designated Federal Officer (DFO), President's National Infrastructure Advisory Council (NIAC), Department of Homeland Security (DHS)

Ms. Ginger Norris, the President's National Infrastructure Advisory Council (NIAC) Designated Federal Officer (DFO), opened the quarterly business meeting (QBM) and welcomed all in attendance.

II. ROLL CALL OF MEMBERS

Ginger Norris, DFO, NIAC, DHS

Ms. Norris called roll of all present at the meeting. She described the responsibility and duty of the NIAC Members in their service to the President and how they are regulated by the Federal Advisory Committee Act (FACA). She instructed the process of public comments and reminded those who wish to make a public comment after the meeting to email such comments to the NIAC inbox (niac.niac@hq.dhs.gov). Public comments are accepted for thirty days after the meeting.

NIAC MEMBERS PRESENT IN PERSON:

Ms. Constance Lau, Dr. Beverly Scott, Ms. Jan Allman, Mr. William Terry Boston, Mr. Robert Carr, Mr. William Fehrman, Mr. Benjamin Fowke, Ms. Joan McDonald, and Mr. Michael Wallace.

NIAC MEMBERS ATTENDING VIA CONFERENCE CALL:

General Albert Edmonds, Ms. Margaret Grayson, Mr. Carl Newman, and Mr. James Reid.

MEMBERS ABSENT:

Mr. Rand Beers, Mr. Georges Benjamin, Mr. George Hawkins, Chief Rhoda Kerr, Mr. Thomas Noonan, Mr. Keith Parker, Mr. James Murren, and Ms. Diana Perreiah.

SUBSTANTIVE POINTS OF CONTACT PRESENT:

Mr. Scott Seu with Ms. Constance Lau

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 2 of 12

Mr. Peter Grandgeorge with Mr. William Fehrman
Mr. Frank Prager with Mr. Benjamin Fowke
Mr. Nathaniel Millsap with Ms. Jan Allman
Mr. Jonathan Reeves with Mr. George Hawkins
Ms. Rivka Tadjer with Mr. Robert Carr

SUBSTANTIVE POINTS OF CONTACT OBSERVING VIA CONFERENCE CALL:

Mr. Theodore Basta with Dr. Beverly Scott

OTHER DIGNITARIES PRESENT:

Mr. Christopher Krebs, Department of Homeland Security (DHS), National Protection and Programs Directorate (NPPD); Mr. Matthew Travis, DHS, NPPD; Mr. Arthur Ray, National Security Council (NSC); Ms. Kathryn Condello, CenturyLink; Mr. Scott Aaronson, Edison Electric Company; Ms. Christina Sames, American Gas Association; and Ms. Michele Guido, Southern Company.

III. OPENING REMARKS AND INTRODUCTIONS

Constance H. Lau, NIAC Chair

Christopher Krebs, Under Secretary, National Protection and Programs Directorate (NPPD) (Invited)

Matthew Travis, Deputy Under Secretary, National Protection and Programs Directorate (NPPD) (Invited)

Arthur Ray, Director for Critical Infrastructure Policy, National Security Council (NSC)

Ms. Constance Lau, NIAC Chair, welcomed everyone to the QBM. She welcomed Mr. Christopher Krebs, Under Secretary for NPPD, Mr. Matthew Travis, Deputy Under Secretary for NPPD, and Mr. Arthur Ray, Director for Critical Infrastructure Policy of the NSC. She said the meeting will be moving ahead of the scheduled agenda due to member's prior engagements and adjourn early.

Dr. Beverly Scott, NIAC Vice Chair, echoed Ms. Lau's welcome and said the importance of focusing on this area of NIAC work is absolutely critical.

Mr. Ray thanked Ms. Lau and Dr. Scott for having him and providing him with the opportunity to say a few words. He said that 2017 was unprecedented because there were three back-to-back hurricanes combined with the California wildfires. The amount of disasters and their scope speaks to the anecdotal theme that society is not able to deal with multiple large catastrophes. Mr. Ray provided Japan as an example of one of the highest prepared nations, as exhibited from their resilience after the 2011 tsunami and the resulting nuclear catastrophe. He

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 3 of 12

ended by emphasizing that he is excited about the study because it focuses on resilience across all levels of the government.

Ms. Lau thanked Mr. Ray and said that the main order of business is to complete the scope of a study looking at the effects of a catastrophic power outage to feed into a full study that will deliver a report by the end of the year.

Mr. Krebs thanked the NIAC members for having him and highlighted some NPPD activities. Mr. Krebs said that DHS issued a cybersecurity strategy report in May 2018, with five key pillars that more broadly address risk management:

1. Identifying risks
2. Reducing vulnerabilities
3. Reducing threats
4. Mitigating consequences
5. Enabling cyber security outcomes

Mr. Krebs said the five pillars have been narrowed down into goals for NPPD, which includes managing federal networks and risks, and critical national functions. On the critical infrastructure and industry side, the federal government must ask themselves if they have the things that ensure essential functions, including the economy, continue during and after a catastrophe. From the NIAC side, Mr. Krebs asked what the NIAC would consider the core critical functions, be they transportation, generation, or transmission. He said the federal government must also consider what must happen to ensure the 16 sectors continue to function. Mr. Krebs said that the NIAC can distill the critical infrastructure issues that matter and force hard questions to be addressed such as future hazards and necessary authorities.

Mr. Krebs explained that the baseline for the second risk management function will be raised across the board through upcoming initiatives to align the core function of NPPD with cyber and infrastructure needs in a holistic approach. Rather than a bottom up approach, NPPD is taking a top down risk management approach. Mr. Krebs noted the important role NIAC members will have in these initiatives because as CEOs and leaders, members know what the pain points are along with the incentives and challenges to further NPPD priorities.

Mr. Krebs also said that DHS and NPPD would like to create a better understanding and engagement between industry and NIAC and has started several initiatives to address this. He said DHS needs to understand how to work with industry to get them what they need. A piece of that is going to come in a peer agency review, which includes the Federal Bureau of Investigation (FBI), the Department of Defense (DOD), the Federal Emergency Management Agency (FEMA), Department of Energy (DOE), and the Treasury Department, to look at what NPPD gets out of those engagements and gauge NPPD's current status and activities. Mr. Krebs then discussed authorities: what authorities DHS has, how those authorities have developed, and how they can evolve in the future through potential proposed legislation. Mr. Krebs concluded his opening remarks by reviewing NPPD's final initiative which is to

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 4 of 12

internally bring a centralized approach to the department's function and mission. He finished by noting that this was just a quick preview of NPPD's authority and goals.

Ms. Lau thanked Mr. Krebs for reiterating the need for overall frameworks that can work from the bottom up in the event of a catastrophic outage.

Mr. Krebs added that there is a rumor that there is no leader in cybersecurity and that is false. He said U.S. Secretary of Homeland Security Kirstjen Nielsen has been engaging significantly in this for years, and in NPPD through the National Infrastructure Protection Plan (NIPP) both for physical and cyber threats.

Ms. Lau noted that this topic arose during interviews, and that there has been progress in this area even throughout her time on the Council. She said it was good to hear that others are recognizing these issues.

IV. APPROVAL OF NOVEMBER 2017 MINUTES

Constance H. Lau, NIAC Chair

Ms. Lau said the first order of business would be the approval of the November 2017 QBM minutes. She asked if there were any comments or changes to that document. Hearing none she asked for a motion to approve the minutes. Mr. Ben Fowke motioned, and Ms. Jan Allman seconded. Ms. Lau asked all in favor to say "aye." The Council said "aye." She asked if there were any opposed, hearing none she thanked the Council and the minutes were approved.

V. LONG-DURATION POWER OUTAGE SCOPING STUDY

*Jan Allman and Ben Fowke, Working Group
Co-Chairs*

Ms. Lau then turned the meeting over to Mr. Fowke and Ms. Allman, Co-Chairs of the Scoping Study Working Group, to present the results of the scoping effort.

Ms. Allman and Mr. Fowke started by thanking each other, their fellow Working Group members, and their points of contact (POCs) for the of their hard work on this scoping effort. Mr. Fowke began by reviewing the agenda for their presentation. He explained that the NIAC was tasked by the NSC in November 2017 to identify the gaps and challenges the nation's infrastructure would face during a catastrophic power outage. He said that for the purposes of the study, a catastrophic power outage is one that is long duration (lasting weeks to months), affecting a broad region of the country, with severe cascading impacts that would force critical sectors to operate in a degraded state. Mr. Fowke said that an event of this size would exceed the capabilities of existing mutual aid programs and many emergency response plans. He said that because it is such a broad topic, the NSC tasked NIAC to define a narrower scope for a follow-on study to be completed before the end of 2018. To accomplish this, the Working Group interviewed 21 senior leaders in industry and government, and conducted in-depth research.

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 5 of 12

Mr. Fowke said that the Working Group considered three key pillars to frame the study scope:

1. The infrastructure investments and system hardening that could minimize outage severity.
2. The critical factors required to sustain public health and safety and the integrity of the national and regional economies during power restoration.
3. The nation's readiness to prioritize and coordinate resource sharing among federal, state, and private entities during a massive outage of unprecedented scale.

Mr. Fowke explained that through the scoping effort, the Working Group found that while federal, state, and local governments have made significant strides in disaster response and recovery planning, new approaches at an entirely different scale are needed to prepare for and respond to the cross-sector, cascading impacts of a catastrophic power outage. He said the Working Group recommends the next study build on the information gathered during the scoping effort by focusing on eight key areas of inquiry.

Mr. Fowke turned the presentation over to Ms. Allman who explained that eight key areas of inquiry within the Scoping Study fall under four major categories:

1. Identifying and assessing infrastructure impacts
2. Mitigation and response
3. Public-private collaboration
4. Government role and processes

Ms. Allman said that though infrastructure interdependencies are generally well understood, the cumulative widespread impacts of long-term disruptions across the lifeline sectors and economy are less well known. She stated that the Working Group identified two areas to address this. The first is the need to better understand electricity supply chain interdependencies, particularly with natural gas. More specifically, Ms. Allman said the just-in-time delivery model of fuel resupply could create a potential vulnerability during a catastrophic power outage, and a shortage or loss of fuel can make disasters considerably worse particularly in the areas of water and waste water. The second area is the need for the cascading cross-sector impacts and unforeseen interdependency risks to be identified through cross-sector modeling, planning, and exercises.

Mr. Travis interjected to ask a question about existing exercises, noting that though there are exercises, he presumed from the information provided, they are not to the level of fidelity to get to the needed answers. He said that each of those exercises need to dive deeper into interdependencies in a cross functional and holistic way.

Mr. Fowke answered and agreed, saying that as exercises are completed, more and more interdependencies, such as those in natural gas or communications, are discovered and the level of understanding needs to get deeper.

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 6 of 12

Ms. Allman agreed stating that while some regions have and complete such exercises others do not and the inconsistency is problematic.

Ms. Lau echoed Ms. Allman's statement saying that the Grid Security Exercise (GridEx) is a good example of an exercise that has recently brought in other sectors. She said there is an importance to reaching out sector by sector.

Mr. Krebs said that though is there may not a place in the federal government for that activity yet, to stay tuned for things to come. Jumping ahead in the presentation to the third key area under public-private collaboration, Mr. Krebs said this was a priority across NPPD. He explained that because NPPD has voluntary programs, those programs must have a value and a benefit. Mr. Krebs said NPPD relies on the private sector to tell him what they need from the organization. Mr. Krebs gave an example of critical infrastructure defining a requirement then determining what the federal government can do to respond to that requirement.

Ms. Allman agreed that NIAC's aim is to provide actionable recommendations to the federal government.

Mr. Fowke moved on and discussed two of the key areas of inquiry under mitigation and response. He said that mitigating the impacts of a catastrophic power outage can help limit the immediate loss of services. However, this requires strategic planning and investments across all levels of government and the private sector. The Working Group identified that a federal design basis could provide the criteria needed for states, sectors, and agencies to plan and prepare for a widespread, long-duration power outage beyond modern experience. Recognizing that this will occur at the state and local level and is there a model that the federal government can encourage others to adopt.

Mr. Fowke said the most effective response to a catastrophic power outage is to ensure there is the ability to reenergize the grid quickly and efficiently. This requires identifying the resources or infrastructure needed to support blackstart capabilities, and any unforeseen barriers that will need to be overcome as resources begin to degrade. Mr. Fowke asked if any Council members had anything to add.

Mr. William Terry Boston said that a good example of this is how emergency generators were deployed into Puerto Rico after Hurricane Maria for over 3 million people. The federal government needs to think about what the resources are at the federal level to provide resources like this. For example, the Army Corp of Engineers (USACE) is stepping in but does not have this type of inventory.

Mr. Fowke noted that there are lessons to learn from Puerto Rico, but the NIAC is looking at an event on a much broader scale. An event that could affect 63 million people who rely on

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 7 of 12

the PJM Interconnection versus 3 million people living in Puerto Rico. In this type of situation, the most important, critical issue would be to get the grid back up and running. This includes getting spare transformers back up because it is going to be very difficult to run things with generators.

Ms. Joan McDonald said that weather realities can hamper restoration and recovery and the potential difficulties transporting resources to places after an event needs to be factored into planning.

Ms. Allman continued the presentation explaining that a catastrophic power outage could be a society-changing event. Therefore, establishing local community enclaves with critical services, such as electricity, water, healthcare, communications, and financial services, could allow residents to stay in their homes for the duration of the event, and prevent mass migrations. Ms. Allman said that community enclaves would not be shelters, but places in local communities where people could get the resources and information they need to allow them to stay in their homes.

Mr. Krebs noted that he was unfamiliar with the term “community enclaves” but that it resonated with him. He said this concept is consistent with FEMA’s *2012-2022 Strategic Plan* and their preparedness model which can create preparedness not just in the system but within communities.

Ms. Allman then discussed the key area of inquiry under public private collaboration. She said that because complex catastrophes require cross-sector planning among owners and operators and all levels of government for effective response, there is a need for increased education and outreach for businesses and the public on steps to take before a disaster. Ms. Allman noted that strategies used in historic pandemic response exercises could provide a useful model. Such pandemic response exercises included public-private partnerships across all levels of government and businesses. She said that such exercises illuminated not only the gaps or areas that need improvement, but how some entities were more self-sufficient than others and could serve as a model.

Mr. Krebs said that planning for long-term outages must include a strategy for resilience; and the scoping effort is very timely.

Mr. Fowke moved on to the key area of inquiries under government roles and processes. He noted that the authorities to prevent, protect, and recover from shorter-term disasters are well understood, but a greater understanding is needed of how those authorities would work in a catastrophic, long-duration event that affects national security and economic health. Mr. Fowke said that there does not appear to be a consolidated approach to analyze and plan for catastrophic power outages. This is important because such events will require a more top-down approach with the federal government leading efforts. He said there needs to be a clear, coordinated plan that provides strong federal direction, oversight, and resource coordination,

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 8 of 12

with a clear delineation of roles and responsibilities across all levels of government and the private sector.

Mr. Krebs said that Hurricanes Harvey and Maria tested the bounds of the National Response Framework (NRF) and the emergency support functions (ESFs). He asked the NIAC where the existing response frameworks fail.

Mr. Fowke replied that what happened in Puerto Rico was the result of a natural disaster which created unprecedented effects and suffering that still continues today. The island is not accustomed to having great reliability and some degree of preparedness, and coupled with not fully understanding supply chain interdependencies, this has hindered their recovery. Mr. Fowke also said that the federal government has not tested an event at the scale the NIAC is discussing that was not caused by a natural disaster, but was manmade combined with campaign of misinformation and the cascading effects of how mutual aid and everything else would work together.

Ms. Allman said that the Working Group through the interview process looked at who would lead and make prioritized resource decisions in such an event from the state, regional, and multi-regional level. She said that there is also confusion across all areas about who would make funding decisions, directing resources, and take over public messaging.

Mr. Travis said that when it comes to the question about public messaging, he is encouraged that NIAC is looking into this subset in its study.

Mr. Boston echoed the sentiment that there must be a method for communications, a need that was illuminated in Hurricane Katrina and Superstorm Sandy.

Mr. Robert Carr said that ham radios or backup private internet stand out as the number one priority because there must be a means of talking to one another when other means of communication go out.

Mr. Ray said that lack of cross-sector industry plans at a regional or national level is a notable issue.

Ms. Allman said that FEMA Region V has made some strides with conducting dark sky exercises and becoming more cross-sector oriented which is what is needed. But there needs to be more cross-sectional exercises.

Dr. Scott said that nongovernment organizations (NGOs) are at the heart of communities at the local level and it is critical to also be inclusive of them in planning.

Ms. Allman agreed and said that when it came to the pandemic exercise, the health department and other state and local representatives were onsite to simulate the exercise and real-life reactions, such as alternative power sources. The exercise went down to the city level and taught local people how to be self-sufficient. There is an opportunity there to replicate that.

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 9 of 12

Ms. McDonald said that one of the lessons learned is that events do not occur in a vacuum. From a federal standpoint federal response in 2017 was going from one event to another with no gap in between. When the federal government looks at roles and responsibilities, it is important to think of events that cascade into bigger events with people spread across the country.

Mr. Krebs said that Hurricanes Harvey and Irma emphasized the need to look at existing authorities, such as the DOE authorities and the Jones Act, that have not been used for these types of events.

Mr. Fowke said that the grid is transforming rapidly along with the interdependencies with telecommunications and natural gas. If there is not redundancy in these systems, then there is a need to look at a federal design basis.

Mr. Fowke continued with the final key area of inquiry, explaining the important role the government can play in providing incentives for state and local governments and the private sector to implement recommended actions for resilience. Specifically, these incentives could encourage the federal design basis and strategy for community enclaves; and could take the form of grants, tax incentives, or cost recovery. Mr. Fowke ended by asking if the Council had any additional questions. There were none.

Ms. Allman then outlined the high-level next steps to deliver a final study by the December 13, 2018 Quarterly Business Meeting. She said given the scale of the issue and the complexity of the topic, the Working Group recommends forming a study group of subject matter experts to vet and validate the key areas of inquiry.

Ms. Margaret Grayson said that updated pandemic handbooks could get back to that type of saturation and provide a good working tool and stay relevant.

Mr. Mike Wallace said the importance of executive public-private partnerships is key.

Mr. Krebs said that there have been baby steps initiated to bring a public-private partnership together. There needs to be a champion to lead this effort, along with the roles and responsibilities of the government and industry.

Ms. Lau reminded everyone that Strategic Infrastructure Coordinating Council (SICC) was originally a NIAC recommendation, but it could be scaled in the future to initiate change.

Mr. Carl Newman asked for a summary.

Ms. Allman said that when it comes to preparedness and incentives, there needs to be education. She returned to the pandemic exercise noting that there was activity across the community with incentivizes. Ms. Allman finished by pointing out that across the country there are 155,000 water and wastewater facilities, yet only 100 facilities service 60 percent of

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 10 of 12

the U.S. population. There needs to be incentivization to move forward for what the country needs.

Mr. Boston echoed Ms. Allman's point reiterating that what the NIAC is studying has never happened before. This is much broader with more scope and also a learning opportunity.

Ms. Lau asked if there were any other comments for the Working Group.

Dr. Scott said that across the country every individual needs to ask what they can do for their family and their neighborhood. That individual resilience needs to occur at the community level with exercises and communications to create a culture of preparedness so that people can know what they would do the day an event happens and then the days after.

VI. PUBLIC COMMENT

Ginger Norris, DFO, NIAC, DHS

Mr. Avi Schnurr made the following public comment:

The work NIAC is doing is crucial, and I would like to add my voice to others, thanking the council's leadership, and the members. I wanted to offer a perspective that has emerged from the multi-sector planning EIS Council hosts.

The fundamental, modern infrastructure quandary

- A) Critical assets: In addition to becoming heavily centralized, all major infrastructures are now interconnected and therefore interdependent. We need them to be, since that's where the efficiency comes from that sustains our society.
- B) The unpaid price: But there's a price that has not been paid. Today's increasingly consolidated, large, complex and interdependent systems are hard to stop. But if a crisis does cause them to fail, they are hard to restart.

The market forces that built and evolve them don't automatically ensure that integrated, multisector backup capabilities for effective restart / population sustainment following a Black Sky event will be there. And in fact, generally, they aren't available yet.

The solution: Coordinated cross-sector plans and investment are essential. EIS Council is helping to host coordination among public and private sector leaders working to develop ambitious multisector plans – and there are critical roles that can only be taken by government, working in tandem with them.

An Example: Fuel Security for Extreme Black Sky Scenarios

There has been considerable discussion about fuel security for extreme events, and possible roles for nuclear and coal plants. Embedding that discussion in the context of multi-sector, Black Sky requirements could be enormously helpful to reaching consensus in the dialogue.

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 11 of 12

1. Validating the need: Substantially improved fuel security – i.e., onsite availability of months of onsite fuel resources – is needed for Black Sky resilience. It is NOT needed for conventional hazards. That means, as a first step, there’s a critical need for a national dialogue to develop consensus that – as a nation – we wish to be capable of surviving a Black Sky event.
2. Enabling markets to drive the answer: Nuclear generation, with months of fuel available onsite, is one potential answer. However, if Black Sky societal survivability, and requisite fuel security, is a national priority, the marketplace – not predetermined answers – should select efficient, regionally variable solutions.
3. Critical government roles:
 - a. Validating the need: Given consensus, government involvement to spur Black Sky survivability requirements will position markets to operate and satisfy them efficiently.
 - b. Black Sky re-optimization of the regulatory framework: Onsite fuel resources could be crucial in extreme scenarios, but only if the regulatory framework and associated operational architectures for those resources are adjusted to make them viable.
 - c. Optimizing government support roles for infrastructure resilience: Onsite fuel capability, while a critical element of Black Sky resilience, only makes sense as part of a comprehensive multisector plan. A federal initiative establishing a new Emergency Support Function “ESF 14,” would provide a framework for such multisector planning by FEMA and its public/private partners, and also facilitate NRCC coordination during extreme events.

Ms. Norris closed the public comment period and reminded the audience that written public comments could still be accepted and provided to the NIAC Members through the regulations.gov website, but it will include any personal information provided.

The Council voted upon and unanimously approved the Working Group’s Scoping Study report.

VII. NEW BUSINESS

Constance H. Lau, NIAC Chair

Ms. Lau introduced the NSC tasking issued May 21, 2018 for the NIAC to conduct a full study, to be led by a Working Group with a Study Group as support. Ms. Lau again thanked the Working Group particularly Ms. Allman and Mr. Fowke for the work they had accomplished for the scoping effort. She opened up the floor to discuss next steps, the proposed study schedule, and the final deliverable.

Mr. Arthur Ray said power outages can come from many different sources such as from an electromagnetic pulse (EMP), a natural source from space, or a manmade outage. There is a need for integrated planning across critical infrastructure sectors, public and private sectors, NGOs; and in public-private investments in reliable infrastructure.

National Infrastructure Advisory Council

Draft Meeting Minutes for the June 14, 2018 Quarterly Business Meeting

Page 12 of 12

Mr. Krebs said he was encouraged that the NIAC is addressing this topic, specifically examining what is working and not working and what disincentives are preventing from the federal, state, and regional organizations. Mr. Krebs reiterated the need for federal action to look at cascading effects at the local government level, acutely in the infrastructure space. Lastly, he said that there has been a lot of work done. Mr. Krebs said that the time for ruminating is over and to take heart that there is more to come from the government. Based on the 2017 hurricane season, there are frameworks in place, but in the future he hopes to be making changes, including rewriting ESFs and NRFs with feedback to come over the summer.

VIII. CLOSING REMARKS

Constance H. Lau, NIAC Chair

*Christopher Krebs, Under Secretary, NPPD
(Invited)*

*Matthew Travis, Deputy Under Secretary,
National Protection and Programs Directorate
(NPPD) (Invited)*

*Arthur Ray, Director for Critical Infrastructure
Policy, NSC*

Ms. Lau thanked everyone for a good discussion and reiterated that it is very positive to hear everyone is on the same page on how to move forward with examining this critical issue.

Dr. Scott echoed Ms. Lau's statement and thanked Mr. Fowke and Ms. Allman for the work they had accomplished in the scoping effort along with the work done by DHS.

IX. ADJOURNMENT

Constance H. Lau, NIAC Chair

Ms. Lau thanked all for attending the QBM and adjourned the meeting.