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2022 Federal Environmental Symposium



March 28-31, 2022

Theme: Theme: Mission, Environment, and Our Communities

Via Webinar, Sponsored by
National Institutes of Health
Natcher Conference Center, Bethesda, MD

The presence of non-governmental organizations and speakers at the 2022 Federal Environmental Symposium, and their presentations, does not constitute or imply the committee's, FedCenter's, or any of its member government entities', endorsement, recommendation, or favoring of such non-governmental organizations or speakers.

Table of Contents

Welcome Letter from Committee

Acronyms

Agenda

Abstracts

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2023 Federal Environmental Symposium

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Welcome Letter from Committee

Dear 2022 Federal Environmental Symposium Attendees,

The Planning Committee (the Committee) is excited to welcome you to our 2022 Federal Environmental Symposium (FES or Symposium). Despite the Committee's best attempt to bring to you a live, in-person event at the beautiful NIH Natcher Conference Center located in Bethesda, Maryland, the tough decision was made to pivot to a fully virtual symposium in order to protect the health of all attendees given the current COVID-19 situation.

The Symposium was first held annually at the NIH Natcher Conference Center in Bethesda, Maryland from 2002-2009 and provided an opportunity for federal environmental staff to network and share best management practices in their field. Federal staff was responsible for the development of the content and presentation of information to their peers. Later the event was retitled "GreenGov," managed by the Federal Environmental Executive (FEE) from 2010 – 2016. After the event was halted in 2016, EPA and NIH recognized the need for continuing to share best management practices across the federal government and therefore, proposed reigniting the event. The FES planning committee was relaunched in 2019 and successfully hosted an in-person event at the NIH Natcher Conference Center with great support from federal environmental professionals, welcoming more than 500 visitors and 150 speakers to the event.

We're excited to get back on track this year, offering four full days of webinars focused on the most pressing environmental topics in the federal government today. The Symposium will bring together expertise from Federal and State-level governments, the private sector, as well as academia for the benefit of the Federal community. Additionally, we're delighted to announce our keynote speaker for this year's symposium will be CEQ's Federal Chief Sustainability Officer, Andrew Mayock.

The Symposium will consist of nine tracks and more than 90 presentations including new tracks such as Environmental Justice, Resiliency, NEPA- Protecting Our Resources; Emerging Chemicals/Management of Toxic Substances, Management Systems - ISO 14001(Environmental); ISO 50001 (Energy), ISO 22000 (Risk Assessment), ISO 46001 (Water). With this year theme, "Mission, Environment, and Our Communities," we want to continue to offer a variety of presentations that will foster networking and collaboration across the federal government as we all work towards implementing our national environmental priorities and goals.

The Committee wishes you all an enjoyable and productive 2022 virtual conference. For more information, please visit the [FES 2022 website](#). We hope to see you in person in 2023!

Best regards,

2022 Symposium Committee

Acronym Organization/Term

APHIS	ANIMAL AND PLANT HEALTH INSPECTION SERVICE
ARS	AGRICULTURAL RESEARCH SERVICE
ATF	ALCOHOL, TOBACCO, FIREARMS, AND EXPLOSIVES BUREAU
ATSDR	AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY
BIA	BUREAU OF INDIAN AFFAIRS
BOP	FEDERAL PRISONS BUREAU
CAA	CLEAN AIR ACT
CDC	CENTERS FOR DISEASE CONTROL AND PREVENTION
CEQ	COUNCIL ON ENVIRONMENTAL QUALITY
CIA	CENTRAL INTELLIGENCE AGENCY
COE	CORPS OF ENGINEERS
DHS	DEPARTMENT OF HOMELAND SECURITY
DIA	DEFENSE INTELLIGENCE AGENCY
DLA	DEFENSE LOGISTICS AGENCY
DOD	DEPARTMENT OF DEFENSE
DOE	DEPARTMENT OF ENERGY
DOI	DEPARTMENT OF THE INTERIOR
DOJ	DEPARTMENT OF JUSTICE
DOS	DEPARTMENT OF STATE
DOT	DEPARTMENT OF TRANSPORTATION
EMS	ENVIRONMENTAL MANAGEMENT SYSTEM
EPA	ENVIRONMENTAL PROTECTION AGENCY
FAA	FEDERAL AVIATION ADMINISTRATION
FBI	FEDERAL BUREAU OF INVESTIGATION
FDA	FOOD AND DRUG ADMINISTRATION
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FIFRA	FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT
FS	FOREST SERVICE

GAO	GOVERNMENT ACCOUNTABILITY OFFICE
GSA	GENERAL SERVICES ADMINISTRATION
HHS	DEPARTMENT OF HEALTH AND HUMAN SERVICES
HUD	DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
IRS	INTERNAL REVENUE SERVICE
LBNL	LAWRENCE BERKELEY NATIONAL LABORATORY
MDE	MARYLAND DEPARTMENT OF THE ENVIRONMENT
NASA	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
NIH	NATIONAL INSTITUTES OF HEALTH
NIST	NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NPS	NATIONAL PARK SERVICE
NRC	NUCLEAR REGULATORY COMMISSION
NSA	NATIONAL SECURITY AGENCY
OPM	OFFICE OF PERSONNEL MANAGEMENT
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT
SSA	SOCIAL SECURITY ADMINISTRATION
TSA	TRANSPORTATION SECURITY ADMINISTRATION
TTB	ALCOHOL AND TOBACCO TAX AND TRADE BUREAU
USA	ARMY DEPARTMENT
USAF	AIR FORCE DEPARTMENT
USCG	COAST GUARD
USDA	DEPARTMENT OF AGRICULTURE
USGS	U.S. GEOLOGICAL SERVICE
USMINT	UNITED STATES MINT
USN	NAVY DEPARTMENT
USPS	POSTAL SERVICE
USUHS	UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES
VA	DEPARTMENT OF VETERANS AFFAIRS

Symposium Schedule

2022 Federal Environmental Symposium			
(Final Schedule v1.0)			
Day 1: March 28, 2022			
Theme: Mission, Environment, and Our Communities			
11:00 - 11:30			
Keynote Speaker			
Andrew Mayock			
CEQ's Federal Chief Sustainability Officer			
11:30 - 11:45 Break and to Tracks			
TIME (All times Eastern)	Track 1 Emerging Chemicals / Management of Toxic Substances	Track 2 Energy and Water Conservation	Track 3 NEPA - Protecting Our Resources
11:45-12:15	1.1 Updating the Emerging Chemical Assessment Process to Address Impacts from Climate Change Kelsey Hendrixson (Noblis, DoD contractor)	2.1 Understanding Solar Photovoltaic System Performance: An Assessment of 75 Federal Photovoltaic Systems Nichole Liebov (DOE/FEMP), Andy Walker (DOE/NREL), Jal Desai (DOE/NREL)	3.1 Section 106 for Non-Practitioners: GSA and CBP Joint Section 106 Training (90 min. Workshop) Liz Mees (GSA), Melissa Wiedenfeld (DHS/CBP contractor)
12:15-12:45	1.2 Accessing Environmental Chemistry Data via Data Dashboards Antony Williams (EPA R3)	2.2 Clean Energy Solutions for Water and Sewer Systems in Remote Alaska Native Communities Dustin Madden (Alaska Native Tribal Health Consortium (ANTHC), contractor to Indian Health Service)	(Workshop 3.1 continues)
12:45-1:15	1.3 Historical Usage of PFAS Linda Gaines (EPA OLEM)	2.3 Combined Facility Geothermal System Utilizing Server Farm Heat Rejection Lt Col Brock Sissel (KS Air National Guard)	(Workshop 3.1 continues)
1:15-1:30	Break	Break	Break
1:30-2:00	1.4 PFAS Activities: Analytical Approaches, Surveillance Testing, and Incident Response Alexander Domesle (USDA/FSIS)	2.4 Panel: Net Zero Laboratory Campus: Digital Twin Provides Pathway for Net Zero Carbon Emissions for National Laboratory Jofrey Quintanar (DOE/ANL)	3.2 Assessing the Effects of Climate Change on Historic Properties Matthew Nowakowski and Dr. Adrienne Lazazzera (USAF)
2:00-2:30	1.5 One Size Doesn't Fit All: A Discussion of Unique Radon Mitigation Approaches for Non-Residential Buildings on Military Installations Rachel Carter MS CHMM (Assisted Management Solutions, Inc., contractor to USN)	2.5 Panel: Net Zero Laboratory Campus: Renewable-Resilient NIEHS – a Path to Net-Zero Energy and Carbon Neutrality Kerri Hartung (DHHS/NIH/NIEHS)	3.3 Department of Defense Clean-up Efforts in Support of Chesapeake Bay Restoration Angela S. Jones (USN)
TIME (All times Eastern)	Track 1 Emerging Chemicals / Management of Toxic Substances	Track 2 Energy and Water Conservation	Track 3 NEPA - Protecting Our Resources
2:30-3:00	1.6 DoD Sustainable Materials Alternatives Selection Tool Michael Bruckner (Noblis, DoD contractor to ODASD(E&ER))	2.6 Optimize the CUP Operation by Advanced Water Treatment Program Andrew Gomes, John Fratangelo, and Chris Lyon (DHHS/NIH), Jason Cook (ChemTreat, Inc., contractor to NIH)	3.4 Meeting the Mission while Preserving the Past: CBP, NEPA, and Section 106 (60 min. Panel) Melissa Wiedenfeld (DHS/CBP contractor), Michelle Brown (DHS/CBP), Dennis Lew (DHS/CBP contractor), Tom Brown (DHS/CBP), Santiago Gala (Puerto Rico SHPO)
3:00-3:30	1.7 Managing Supply Chain Risk Carole Mars (DoD, AAAS S&T Policy Fellow)	2.7 Conducting a Freezer Challenge to Increase Reliability/Reduce Energy Jaroslav Sebek (DHHS/NIH)	(Panel 3.4 continues)
3:30-3:45	Break	Break	Break
3:45-4:15	1.8 PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024 Susan Burden (EPA HQ)	2.8 Reducing Energy Costs and Carbon Emissions Through Federal Energy Performance Contracts Philip Voss and Jeff Gingrich (DOE/NREL)	3.5 Translating the Chesapeake Bay TMDL Down to the DoD Facility Level Jessica Rodríguez (USN)
4:15-4:45	1.9 An Update on DOE's PFAS Progress Rob Seifert (DOE/EM)	2.9 Organizational and Psychological Barriers to Data Center Decarbonization Nichole Hanus and Alex Newkirk (DOE/LBNL)	3.6 National Environmental Policy Act and Mission Growth at the Idaho National Laboratory James R. Jackson (DOE/INL)
4:45-5:15		2.10 GHG Reductions and California Cap and Trade Nicholas Graves (DOE/LLNL)	
Note: Energy & Water Conservation (Track 2) continues on Day 4			

2022 Federal Environmental Symposium

(Final Schedule v1.0)

Day 2: March 29, 2022

Theme: Mission, Environment, and Our Communities

TIME (All times Eastern)	Track 4 Sustainability	Track 5 Management Systems	Track 6 Environmental Compliance
11:00 - 11:30	4.1 Electric Vehicles and Infrastructure (Cross-cutting / Macro Issues) Stephanie Gresalfi (GSA Fleet Offering Management Program), Allison Young (USACE/ERDC/CERL)	5.1 ISO's "High Level Structure" - The Framework Uniting Management Systems Peter Therkelsen (DOE/LBNL)	6.1 Environmental Compliance at Federal Facilities Richard Albores (EPA/OECA/FFEO Acting Director)
11:30 - 12:00	(Presentation 4.1 continues)	5.2 My EMS in a Changing World Jimmy Parrish (DLA)	(Presentation 6.1 continues)
12:00-12:15	Break		
12:15-12:45	4.2 Electric Vehicles and Infrastructure (Agency Implementation Perspectives) (60 min. Panel) (Moderator) Atoya McDuffie and Jeanine Smith (DHS Fleet Electrification PMO), Karyn Andersen (DOE/ANL)	5.3 Addressing NASA's Significant Energy Uses Through Enterprise Adoption of 50001 Ready Joan Hughes (NASA), Jerrilyn Goldberg (DOE/LBNL)	6.2 Development of Drain Disposal Guidance for Laboratories at the NIH Bill Steinmetz and Paul Johnson (DHHS/NIH/NIEHS), Craig Upson and Timothy Adkins (DHHS/NIH/OD/ORF)
12:45-1:15	Same as Above (Cont.)	5.4 DAF Risk-Based EMS Aspect Inventory Implementation David Kumar and Whitney Miller (USAF)	6.3 UST Requirements Ellen Mank (MD Dept. of the Environment)
1:15-1:30	Break	Break	Break
1:30-2:00	4.3 Advancing Federal Building Decarbonization: From Ambition to Action (60 min. Panel) Ken Sandler and Jeremy Alcorn (GSA), Clay Nesler (World Resources Institute), Kent Peterson (P2S, Inc.)	5.5 Strategic, Effective, and Persistent: Leveraging ISO 50001 for Climate Action Karen Salvini (DOE/LBNL)	6.4 Panel: Lead Strategies, Activities, and Environmental Compliance Bruce Haber (HUD), Annie Hoyt and Paul Ruge (EPA R3), Aimee Hessert and Stephanie Brown (EPA HQ)
2:00-2:30	(Panel 4.3 continues)	5.6 Streamlining Individual Sustainability Projects with 50001 Ready Allan Federman (DVA), Jerrilyn Goldberg (DOE/LBNL)	(Panel 6.4 continues)
2:30-2:45	Break	Break	Break

TIME (All times Eastern)	Track 4 Sustainability	Track 5 Management Systems	Track 6 Environmental Compliance
2:45-3:15	4.4 Embodied Carbon's Role in Decarbonization (60 min. Panel) Don Horn, Walter Tersch, Adina Torberntsson (GSA)	5.7 DHS NEXUS Approach to Facility Management and Projects: Breaking Down the Stovepipes (90 min. Workshop) Patricia Harrington (DHS), Kevin DeGroat, Christopher Lindsey and Ali Schmidt (Antares Group, contractors to DHS)	6.5 Use Attainability Analysis for Upper Sandia Canyon, Los Alamos, New Mexico - A scientific study to provide evidence for a change in water quality standards Timothy Goering (Triad National Security, LLC, contractor to DOE/LANL), Robert Gallegos (DOE/LANL)
3:15-3:45	(Panel 4.4 continues)	(Workshop 5.7 continues)	6.6 UST New Requirements Russ Brauksieck (EPA OUST)
3:45-4:15	4.5 Green Building Certifications: Achieving Success in Sustainability (90 min. Panel) (Moderator) Ryan Cerone and Douglas Brinkley (DOS Bureau of Overseas Buildings Operations), Wayne Evelo (DOE/NNSA), Kurt Kesteloot (DOI/NPS)	(Workshop 5.7 continues)	6.7 An Introduction to the Department of Defense's Regional Environmental Coordinator Program Kevin Kennedy (USACE)
4:15-4:45	(Panel 4.5 continues)		6.8 What is a Pesticide and How to Comply with FIFRA? Julie Jordan (EPA R9)
4:45-5:15	(Panel 4.5 continues)		6.9 Open Burning and Open Detonation (OB/OD) of Explosive Waste Under the Resource Conservation & Recovery Act (RCRA) Sasha Gerhard (EPA OLEM)
	Note: Sustainability (Track 4) continues on Days 3 & 4		

2022 Federal Environmental Symposium			
(Final Schedule v1.0)			
Day 3: March 30, 2022			
Theme: Mission, Environment, and Our Communities			
TIME (All times Eastern)	Track 4 (cont.) Sustainability	Track 7 Environmental Justice	Track 8 Resiliency
11:00 - 11:30	4.6 Tools and Analyses to Implement Sustainable Procurement and Acquisition (Moderator) Dr. Kari Meier (OSD), Michael Bruckner (Noblis, DoD contractor), David Gill (TREAS/IRS), and Julie Volny and Michael Bloom (GSA)	7.1 (Proposing EPA Region 3 Regional Administrator)	8.1 Water Resilience for DOD Installations: Opportunities, Challenges, and Research Pathways Kylie Burkett, Noah Garfinkle, Michael Duczynski, Aaron Takahashi, and Bennett Kang (USACE/ERDC/CERL)
11:30 - 12:00	(Presentation 4.6 continues)	7.2 Grounding Energy Justice: Visioning Principles for Energy Transitions from Frontline and Community-based Organizations Salma Elmallah (DOE/LBNL)	8.2 Incorporating Climate Change and Resilience Priorities into Energy and Water Planning at Federal Sites Ethan Epstein (DOE/FEMP), Julia Rotondo and Hannah Rabinowitz (DOE/PNNL)
12:00-12:15	Break	Break	Break
12:15-12:45	4.7 Federal Sustainable Purchasing: Programs and Tools to Help Meet and Exceed your Goals (Part 1) Katharine Kaplan (EPA ENERGY STAR Program), Ksenija Janjic (EPA Comprehensive Procurement Guidelines), Andrew Jermolowicz (USDA BioPreferred Program), Bella Maranion (EPA SNAP Program)	7.3 Defining Disadvantaged Communities with a Lens Toward Energy Justice Natalie Popovich (DOE/LBNL)	8.3 Natural Hazard Resilience at U.S. Diplomatic Missions - State Department David Keller (DOS Overseas Buildings Operations)
12:45-1:15	(Presentation 4.7 continues)	7.4 My EMS and My Community Jimmy Parrish (DLA)	8.4 Resilience in Action: A Case Study of a FLETC Utility Energy Conservation Project Tim Harper and Todd Braun (DHS/FLETC)
1:15-1:30	Break	Break	Break
1:30-2:00	4.8 Sustainability in Practice within the Department of Defense David Asiello (Director for Sustainability and Acquisition, ODASD(E&ER)), Michael McGhee (Executive Director for Climate Resilience, ODASD(E&ER))	7.5 HHS's 2022 Environmental Justice Strategy and Implementation Plan LaToria Whitehead (DHHS) (Detail) / Office of the Asst. Secretary for Health, Leo Gumapas (DHHS/NIH)	8.5 DHS Climate Change and Resilience: DHS Strategies, Assessments, and Case Studies (60 min. Panel) Marie Britt (DHS/HQ), Anneke Frederick (DHS/CISA), David LoVullo (DOE/NREL), Bonnie Herriott (DHS/CBP)
2:00-2:30	(Presentation 4.8 continues)	7.6 EJScreen – Basics in the Understating and Use of the EJ Tool Angus Welch (EPA HQ)	(Panel 8.5 continues)
2:30-2:45	Break	Break	Break

TIME (All times Eastern)	Track 4 (cont.) Sustainability	Track 7 Environmental Justice	Track 8 Resiliency
2:45-3:15	4.9 Strategies for Preventing and Reducing Government-Wide Food Waste Susannah Davidson (USACE/ERDC/CERL), Lana Coppolino Suarez (EPA, Office of Resource Conservation and Recovery, Materials Management Branch), Jean Buzby (USDA Office of the Chief Economist, USDA Food Loss and Waste Liaison)	7.7 Environmental Justice and Incorporating Environmental Justice Elements in My EMS Samantha Beers, Reggie Harris, and José Jiménez (EPA R3), Angus Welch and Jamar Jackson (EPA HQ), Jimmy Parrish (DLA)	8.6 US Department of Transportation Facility Climate Risk Tool Dr. Brent Kurapatskie (DOT), Dr. Dan Flynn (DOT/VOLPE)
3:15-3:45	(Presentation 4.9 continues)	(Presentation 7.7 continues)	8.7 Resiliency of Installation Recycling Programs in the Context of Changing Federal Policy and Volatile Markets Abigail Rice (USACE/ERDC/CERL)
3:45-4:15	4.10 An Intro to Circular Economy: How Recycling and Reuse Can Play an Important Role (Moderator) Carole Mars (AAAS (S&T) Policy Fellow for ODASD(E&ER)), Kristine Sedey and Brenda Adams (USPS), Elizabeth Keysar (Concurrent Technologies, Inc., contractor to USA)	7.8 Engagement as a Two-way Exchange of Information, Ideas, and Resources (90 min. Panel) (Moderator) Krystal Brumfield (Associate Administrator, GSA/OGP), Nina Albert (Commissioner, GSA/PBS), Alex Gamble (DHHS/IHS), Chris Castro and Merchon Green (City of Orlando, FL), Mandy Lee (NAACP Prg. Mgr., Centering Equity in the Sustainable Building Sector, Environmental Climate & Justice Program)	8.8 (5 min. break) You Cannot Unknow This: From the Cusp of Survival to Emerging Practice (90 min. Workshop) Ann Kosmal (GSA)
4:15-4:45	(Presentation 4.10 continues)	(Panel 7.8 continues)	(Workshop 8.8 continues)
4:45-5:15	(Presentation 4.10 continues)	(Panel 7.9 continues)	(Workshop 8.8 continues)
	Note: Sustainability (Track 4) continues to Day 4		

2022 Federal Environmental Symposium

(Final Schedule v1.0)

Day 4: March 31, 2022

Theme: Mission, Environment, and Our Communities

TIME (All times Eastern)	Track 4 (cont.) Sustainability	Track 2 (cont.) Energy and Water Conservation	
11:00-11:30	4.11 Varying Approaches to Sustainability: FBI, State Dept, USPS (Moderator) Mark Pituch (DOS), Darcy Sharp and Brooke Siegel (DOJ/FBI), Ronald Robbins (USPS)	2.11 Decarbonization Procurement Options in the Federal Sector (90 min. Workshop) Douglas Gagne, Jenny Heeter, Chandra Shah and John Myhre (DOE/NREL), Elisabeth McClure (DOE/FEMP)	
11:30-12:00	(Presentation 4.11 continues)	(Workshop 2.11 continues)	
12:00-12:15	<i>Break</i>	<i>Break</i>	
12:15 - 12:45	4.12 Charting a Course to Net Zero Procurement for DoD Supply Chain Greenhouse Gases (Moderator) Michael Bruckner (Noblis, contractor to ODASD(E&ER)), Carole Mars (DoD, AAAS S&T Policy Fellow), Kari Meier, Ph.D.(ODASD(E&ER))	(Workshop 2.11 continues)	
12:45 - 1:15	(Presentation 4.12 continues)	2.12 Energy Storage at Federal Facilities: What You Need to Know Now (60 min. Panel) Ken Sandler (GSA), and, Alex Cate (Ameresco, Inc.), Nick Tumilowicz (Electric Power Research Institute), and David Kaneda (IDeAs Consulting), contractors to GSA	
1:15-1:30	<i>Break</i>	(Panel 2.12 continues)	
1:30-2:00	4.13 Sustainable Operations – Reducing the Footprint and Cleaning Up Afterward (Moderator) John E. Conover (USAF), Albes Gaona (DOE), Kim Cole (UCOR LLC, contractor to DOE OREM), Kelly Jaramillo (USDA/FS)	(Panel 2.12 continues)	
2:00-2:30	(Presentation 4.13 continues)		
2:30-2:45	<i>Break</i>		

TIME (All times Eastern)	Track 4 (cont.) Sustainability	Track 2 (cont.) Energy and Water Conservation	
2:45-3:45	4.14 Federal Sustainable Purchasing: Programs and Tools to Help Meet and Exceed your Goals (Part 2) (Moderator) Jenna Larkin (EPA Environmentally Preferable Purchasing (EPP) Program), Clive Davies (EPA Safer Choice Program), Stephanie Tanner (EPA WaterSense Program), Denise Kearns (EPA SmartWay Program)		

Abstracts

Day 1

Track 1 – Emerging Chemicals / Management of Toxic Substances

1.1 *Updating the Emerging Chemical Assessment Process to Address Impacts from Climate Change*

The mission of the Chemical and Material Risk Management (CMRM) Program is to protect readiness, people and the environment by identifying and managing risks associated with the chemicals and materials used by the Department of Defense (DoD). As part of this process, the CMRM Program scans the horizon for emerging chemicals (ECs), chemicals that may lack human health or environmental standards or have evolving science and regulatory status. In 2021, the Administration issued several Executive Orders (EOs) (e.g. EO 13990, 14008, 14017, 14030, and 14057) to address climate change across all federal agencies. The CMRM Program is updating its process to identify, track, and assess ECs in accordance with the new EOs in order to mitigate impacts to the defense industrial base from future climate change and national and international regulations. The CMRM Program has already updated the EC screening assessment process to include regulatory drivers for greenhouse gases (GHG) under EOs, Clean Air Act, and American Innovation and Manufacturing Act. Using these new drivers, Carbon Dioxide was recently added to the program's EC Watch List. An EC screening assessment for Methane is currently underway. Other EC process updates may include: evaluating the climate impact from all ECs on the program's Watch and Action Lists; updating assessments on ECs with known global warming potential (GWP) and DoD impacts (e.g. Sulfur Hexafluoride, Hydrofluorocarbons); expanding the functional area definitions and criteria used to evaluate ECs to include climate change impacts; developing guidance to quantify Scope 3 GHG emissions; and using Sustainability Analysis to incorporate the social cost of carbon in CMRM decision making. The expanded EC process addresses the new EOs and will improve DoD's climate resiliency while minimizing vulnerabilities and accomplishing its national security mission.

1.2 *Accessing Environmental Chemistry Data via Data Dashboards*

As part of its mission the Center for Computational Toxicology and Exposure (CCTE) delivers access to chemicals related data via online Dashboards. The CompTox Chemicals Dashboard (available at <https://comptox.epa.gov/dashboard>) provides access to >900,000 chemicals and associated data including experimental and predicted property data, in vivo hazard data, in vitro bioactivity data, exposure data, and various other data types. The application provides a set of flexible searches allowing for search, visualization and downloads of the data to the desktop for further interrogation. This presentation will provide an overview of the Dashboard and other proof-of-concept applications. For example, the Hazard Comparison Dashboard has a module which allows profiling of chemicals based on toxicity types (<https://doi.org/10.1007/s10098-019-01795-w>). This presentation will also introduce a number of proof-of-concept modules in development.

1.3 *Historical Usage of PFAS*

Per- and polyfluoroalkyl substances (PFAS) have been used since the 1940s. They have been extremely useful for putting out fires, controlling dust emissions from metal plating operations, cleaning a variety of items, and conferring water and oil resistance on paper and textiles. However, they have been used by a variety of other industries due to their unique properties. As more PFAS contamination is found in the environment, it is important to more fully understand the different ways that PFAS has been used historically. By searching the scientific literature, manufacturing information, and patents, a more complete picture of historic usage formed. Results from this literature search will be presented.

1.4 *PFAS Activities: Analytical Approaches, Surveillance Testing, and Incident Response*

The U.S. Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS) is part of a science-based national system to ensure food safety and food defense. FSIS administers the National Residue Program for Meat, Poultry, and Egg Products, an interagency program designed to identify, prioritize and analyze chemical residues and contaminants in these products. Since 2008, FSIS has responded to individual situations related to per-and polyfluoroalkyl substances (PFAS) exposures in food-producing animals. In 2020, FSIS implemented a testing method for PFAS to gain a better understanding of PFAS concentrations in beef muscle. Titled "Screening, Determination, and Confirmation of PFAS by UPLC-MS-MS" (CLG-PFAS2.00), this analytical method quantifies

16 separate compounds. Testing was conducted throughout 2020 to gather data on in-plant KIS-Test positive bovine muscle samples obtained from carcasses, already condemned as unfit for human consumption. In 2021, that testing was expanded to include muscle samples from swine, poultry and Siluriformes fish. While the PFAS testing is used to understand the potential presence of PFAS in the nation's meat and poultry supply as a whole, the testing has also informed decisions related to specific contamination occurrences. FSIS, along with the Food and Drug Administration and other partners, consults with States and producers and offers testing resources. The most significant consultation to date involved a large dairy herd in the southwestern United States that consumed contaminated water. PFAS testing of the herd help guide the decision to not slaughter the animals, preventing their entering the food supply. FSIS continues to refine its testing method and monitor nationally collected meat and poultry samples. Consultation with States on PFAS in the food supply and testing capacity will continue to be provided, on a case-by-case basis.

1.5 *One Size Doesn't Fit All: A Discussion of Unique Radon Mitigation Approaches for Non-Residential Buildings on Military Installations*

Non-residential buildings, such as those found on military installations, may require different mitigation approaches compared to those commonly used for residential buildings. These buildings typically have robust air handling systems that greatly affect pressure within the building, and therefore indoor radon levels. Buildings on military installations can also range in function from administrative or office buildings, to childcare centers, hotels, barracks, and even highly secure testing facilities. These unique occupational spaces are not conducive to one specific radon mitigation solution. Additionally, funding is a primary factor determining the mitigation timeline for these installations. For these reasons, unique mitigation approaches, including interim strategies, are discussed that can be applied quickly with relatively low cost to ensure occupant health and safety.

1.6 *DoD Sustainable Materials Alternatives Selection Tool*

The U.S. Department of Defense (DoD) faces the challenge of anticipating and managing environmental safety and occupational health (ESOH) issues for defense systems through their acquisition and entire life cycle. Executive Order (EO) 13990 requires Federal Agencies to "capture the full costs of greenhouse gas emissions as accurately as possible" and integrate that into decision-making processes. EO 14057 requires Federal Agencies to "reduce embodied emissions in products acquired or used in Federal projects" and maximize "environmental benefits and cost savings through use of full lifecycle cost methodologies" as part of acquisition programs. Because systems' environmental impacts and LCCs are 'locked-in' early in the life cycle, it is essential for DoD to effectively address these issues early in the acquisition process to meet its sustainability and climate goals while advancing the mission. DoD's Sustainability Analysis Guidance: Integrating Sustainability into Acquisition Using Life Cycle Assessment provides the defense acquisition community an approach to accurately capturing environmental impacts and life cycle costs, including those described in recent EOs. This presentation highlights the various aspects of sustainability analysis; demonstrates the value added; and identifies how the guidance remains integral to the defense acquisition community. There is also an overview of applicability of new Federal sustainability policy to DoD acquisitions; the DoD Climate Adaptation Plan and Sustainability Plan; how DoD R&D programs are addressing these requirements; and analysis examples.

1.7 *Managing Supply Chain Risk*

For the Department of Defense, anything that drives, flies, or floats is dependent on the chemicals and materials that are used to manufacture and maintain them. Regulations and restrictions on emerging chemicals and the materials that contain them challenge the ability of DoD to protect warfighters and the civilians that support them. Unfortunately, this challenge is not unique to Defense – private industry also struggles to identify the composition of goods it procures. This presentation will discuss the challenges surrounding identification of emerging chemicals and related materials in complex supply chains, the current status of disclosure efforts, and recent actions taken by DoD to address this challenge.

1.8 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024*

In October 2021, EPA released the Agency's PFAS Strategic Roadmap, which lays out a whole-of-agency approach to address PFAS. The roadmap identifies EPA's principles and goals for addressing PFAS and also includes specific actions EPA is taking to safeguard public health, protect the environment, and hold polluters accountable. In this presentation, Dr. Burden will provide an overview of EPA's PFAS Strategic Roadmap with an emphasis on EPA's PFAS research and development activities.

1.9 *An Update on DOE's PFAS Progress*

The U.S. Department of Energy's (DOE) is tasked to ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions. Like a number of other agencies, it faces an emerging environmental challenge in the legacy and current use of per- and polyfluoroalkyl substances (PFAS). Coordinated across program offices, DOE has begun assessing the presence of PFAS at its sites and working toward reducing risk of PFAS impacts on workers, the public, and the environment. Mr. Robert Seifert, Director of the Office of Subsurface Closure in DOE's Office of Environmental Management (DOE-EM), will provide an update on DOE progress with a focus on DOE-EM sites and the challenges that remain.

Track 2 – Energy and Water Conservation

2.1 *Understanding Solar Photovoltaic System Performance: An Assessment of 75 Federal Photovoltaic Systems*

This presentation describes the evaluated performance of a sample of 75 photovoltaic systems by comparing measured production to model production. 16 agencies contributed data in the form of energy production data and system descriptions, ranging in size from 1 kW to 4 MW and representing a total of 30.7 MW of PV capacity. Key Performance Indicators reported are Availability (% uptime); Performance Ratio; and Energy Ratio. The average Availability was 95% (compared to 95% benchmark), which indicates that agencies are keeping plants up and running, but average performance ratio is 79% (compared to 85% benchmark). Recommendations are made as to how performance might be improved through optimal O&M. results in a calculated relative error of 4.3% based on total number of systems represent a total 30.7 MW of installed capacity.

2.2 *Clean Energy Solutions for Water and Sewer Systems in Remote Alaska Native Communities*

Alaska's severe environment and high cost of living threaten the resiliency and sustainability of its rural communities. Economic viability and public health suffer from the lack of essential infrastructure that other parts of the country take for granted. The cost of basic sanitation, clean water, heating fuel, and energy can easily consume more than half of a family's income in rural Alaska, creating barriers to economic development. The U.S. Department of Health and Human Services (HHS) Indian Health Service (IHS) Alaska Area and the Alaska Native Tribal Health Consortium's (ANTHC) Rural Energy Program are committed to seeing that energy security and resilience and safe water and sanitation are not only affordable, but also sustainable through renewable and alternative energy solutions for public health infrastructure. The IHS Alaska Area and the ANTHC Rural Energy Program work to increase energy resilience and reduce energy costs by identifying and implementing energy efficiency and clean energy solutions. The IHS Alaska Area partnered with the ANTHC Rural Energy Program to address the needs of two communities in FY 2020. Through the implementation of two innovative energy resilience projects, involving heat recovery and a modular biomass boiler, the communities reduced diesel fuel use by approximately 16,000 gallons per year, which will save \$57,500 annually. The projects increased plant efficiencies by 30 to 40% while boosting the local economy.

2.3 *Combined Facility Geothermal System Utilizing Server Farm Heat Rejection*

McConnell AFB is home to the Kansas Air National Guard's 184th Wing. The Wing is home to several critical missions which are essentially a 24/7, 365 days per year no-fail missions. The Wing's missions are primarily cyber in nature requiring critical climate control for intensive computer server rooms and operations floors. Resiliency is a key factor in all utility systems supporting these missions. Utilizing the ERCIP program, the 184th Civil Engineer Squadron, with assistance from the Civil Engineer Technical Support Center (CETSC), and the Regional Energy Manager (REM) programmed and installed a Ground Source Heat Pump System (GSHP) system retrofitting Buildings 36, 37, and 40 by integrating existing mechanical equipment and infrastructure to achieve a resilient, efficient, maintenance-friendly, robust, and affordable heating ventilation and air conditioning (HVAC) system. The Project delivered energy savings, reduced natural gas consumption at Building 36, eliminated natural gas and propane usage at Buildings 37 and 40, eliminated four chillers, eliminated five boilers, reduced maintenance costs, simplified the maintenance, reduced carbon dioxide (CO₂) emissions and most importantly increased resiliency. The Project manipulates the thermal energy produced by large server farms on a very energy-intensive base using the load diversity of a GSHP system to move heat produced by servers to heat these three facilities. This approach is a

model for using the heat continuously generated from server rooms to heat facilities and has become a testbed for advanced water source heat pump applications.

2.4 Panel Theme: *Net Zero Laboratory Campus: Digital Twin Provides Pathway for Net Zero Carbon Emissions for National Laboratory*

Argonne is accelerating our sustainability efforts to meet the White House Goals for energy, sustainability and climate change as set forth in EO 15008 and EO14057. In January 2021 we initiated a project to develop a plan to reach net zero carbon emissions. As part of our sustainable efforts for over a decade and strategic investments, we achieved a 40% reduction in carbon emissions since 2008. To create this plan, we built a computer model or a “digital twin” of the facilities and infrastructure, to simulate the impact of decisions to reduce our carbon footprint. We developed a baseline to establish our “business as usual” scenario and then explored the impact of carbon reduction strategies. Using the digital twin, we are focused on two key strategies, reducing energy consumption and decarbonizing the energy we use, allowing us to consider multiple avenues that can be accomplished in parallel. Simulating projected changes in our energy use due to mission was a key value of the digital twin. The net zero carbon emissions plan is now being detailed in its implementation and funding. This presentation will review our process and methods to develop the digital twin and our current strategy for achieving net zero carbon emissions for the laboratory.

2.5 Panel Theme: *Net Zero Laboratory Campus: Renewable-Resilient NIEHS – a Path to Net-Zero Energy and Carbon Neutrality*

Learn about R2 NIEHS, a holistic approach to making NIEHS more energy efficient and resilient. R2 NIEHS combines additional energy conservation, onsite renewable energy generation, and battery energy storage systems, along with renewable energy certificates (RECs), so that the campus will require less energy, use more green energy, and become more energy self-sufficient, thereby becoming more resilient. This approach created the first net-zero energy-REC campus in NIH/HHS, and to NIEHS' knowledge the first net-zero energy-REC federal research lab.

2.6 Optimize the CUP Operation by Advanced Water Treatment Program

The National Institutes of Health (NIH) is the premier biomedical research center in the world. It conducts basic, translational, and clinical research in more than 75 buildings at Bethesda campus. The NIH Central Utility Plant (CUP) is the heart of this 300-acre campus, providing all heating and cooling to laboratories, patient care, and administrative facilities while insuring efficiency and reliability. The CUP water treatment program is the key to continuously support critical infrastructure. It utilizes the latest technologies to provide proper passivation and corrosion control, minimize biological growth, and maintain discharge water quality in all water systems. Real-time water chemistries are monitored and controlled based on chemical parameter readings. Quarterly measurements of corrosion coupon assess system corrosion. Mass and chemical balance is performed to ensure proper addition of chemical in the chiller plant. An industrial IoT data platform was developed to collect the data from multiple resources, and to present results on key performance indicator dashboard websites. Laboratory testing of chilled water samples are performed to monitor the viable aerobic bacteria levels as well as the total microbiological growth through culture method and advanced adenosine triphosphate (ATP). Continuous monitoring of the concentration of residual amount of chlorine dioxide in water is performed to maintain program efficacy. This helps assess the biocide program and operation effectiveness. As the NIH control limit for Legionella is non-detectable, staff takes immediate action based on any Legionella testing results above the limit. ATP tests are conducted as an early indicator of the likelihood of Legionella growth so that proactive action can be taken based on ATP results on the same day. In conclusion, the mission of CUP water treatment is to optimize steam and chiller system performance to support the critical mission of NIH as well as producing savings on water and fuel.

2.7 Conducting a Freezer Challenge to Increase Reliability/Reduce Energy

This presentation will share how the NIH reduced energy consumption, operating costs, and greenhouse gas emissions from laboratory freezers and refrigerators by conducting an annual freezer challenge. Laboratory freezers and refrigerators are used throughout the NIH to store samples, vaccines, pharmaceuticals, and reagents required for medical research and treatments. Mechanical laboratory freezers and refrigerators are energy-intensive; annual energy requirements for one older unmaintained Ultra-Low Temperature (ULT) freezer can amount to 14,000 kWh/year. The NIH conducted an NIH freezer challenge, based on the international freezer challenge, to encourage labs to carry out freezer management initiatives to increase freezer reliability, reduce energy consumption, reduce

operating costs, and reduce greenhouse gas emissions. Freezer challenge initiatives include low-cost initiatives that result in immediate savings. The presentation provides the background on why the NIH conducts a freezer challenge, details the challenge initiatives, and summarizes the savings.

2.8 *Reducing Energy Costs and Carbon Emissions Through Federal Energy Performance Contracts*

Working with their serving utilities or energy service companies (ESCOs), Federal agencies can use utility energy service contracts (UESC) or energy savings performance contracts (ESPC) to improve energy efficiency, reduce carbon emissions, and accomplish critical facility upgrades. These performance contracts, authorized by specific legislation, provide a streamlined approach for federal agencies to contract for a broad spectrum of energy management services. Agencies are effectively and successfully leveraging utility and ESCO knowledge, and third-party financing to meet statutory and executive order requirements, agency-specific energy program priorities, and facility needs. In this session, FEMP will discuss the advantages of utilizing ESPCs and UESCs to implement energy priorities and strategies; key considerations; discuss the legislation; and demonstrate the process for developing a project from acquisition planning through the performance period. At the end of the session, attendees will leave with an understanding of: • Legislative authorities that authorize and encourage the use of UESCs and ESPCs • Best practices for ensuring projects save energy, reduce carbon emissions and meet performance expectations • Resources and technical assistance provided by FEMP • Initial steps for starting a project.

2.9 *Organizational and Psychological Barriers to Data Center Decarbonization*

It was last estimated in 2014 that data centers comprised approximately 2% of total U.S. electricity consumption, with an estimated annual growth rate of 4%. As our country increasingly relies on information technology (IT), our data centers (DCs) will need to increase their energy efficiency (EE) to stabilize their carbon emissions. The task of studying EE in DCs is complicated by the interconnected nature of humans and mission-critical technical systems. Moreover, the literature tends to focus on technology solutions such as improvements to IT equipment, cooling infrastructure, and software. Our research demystifies the complex interactions between humans and DCs, by asking: What non-technical barriers impede EE investment decision-making and/or implementing decarbonization strategies? To answer this question, we perform a literature review of 86 resources, ranging from peer-reviewed journal publications to handbooks. We also consider related fields such as organizational behavioral management and energy intensive buildings. Our findings from the literature review suggest that (1) technological solutions are abundant in the literature but fall short of providing practical guidance on the pitfalls of implementation, (2) making decarbonization a priority at the executive level of organizations will be largely ineffective if the IT and facilities staff aren't directly incentivized to increase EE, and (3) there is little focus and current understanding on the impact of the IT and facilities staff individual psychologies on decarbonization in data centers. In the next phase of our research, we plan to interview data center operators/experts to ground-truth our literature findings and collaboratively design decarbonization policy solutions that target organizational structure, empower individual staff, and foster a supportive external market.

2.10 *GHG Reductions and California Cap and Trade*

LLNL is on the cusp of entering California Cap-and-Trade. We have initiated a comprehensive action plan to identify energy efficiency opportunities and are actively working to identify organizational risk to best comply with this novel market-based compliance regime. This presentation concerns interim findings.

Track 3 – NEPA: Protecting Our Nation's Historic and Natural Resources

3.1 *Workshop: Section 106 for Non-Practitioners: GSA and CBP Joint Section 106 Training*

GSA and CBP routinely work together on NHPA compliance, a relationship that was formalized in an MOU executed in mid-2020. GSA and CBP developed this training early in FY22 to provide project or facilities managers with a basic understanding of the Section 106 Process and how it works. Although this training will highlight the working relationship between GSA and CBP in terms of historic preservation, the approach is applicable across all federal agencies.

3.2 *Addressing the Effects of Climate Change on Historic Properties*

Undoubtedly, the impacts of climate change already can be seen across the country on historic properties listed in and eligible for listing in the National Register of Historic Places. Whether from flooding or high winds caused by

extreme weather events, or the steady retreat of coastal shorelines due to sea level rise, the integrity of numerous properties is at risk of severe degradation leading to a loss of nationally significant historic and cultural resources. This presentation gives several examples of those impacts at Air Force installations in the Eastern United States, some sudden and unforeseen and others anticipated but inexorable, as a means to address best management practices. The purpose is to increase awareness and to engage in debate around ways to mitigate potentially irretrievable loss. Technologies for recording historic sites, including 3-d lidar recordation and digital curation, as well as physical methods such as living shoreline restoration, are explored as means for preservation. The need for advanced planning and prioritizing efforts based on resources and stakeholder input is also addressed.

3.3 *Department of Defense Clean-up Efforts in Support of Chesapeake Bay Restoration*

Every year, volunteers from Department of Defense (DoD) installations throughout the Chesapeake Bay watershed gather to participate in large scale clean up events in parallel with the Chesapeake Bay Foundation's (CBF) Clean the Bay Day (CTBD). During these events, all groups join together for a common cause: promoting clean water in support of restoring the Chesapeake Bay. In addition to removing litter from our coastal ecosystems, clean up events also educate participants about environmental challenges in the Chesapeake Bay watershed, such as habitat deterioration and stormwater pollution. In this presentation, the origin of the CBF's CTBD, DoD's partnership in clean up events, the reach and scope of DoD efforts, and the magnitude of DoD contributions to the overall success of the event will be discussed. The presentation will also illustrate how clean up events meet the goals and outcomes of Executive Order 13508 and The 2014 Chesapeake Bay Watershed Agreement, and help installations meet Municipal Separate Storm Sewer System (MS4) permit requirements. Also, the presentation will include the logistics of how to organize a successful event through volunteer participation, supply procurement, and accurate data collection. The success of clean-up events like these organized by the DoD in cooperation with local communities and organizations, other federal, state, or local governments can be used as a model by other agencies to organize future clean-up events to promote water quality and environmental education and stewardship.

3.4 *Panel Theme: Meeting the Mission while Preserving the Past: CBP, NEPA, and Section 106*

CBP has been renovating historic custom houses in Puerto Rico to meet the mission and improve resilience. The agency's approach to Section 106 integrates project planning, project execution, and a cooperative relationship with the State Historic Preservation Office so that projects move forward efficiently, while preserving the architecture important to the agency and the surrounding community. The panel discussion will center on the development of cooperative relationships and the lessons learned during the renovation of the custom houses.

3.5 *Translating the Chesapeake Bay TMDL Down to the DoD Facility Level*

The DoD was one of the first federal agencies to be formally involved in the Chesapeake Bay watershed effort and is the second largest federal land owner in the Chesapeake Bay watershed. The Bay states and District of Columbia have developed individual Watershed Implementation Plans (WIPs) that detail how and when they will meet their pollutant allocations under the Chesapeake Bay TMDL. In MD, VA, PA and DC the DoD has been assigned a state-level Federal Planning Goal (FPG) that assigns loads and reductions to the DoD to help support the states in meeting their WIPs. One of the challenges DoD installations face when presented with a statewide FPG is understanding and tracking their installation-level contribution to the DoD FPG and communicating meaningful progress to internal and external stakeholders. To address this, the DoD utilized the Bay's watershed model and input from annual DoD Chesapeake Bay Program data calls to provide individual installation-scale approximations of their portion of the additional load reductions needed to meet FPGs. This innovative approach was paired with training, factsheets, and guidance developed by the DoD CBP to allow installation staff to better manage their Chesapeake Bay Programs by tracking their individual contributions to pollution load reductions and determine acceptable combinations of best management practices that both meet their portion of the overall jurisdiction-wide FPG and are cost effective and mission compatible. The success of this approach developed by the DoD for the Chesapeake Bay TMDL could serve as a useful model for other stakeholders with large scale TMDLs or other pollution reduction goals to manage and track progress at a local level.

3.6 *National Environmental Policy Act and Mission Growth at the Idaho National Laboratory*

The INL is the nation's laboratory for nuclear energy research, development, demonstration and deployment and is engaged in the mission of ensuring the nation's energy security with safe, competitive and sustainable energy systems and unique national homeland security capabilities. With a rapidly growing population driving greater demand for energy, INL will be at the forefront of exploring solutions in sustainable energy and protecting the

nation's critical infrastructures. INL balances its mission with the protection and preservation of human health and the environment; compliance with applicable laws and regulations; and a commitment to 'do the right thing'. The National Environmental Policy Act (NEPA), typically referred to as an "umbrella" statute, is ideal for the foundation of a large-scale environmental compliance program because it encourages the incorporation of other environmental and historic preservation requirements into one analysis for a streamlined decision-making process. Compliance to NEPA is a continual challenge for any national laboratory and even more challenging when their capabilities are in high demand, such as is currently being experienced at INL. To maintain INL's commitment to protect and preserve human health and the environment, ensure that potential impacts to the environment are part of the decision-making process, and maintain its competitive capabilities, a robust and dynamic process is needed. The National Environmental Policy Act/Environmental Review Process (NEPA/ERP) is a system used at INL to evaluate any new project, proposal, procurement, or decision for potential environmental impacts. The NEPA/ERP is required for all INL activities to ensure compliance to federal, state, and local environmental standards and ensures any activity does not negatively impact the surrounding environment. The NEPA/ERP also serves as a critical step in the decision-making process at INL and acts as the initial steps in developing alternatives and mitigatory measures for future NEPA documents.

Day 2

Track 4 - Sustainability

4.1 *Electric Vehicles and Infrastructure (Cross-cutting / Macro Issues)*

Demand for workplace charging and electrification of the federal fleet has increased in recent years, bolstered by growing adoption of electric vehicles and improved technology. These types of programs can be tricky to implement in the Federal landscape, but are crucial to accelerating sustainability efforts to meet the White House Goals for energy, sustainability and climate change as set forth in EO 15008 and EO 14057.

The EV Charging and Infrastructure panel will share how the U.S. General Services Administration (GSA) is helping to facilitate an all-of-government approach to address climate change in federal operations by electrifying the federal fleet; discuss trends, challenges, and the importance of lithium-ion battery recycling; and explore workplace charging and fleet electrification approaches, challenges and successes at Argonne National Laboratory (ANL) and the Department of Homeland Security (DHS).

4.2 *Electric Vehicles and Infrastructure (Agency Implementation Perspectives)*

Same as above.

4.3 Panel Theme: Advancing Federal Building Decarbonization: From Ambition to Action

Executive Order 14057 sets ambitious goals that include reducing the greenhouse gas emissions of federal building operations to net zero carbon by 2045. How should agencies strategically plan for and implement these objectives – particularly for their portfolios of existing buildings, where decarbonization can present significant challenges?

Jeremey Alcorn, Director, Climate and Sustainability Division of GSA's Public Buildings Service, will characterize what GSA is doing to decarbonize its buildings and where these efforts are heading. As GSA moves forward, both ASHRAE and GSA's Green Building Advisory Committee are systematically strategizing and mapping out how we can most effectively get from here to there. The Co-Chairs of the GSA Advisory Committee's Federal Building Decarbonization Task Group, Clay Nesler of WRI and Kent Peterson of P2S Engineering, who are both also members of the ASHRAE Task Force for Decarbonization, will share the findings and progress to date of both of these groups. Moderator Ken Sandler of GSA's Office of Federal High-Performance Green Buildings will facilitate a robust discussion on what all of this means for the federal government moving forward.

4.4 Panel Theme: Embodied Carbon's Role in Decarbonization

GSA is stepping out ahead of federal requirements to address the reduction of embodied carbon. This session will explain what embodied carbon is, why it has become a topic of discussion, and what actions GSA is currently taking to address the issue. GSA convened a roundtable in June 2021 with policymakers and practitioners to identify actionable steps that could be taken to reduce embodied carbon in the agency's design and construction projects. The

discussion began with recommendations from GSA's Green Building Advisory Committee, which centered around a material approach – requiring environmental product declarations – and a whole building approach – requiring a whole building life cycle assessment. GSA then established an embodied carbon task group to identify and focus on three initial priorities: (1) decarbonize major projects; (2) reduce the embodied carbon of GSA's purchased products; and (3) integrate the carbon benefits of existing buildings into the project selection process. As a result, GSA's Public Buildings Service created a new embodied carbon reduction measure for new construction and major modernization projects, created a concrete procurement standard for Land Port of Entry projects funded under the Infrastructure Investment and Jobs Act, and is examining project planning processes. GSA also issued a change to the GSA Acquisition Manual stating that it is GSA policy to consider practices and strategies to reduce greenhouse gas emissions such as embodied carbon. At the same time, the agency developed an acquisition innovation initiative exploring how acquisition can reduce GHG emissions. Acquisition offices within GSA are utilizing various techniques, including asking for environmental product declarations and emission disclosures, to identify best practices to reach our sustainability goals. GSA will learn from these initial efforts, aggregate reported data, and make adjustments to its standards and policies to meet both project needs and agency goals.

4.5 *Panel Theme: Green Building Certifications: Achieving Success in Sustainability*

Green Building Certifications: Achieving Success in Sustainability' is an interagency panel discussion between the Department of State - Bureau of Overseas Buildings Operations, the Department of Energy - NNSA, and the Department of Interior - National Park Service about the use of green building certifications to successfully accomplish sustainability goals and objectives. The use of these certifications provides a standardized framework for reducing environmental impact and promote best practices. This presentation will also outline current green building certifications and their use within agency portfolios, as well as specific project examples and subsequent lessons learned.

Track 5 – Management Systems

5.1 *ISO's "High Level Structure" - The Framework Uniting Management Systems*

Federal agencies and sites are responsible for managing a host of various resources and activities such as energy, resiliency, water quality, and other environmental aspects. Business practices developed into a formalized management system can provide confidence that action is being taken to meet objectives. When faced with managing multiple resources and activities, many organizations unintentionally create multiple independent management system. While specific details are needed to address management of different resources and activities, development of an agency wide management system platform common to all resources and activities being management provides efficiencies and operational improvement. The International Standards Organization (ISO) created the High-Level Structure so that its various management system standards are built on a common platform to make implementation highly interchangeable. The technical sections of the High-Level Structure are: context of the organization, leadership, planning, support, operation, performance evaluation, and improvement. Key ISO standards such as ISO 9001 – quality management, ISO 14001 – environmental management, ISO 22301: security and resilience, ISO 50001 – energy management, and ISO 46001 – water efficiency all follow the High-Level Structure. Federal agencies could leverage the commonality of the ISO High-Level Structure to comprehensively manage multiple resources and activities they are responsible for. This presentation will detail the High-Level Structure and discuss the standards and organizational benefits that result from use of multiple High-Level Structure conformant standards. A focus will be placed on the relationship between ISO 14001, ISO 50001, and ISO 46001.

5.2 *My EMS in a Changing World*

Learn how a Department of Defense installation has maintained an ISO 14001 certified Environmental Management System (EMS) for 17 consecutive years and through 5 Presidential Administrations. Learn how this EMS continues to add value to the installation.

5.3 *Addressing NASA's Significant Energy Uses Through Enterprise Adoption of 50001 Ready*

In this presentation, NASA's Agency Energy Program Manager Joan Hughes will discuss NASA's evolving approach to managing energy, with a focus on how the continual improvement approach of an ISO-based management system is helping NASA address the energy footprint of covered facilities. This presentation will talk about how the continual improvement framework helps NASA create common language and strategy among

facilities, while letting facility energy managers leverage their relevant previous experiences and related efforts at their respective facilities. NASA was a pilot partner for the 50001 Ready Cohort program. 50001 Ready offers an accessible guide to ISO 50001 continual improvement energy management systems. This approach to managing energy performance offers a proven path to sustained improvements in facility energy efficiency and thus financial savings. In the cohorts, groups of federal energy managers learn how to leverage their current EMS and compliance work to create a continual energy performance improvement process. A 50001 Ready energy management system can also reach further than energy efficiency by helping align all agency activities with overarching energy performance goals that help agencies align with President Biden's stated goals.

5.4 *DAF Risk-Based EMS Aspect Inventory Implementation*

This presentation will demonstrate how the Department of the Air Force (DAF) has implemented a new "risk-based" aspect inventory process and associated Information Management tool to identify and evaluate environmental risks associated with the organization's activities, products and services. In an effort to transition the DAF's Aspect Inventory process to be consistent with the ISO 14001:2015 standards and perhaps inject new life into a mature Environmental Management System (EMS), not only are the 'significant' environmental aspects and status of environmental compliance being considered when setting objectives and targets, but risk associated with operations, activities, and threats, are also being incorporated/calculated. To ensure a standardized DAF approach, the environmental enterprise has aligned with the Air Force Safety Organization's Risk Management System to apply a decision-making process to systematically identify risks and benefits, and determine the best courses of action for extremely high and high risks and their associated aspects. Air Force Risk Management enables commanders, functional managers, supervisors and individuals to maximize capabilities while limiting risks through application of a simple, systematic process evaluation that increases an installation's ability to safely and effectively accomplish its mission while preserving environmental resources and ensuring compliance. DAF installations (86 active appropriate facilities) have been migrating its aspect inventories to this risk-based inventory by reviewing enterprise level risks identified by centralized subject matter experts and adapting to base-level operational risk matrices. A management tool called the Risk Aspect Inventory Tool (RAIT) is being used to assist installations in documenting the risks, build resilience into the EMS framework, and allow DAF organizations to effectively examine these overall risks and identify opportunities to reduce the risks.

5.5 *Strategic, Effective, and Persistent: Leveraging ISO 50001 for Climate Action*

The ISO 50001 framework provides the foundation for LBNL's approach to climate action. The Lab has achieved substantial results by developing a robust, well-supported system that is not just integrated into operations, but has significantly influenced and streamlined how work gets done across all aspects of sustainability. The secret is in going beyond "checking the box" to ensure every part of implementation adds value and is strategic, effective, and persistent.

5.6 *Streamlining Individual Sustainability Projects with 50001 Ready*

In this presentation, the presenter will discuss how a continual improvement framework helps create regional cohesion when it comes to sustainability programs and performance improvement. This presentation will share details about the VA's current energy management practices and where the 50001 Ready continual improvement approach has helped build bridges between energy management and other VA sustainability efforts. Finally, the conversation will shift to focus on challenges to shifting strategies across a region and ongoing opportunities for applying the continual improvement framework with the VISN. VISN 8 was an early participant in the 50001 Ready Cohort program. 50001 Ready offers an accessible guide to ISO 50001 continual improvement energy management systems. This approach to managing energy performance offers a proven path to sustained improvements in facility energy efficiency and thus financial savings. In the cohorts, groups of federal energy managers learn how to leverage their current EMS and compliance work to create a continual performance improvement approach to energy management. A 50001 Ready energy management system can also reach further than energy efficiency by helping align all agency activities with overarching agency and or federal sustainability goals.

5.7 *Workshop Theme: DHS NEXUS Approach to Facility Management and Projects: Breaking Down the Stovepipes*

Overview of the DHS NEXUS approach to facility management and toolkit (including the Building Assessment Tool - BAT) which integrates resilience, energy, sustainability, facility condition, and environmental management

throughout the life-cycle of facility assessment, facility project identification, and financing of project implementation and how this approach and tools are being introduced and implemented across DHS Components.

Track 6 – Environmental Compliance

6.1 *Environmental Compliance at Federal Facilities*

EPA holds federal agencies to the same environmental standards and requirements as the private sector. This session will discuss EPA's enforcement and compliance assurance priorities and how they are being applied to the federal sector. The session will focus on enforcement and environmental priorities under the Biden administration, and EPA's partnerships with states and other federal agencies.

6.2 *Development of Drain Disposal Guidance for Laboratories at the NIH*

The National Institutes of Health (NIH) developed a novel approach to improve compliance and strengthen environmental stewardship for the drain disposal of non-hazardous chemicals used in research laboratories. The goal is to enhance awareness of proper waste disposal procedures and improve control of what chemicals enter the sanitary sewer system. The approach initially consisted of an online application platform for laboratory personnel to submit requests for drain disposal of used research chemicals. Criteria for reviewing drain disposal requests includes evaluation of regulatory requirements, plumbing system compatibility, and suitability for discharge to downstream publicly owned treatment Works (POTW) and receiving streams. Approved applications remain effective for one year and require renewal for continued drain disposal in subsequent years. Chemicals associated with applications that are not approved must be submitted for collection by onsite waste management services and disposed in accordance with regulatory requirements. This application process was supplemented by an additional effort to develop a standalone guidance document that lists chemicals pre-approved for drain disposal. This document was developed through a collaborative effort between NIEHS, NIH-Bethesda, and local POTWs. The finished product is the NIH Drain Discharge Guide, which describes waste disposal procedures and lists nearly 300 chemicals approved for drain discharge across all NIH facilities.

6.3 *UST Requirements*

More than 500,000 underground storage tanks (USTs) nationwide store petroleum or hazardous substances. The greatest potential threat from a leaking UST is contamination of groundwater, the source of drinking water for nearly half of all Americans. EPA, states, territories, and tribes work in partnership with industry to protect the environment and human health from potential releases. This presentation will provide an overview of the Maryland Department of the Environment (MDE) UST requirements and discuss some of the typical findings during an inspection.

6.4 *Panel Theme: Lead Strategies, Activities, and Environmental Compliance*

Abstract not yet available.

6.5 *Use Attainability Analysis for Upper Sandia Canyon, Los Alamos, New Mexico - A scientific study to provide evidence for a change in water quality standards*

A Use Attainability Analysis (UAA) is a scientific study conducted to determine the most appropriate and protective aquatic life use for a stream segment and determines the most protective aquatic life and/or contact uses that are attainable. New Mexico's UAA procedure is outlined in 20.6.4.15 NMAC. The Upper Sandia Canyon UAA was a scientific study conducted in accordance with a work plan approved by the New Mexico Environment Department (NMED) to determine the most appropriate and protective aquatic life uses for the Upper Sandia Canyon Water Quality assessment unit NM-9000.A (Upper Sandia Canyon Assessment Unit (AU)). The Upper Sandia Canyon UAA determined that coolwater aquatic life is the most protective aquatic life use for the Upper Sandia Canyon AU. Coldwater aquatic life use, which is the current designation for the Upper Sandia Canyon AU, is not attainable because water temperatures resulting from ambient air temperatures, which is in the category of naturally occurring pollutant concentrations, prevent the attainment of the coldwater aquatic life use (40 CFR 131.10(g)(1)). The Upper Sandia Canyon AU is classified under Section 20.6.4.126 NMAC of the New Mexico Water Quality Standards and includes the perennial portion of Sandia, CA.

6.6 UST New Requirements

This session will provide a brief review of the history of the underground storage tank regulations – noting that the program is mainly implemented by states, the applicability of the federal UST regulations, an overview of the requirements of the federal UST regulations with a focus on the regulations adopted in 2015, and a brief review of some common violations found by inspectors at regulated facilities.

6.7 An Introduction to the Department of Defense's Regional Environmental Coordinator Program

Federal facilities, military installations and select organizations must comply with certain federal, state, and local environmental laws. The U.S. EPA has delegated just over 70% of their major programs to the states for enforcement. On average, state legislators propose 3,000 new state environmental laws each year with over half of these laws dealing with “state unique” programs or requirements. Additionally, there are approximately 175 state or local regulatory agencies that write and enforce environmental regulations and approximately 1850 programs that must be tracked for new rule changes. This presentation will provide an overview of the Department of Defense's Regional Environmental Coordinator (REC) program that since 1995 has served as DoD's official liaison with state environmental agencies pursuant to Department of Defense Instruction 4715.02. The presentation will include representation by Army, Navy and Air Force and will focus on ways the DoD RECs can assist DoD environmental and energy managers with their compliance efforts. The presentation will also highlight examples of regional and state Partnership programs developed and facilitated by the RECs which provide excellent forums for the sharing of information, the leveraging of resources, and the application of best practices amongst multiple stakeholders from the regional, federal, and state communities.

6.8 What is a Pesticide and How to Comply with FIFRA?

This presentation is a 101 course of how US EPA regulates pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). It will cover what products are considered to be pesticides; What makes up a pesticide label; How facilities should comply with FIFRA; and How to avoid service contract pitfalls at your agency.

6.9 Open Burning and Open Detonation (OB/OD) of Explosive Waste Under the Resource Conservation & Recovery Act (RCRA)

The treatment, storage, and disposal of hazardous wastes are governed by regulations developed by EPA under the authority of the Resource Conservation and Recovery Act (RCRA). In 1980, EPA banned open burning of hazardous waste because of the potential hazards to human health and the environment, however, with one exception – EPA allowed the open burning/open detonation (OB/OD) for waste explosives “which cannot safely be disposed of through other modes of treatment” (45 FR 33217, May 19, 1980; 40 CFR 265.382). This presentation reviews what EPA has learned over several decades with respect to OB/OD as a treatment method, as well as potential alternatives that can be used in place of OB/OD. It also provides EPA's perspective on the future of OB/OD and a synopsis of revisions to the existing regulations that are currently under consideration.

Day 3

Track 4 – Sustainability (cont.)

4.6 Tools and Analyses to Implement Sustainable Procurement and Acquisition

IRS, David Gill: New contract data indicates that implementation gaps persist in sustainable procurement programs. These gaps are explained with statistics, charts, and machine learning identifying contracts where sustainability requirements may have been omitted in error.

GSA, Julie Volny and Michael Bloom: GSA's Green Procurement Compilation (GPC) is a comprehensive green purchasing resource designed for federal contracting personnel and program managers. GSA's live demo of the GPC will help you identify applicable green purchasing requirements. The GPC lists products for which the EPA, DOE, USDA, or other agencies have issued designations or otherwise provided guidance for products with environmental or energy attributes.

DoD, Michael Bruckner: DoD's Sustainability Analysis Guidance: Integrating Sustainability into Acquisition Using Life Cycle Assessment provides the defense acquisition community an approach to accurately capturing environmental impacts and life cycle costs, including those described in recent EOs. This presentation highlights the various aspects of sustainability analysis; demonstrates the value added; analysis examples and identifies how the guidance remains integral to the defense acquisition community.

4.7 Federal Sustainable Purchasing: Programs and Tools to Help Meet and Exceed your Goals (Part 1)

Federal Sustainable Purchasing: Programs and Tools to Help Meet and Exceed your Goals (Part 1) is an interagency panel presentation between USDA's BioPreferred Program and EPA's ENERGY STAR, Significant New Alternatives Policy (SNAP), and Comprehensive Procurement Guideline (CPG) programs about how to accomplish your organization's sustainability goals through federal sustainable procurement. This panel presentation will also provide an overview of the federal sustainable purchasing requirements within Executive Order 14057 on Catalyzing American Clean Energy Industries and Jobs Through Federal Sustainability and the accompanying Federal Sustainability Plan.

4.8 Sustainability in Practice within the Department of Defense

DoD Sustainable Technology Evaluation and Demonstration (STED) Program

This presentation will provide a brief overview of the Department of Defense (DoD) Sustainable Technology Evaluation and Demonstration (STED) Program, highlighting both successes and challenges encountered while promoting sustainable acquisition at the Federal level. Before sustainable technologies are utilized by the DoD and Federal Agencies, their performance and effectiveness must be proven to meet government requirements in operational environments. The DoD STED Program evaluates and demonstrates the performance and cost effectiveness of sustainable technologies that support the DoD mission and enhance operational readiness. The overall objective of the DoD STED Program is to identify emerging sustainable technologies that meet pressing DoD needs, evaluate technical data against requirements, demonstrate sustainable technologies at DoD installations and Federal Agency facilities, and assist in transitioning successful technologies to DoD and Federal Agencies.

Translating the Administration's Objectives for GHG Reduction and CFE into Action within DoD

Climate change is a matter of national security and the United States Department of Defense (DoD) has several initiatives in place to expand climate resilience. These initiatives include climate adaptation measures, which advance the Department's readiness posture, and mitigation measures, which reduce future climate change impacts. DoD Executive Director for Climate Resilience McGhee discusses DoD's efforts to implement new Federal climate change and sustainability policy, while advancing the DoD mission. He will discuss the transitioning DoD's installations, which consist of approximately 300,000 buildings around the globe, to net zero greenhouse gas (GHG) emissions and meeting carbon pollution free electricity (CFE) requirements. Installation GHG emissions reductions and CFE are essential elements of DoD meeting requirements in newly issued Executive Order 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, as well as Executive Order 14008, Tackling the Climate Crisis at Home and Abroad.

Implementing EO 14057 within the Department of Defense

Abstract not yet available.

4.9 Strategies for Preventing and Reducing Government-Wide Food Waste

The presenters will discuss the environmental/climate and economic impacts of food waste, benefits of preventing and reducing wasted food and share examples of best practices at military dining facilities. When we waste food, the land, water, energy, and other inputs that are used in producing, processing, transporting, preparing, storing, and disposing the food are wasted as well. Food waste is the single most common material landfilled in the U.S., comprising 24% of landfilled municipal solid waste. Federal facilities are uniquely positioned to reduce wasted food through contract language, employee education and collection programs. The example of Army dining facilities will show where in the process waste is generated, from cooking to disposal, during research team visits to Army installations in 2019 and 2020. Understanding where waste is generated is a first step towards waste reduction and creating more sustainable federal facilities.

4.10 *An Intro to Circular Economy: How Recycling and Reuse Can Play an Important Role*

Circular economy principles and practices can help an agency make their purchasing processes more sustainable. Join us to learn about the circular economy and the variety of ways it has been implemented in Federal agencies to make their organizations more resource efficient and sustainable.

Track 7 – Environmental Justice

7.1 *Proposed EPA R3 Director Presentation*

Abstract not yet available.

7.2 *Grounding Energy Justice: Visioning Principles for Energy Transitions from Frontline and Community-based Organizations*

Energy justice has become increasingly prominent in policy discussions, but historically, most energy justice actions have been undertaken by community-based organizations. In this work, we ask how community-based organizations at the frontlines of climate change understand "energy justice", and how those insights can be applied to policy-making. To do so, we review over 60 "visioning documents" authored by non-profits and frontline community members in the United States. We identify 6 principles of a just energy future articulated in these documents: (1) being place-based, (2) addressing the root causes and legacies of inequality, (3) shifting the balance of power in existing forms of energy governance, (4) creating new, cooperative, and participatory systems of energy governance and ownership, (5) adopting a rights-based approach, and (6) rejecting false solutions. Additionally, we will discuss ongoing work to integrate and foreground community knowledge in energy modeling efforts.

7.3 *Defining Disadvantaged Communities with a Lens Toward Energy Justice*

The Justice40 Executive Order (EO 14008) requires 40% of overall benefits from certain federal investments (e.g. clean energy and transportation) to flow to disadvantaged communities. Defining disadvantaged communities in this context may depend on applicable programs and activities. While dozens of indices of disadvantage have been proposed, none specifically incorporate energy attributes that help inform community-specific needs and characteristics relevant to ensure a just transition to a clean energy economy. Here, we present a methodology to define disadvantaged communities with respect to socio-economic, climate, environmental, energy, and transportation characteristics. The objectives of this definition are multi-faceted and include: capturing cumulative burdens, selecting a spatial level of resolution small enough to be community-specific, accounting for historic injustices (even if they do not appear in the conventional data), and adequately capturing communities with high levels of energy injustice and/or economic dependence on fossil fuel energy sources. The results presented herein represent an interim definition and may be updated upon additional feedback from community and governmental organizations.

7.4 *My EMS and My Community*

Learn how a Department of Defense installation has successfully incorporated and addressed the environmental concerns of its employees, its neighbors, and its local community into its Environmental Management System.

7.5 *HHS's 2022 Environmental Justice Strategy and Implementation Plan*

HHS is dedicated to advancing an environmental justice (EJ) approach that protects and promotes the health and well-being of minority and low-income populations and Tribal Nations that have been historically marginalized and overburdened by disproportionately high and adverse environmental exposures. HHS will provide an update on its efforts for drafting an updated 2022 Environmental Justice Strategy and Implementation Plan as well as highlight a few additional EJ-related priority actions.

HHS is committed to achieving President Biden's Justice 40 Initiative, which is a government-wide effort to ensure Federal agencies work with states and local communities to deliver at least 40% of the overall benefits from Federal investments in clean energy and climate change to disadvantaged communities. HHS will highlight the following three programs as examples for how HHS is working to achieve objectives of the Justice 40 Initiative: Administration for Children and Families Low Income Home Energy Assistance Program, National Institute of Environmental Health Science Environmental Career Worker Training Program, and Program Support Center

Federal Real Assistance Program. In each example, HHS will describe the program, its impact, and its efforts to continually make improvements to meet HHS' commitment to advancing environmental justice.

7.6 *EJScreen – Basics in the Understating and Use of the EJ Tool*

Abstract not yet available.

7.7 *Environmental Justice and Incorporating Environmental Justice Elements in My EMS*

Abstract not yet available.

7.8 *Engagement as a Two-way Exchange of Information, Ideas, and Resources*

An Environmental Justice and Equity Panel has been assembled with leadership from the National Association for the Advancement of Colored People (NAACP), City of Orlando, Indian Health Service (IHS), and United States General Services Administration (GSA). The panel discussion will be focused as engagement as a two-way exchange of information, ideas, and resources. Through effective engagement, it offers opportunities for communities to express their views and have a meaningful role in a decision making, and it removes barriers that may have previously prevented communities from successfully working with the Government. The session will be moderated by Krystal Brumfield, Associate Administrator for Office of Government-wide Policy at GSA. The panel discussion will start with a describing engagement from a grassroots level with the NAACP, implementation at a local level with the City of Orlando, and implementation on a Federal Level with examples from the IHS and GSA.

Track 8 – Resiliency

8.1 *Water Resilience for DOD Installations: Opportunities, Challenges, and Research Pathways*

Every critical mission on DoD installations depends upon the resilience of water supply, whether for serving human needs, powering industrial processes, cooling essential equipment, or providing fire suppression capacity. Planning and investing to improve resilience against a broad and uncertain catalogue of threats and hazards will require the adoption of existing and new best practices for assessing each installation's water infrastructure. This presentation will discuss the current state of the art for assessing resilience of water infrastructure, including techniques available to installations emerging from industry, academia, and government laboratories, including physics-based and graphical models. The presentation will emphasize the roles and interconnections of resilience with recent Federal sustainability and resilience initiatives, including recent statutes and executive orders related to climate change and sustainability. Likewise, the presentation will highlight observations from the Army's water resilience research community on potential challenges and opportunities for collaboration and innovation. The desired outcome of the presentation is to engage attendees on the breadth of opportunities for connecting the resilience of Army missions, environments, and communities.

8.2 *Incorporating Climate Change and Resilience Priorities into Energy and Water Planning at Federal Sites*

Federal agencies have long had energy and water use reduction targets, which require careful evaluation and prioritization of solutions to achieve. In recent years, sites have conducted resilience assessments to understand their risks and develop and implement resilience solutions to mitigate those risks. Agencies have recently developed climate adaptation and resilience plans, declaring the need for facilities to be climate resilient. Agencies are also being directed to consider climate change in decision-making, decarbonize their facilities, and move to 24/7 carbon-free electricity. Though agencies must formally consider multiple, sometimes competing, goals when selecting energy and water projects at their sites, key risk insights from previous resilience planning efforts must not be overlooked. The Department of Energy's (DOE) Federal Energy Management Program (FEMP) developed a comprehensive resilience planning approach that addresses continuity of operations focus areas, including energy and water requirements, facilities, and technology solutions while also supporting new EO 14057 goals. FEMP, in partnership with the Pacific Northwest National Laboratory (PNNL) and the National Renewable Energy Laboratory (NREL), developed the Technical Resilience Navigator (TRN) to provide guidance on an approach to manage the risk to critical missions from disruptions in energy and water services. Combining decarbonization and resiliency priorities into energy and water planning can support efforts to meet new scope 1 and 2 GHG emission targets established in EO 14057. This presentation will discuss new innovations in the TRN that incorporate key elements

of decarbonization, carbon-free electricity, and climate change mitigation and adaptation into the TRN resilience planning process, including examples from DOE's Climate Adaptation and Resilience Plans. By identifying and highlighting leverage points between these types of requirements and the resilience planning process laid out in the TRN, FEMP and PNNL are working to reduce the burden on sites working to meet their climate change and resilience goals.

8.3 *Natural Hazard Resilience at U.S. Diplomatic Missions - State Department*

The U.S. Department of State, Bureau of Overseas Buildings Operations (OBO) manages a portfolio of over 25,000 properties (including approximately 998 office buildings and over 16,380 residences) spread across 291 foreign missions. In this, OBO is charged with a broad range of responsibilities including acquisition, design, construction, and operations and management. At all missions, there is an emphasis on keeping properties secure from and resilient against natural hazard-related risks to maintain mission continuity and protect the safety of U.S. diplomats. Given this global scope, OBO faces numerous challenges including a wide variety of the hazards it is exposed to compounded by a lack of available design-level hazard exposure information, and susceptibility to local real estate market conditions and design/construction norms. Moreover, climate change effects are projected to increase natural hazard exposure of OBO's global real estate footprint. OBO's evolving Climate Security and Resilience (CS&R) Program will facilitate integration of improved data-informed strategies into portfolio risk management processes to better ensure OBO missions are secure from and resilient to a changing climate and risks posed by natural hazards over the long-term. The CS&R program is developing a dashboard to display exposure information of multiple natural hazards (flood, earthquake, tsunami, extreme wind, extreme heat, water stress, and landslide) and an overlay with vulnerabilities to capture risks to missions at the portfolio level. This information will be utilized to develop more efficient planning strategies and processes to evaluate and mitigate risk. In OBO's execution of building-specific projects and awareness outreach to enhance security and resilience, CS&R leverages subject matter experts from the private sector and throughout the interagency (including the National Oceanic and Atmospheric Administration and the U.S. Geological Survey) to lead by example in developing best available hazard exposure studies and adaptation solutions.

8.4 *Resilience in Action: A Case Study of a FLETC Utility Energy Conservation Project*

This presentation will discuss the effort and outcome of an Utility Energy Services Contract (UESC) to install a solar array at the Federal Law Enforcement Training Centers (FLETC) Cheltenham, Maryland (MD) Training Delivery Point (TDP). Over the last several years, FLETC's Energy and Sustainability Manager worked tenaciously to implement an on-site renewable project at the FLETC, Cheltenham, Training Delivery Point (TDP). Initially, a photovoltaic (PV) array was one of the Energy Conservation Measures (ECMs) in an enterprise-wide 2011 Energy Savings Performance Contract (ESPC) but was removed. This solar array was pulled out of this ESPC project due to the plummeting price of Renewable Energy Credits. Between 2012 and 2017, FLETC worked with various government entities, including the Federal Prison Industries (FPI) and Defense Logistics Agency (DLA), to add a third-party owned PV array at the Cheltenham TDP. After several failed attempts, FLETC finally had success constructed a PV solar array at FLETC Cheltenham. In 2018, FLETC awarded a Utility Energy Services Contract (UESC) to Washington Gas Light (WGL), the local natural gas utility, to construct three EMCs for FLETC at the MD site. Through this partnership with WGL, one of the three ECMs, a 1.875 Megawatts PV array, began producing on-site electricity on June 15, 2021, on approximately 12 acres of land located in the northwestern corner of the Cheltenham TDP. This FLETC owned PV system, containing over 6,000 panels, will supply 50 to 60 percent of Cheltenham's electrical usage and be financed for 17 years. Annually, FLETC is estimated to save over \$400,000 in energy costs. The success of this UESC, specifically the installation of the Cheltenham PV, can be contributed to both the staff's resiliency and knowledge of the State of Maryland's environmental requirements. Case study will present pit falls and success in again management backing to support the project and what the installed system is achieving for the campus.

8.5 *DHS Climate Change and Resilience: DHS Strategies, Assessments, and Case Studies*

Over the past year, the DHS Critical Infrastructure Security & Resilience (CISR) Working Group has conducted several assessments of DHS mission critical assets. This presentation will provide an overview of the approach, common elements of resilience across DHS real property/mission assets that make them resilient, strategy for addressing regional vulnerabilities due to climate change, and next approach for the Departments' resilience program.

8.6 *US Department of Transportation Facility Climate Risk Tool*

USDOT is taking action to ensure the resilience of its mission-critical assets in the face of climate change while continuing to meet mission requirements nationally. The USDOT team will present an overview of its new climate risk tool to support vulnerability assessments of USDOT facilities and assets. This new resource builds on available federal tools such as the FEMA National Risk Index and the US Climate Resilience Toolkit. The risk tool integrates historical frequency data for 18 natural hazards with climate indicators from 25 climate projection models to provide an overall natural hazard and climate risk score for USDOT-owned, staffed buildings. Envisioned users of this tool are facility managers, operating administration managers, and USDOT staff at a crossagency level. The tool is provided as a web application with downloadable reports for specific facilities or sets of facilities. The USDOT team will also present the updated Operational Climate Resilience Guidance, which provides a comprehensive set of guidelines and best practices for USDOT staff tasked with incorporating resilience strategies into the planning, operation, or maintenance of mission-critical assets and buildings. The updated guidance reflects all current legislative and Executive Order mandates, and guides USDOT staff in using the climate risk tool and other forms of analysis for vulnerability assessment, climate risk scoring, and prioritization of strategies to enhance resilience. Developing the guidance and tool is one step that USDOT is taking to integrate climate resilience practices into standard planning, operations, and maintenance processes.

8.7 *Resiliency of Installation Recycling Programs in the Context of Changing Federal Policy and Volatile*

Long-term costs are rising as Military Installation landfills decrease capacity or close, forcing the utilization of off-Post landfills where hauling and tipping costs can be colossal. Under the previous EO 13834, Efficient Federal Operations, a focus on reducing overall solid waste generation and encouragement for reduction of landfill disposal and its associated costs were noted. However, EO 13834 had rescinded language from the prior EO 13693 which provided definitive and measurable metrics for solid waste reduction. Military Installation personnel were faced with how to best implement the new agency policy and garner support from their administration for continued or future solid waste diversion initiatives. Identifying a path forward on solid waste diversion for these Military Installation recycling programs is especially challenging in the wake of National Sword (China Ban on papers and plastics) and the COVID-19 pandemic. All these events have impacted the recycling market and the ability for Military Installation recycling programs to continue to function feasibly. The Source Reduction and Resource Resilience (SR3) program team from USACE-ERDC-CERL was tasked with evaluating EO 13834 in the context of volatile recycling markets and challenges faced in the era of National Sword and COVID-19. This case study presents lessons learned from implementation of new and ongoing agency policy decisions regarding solid waste. This research effort was undertaken in response to EO 13834 and supports the agency mission objectives for solid waste as outlined by OASD 2020 Memorandum, Integrated Solid Waste Management Metrics. Data collected will inform resiliency planning and policy for solid waste in the future to overcome current solid waste and recycling challenges and improve recycling facility operations in support of the agency mission.

8.8 *You Cannot Unknow This: From the Cusp of Survival to Emerging Practice*

This session is about climate adaptation, which is one of the two responses to climate change according to the National Climate Assessment. The session will provide an overview of how GSA integrates science and uses model building codes to inform technical evaluations based on professional judgement to then inform asset management and investment needs. GSA follows a procedural and methodical process to evaluate exposure and sensitivity to changing loads over time so that assets are not impaired, fail or lost. The session will discuss the need to expand capacity and capabilities in the technical procedures in architectural and engineering design to inform investment decisions which can adapt to changing conditions, manage retreat, avoid stranded assets and avoid maladaptation (adding burden/vulnerability to those that are affected first and worst.) The session will address scienceinformed site selection criteria and enhanced monitoring and evaluation methods especially for existing sites (e.g. flood and riverine areas; drought and dryland expansion; temperature extremes with focus on heat; wildfire in the urbanwildland interface, population migration). These advance an emerging practice which is defensible and repeatable using forward-looking information. Yet, there is a vital need to communicate that these technical activities are not "One and Done." At the same time, there is a need to deepen partnerships particularly with and in the accounting sector to recognize, measure and disclose impacts from extreme weather and chronic change and activities to prevent impacts from extreme weather and chronic change. Audience Engagement 1. How many are confident in their technical procedures to evaluate exposure and sensitivity around life safety, mission continuity and preservation of historic assets? 2. How many have similar barriers to overcome? 2. What is the appetite in your

organization to establish similar technical procedures? 3. How many are successfully working with accountants on these matters for your enterprise?

Day 4

Track 4 – Sustainability (cont.)

4.11 *Varying Approaches to Sustainability: FBI, State Dept, USPS*

This panel brings together diverse perspectives toward federal sustainability efforts. The speakers will discuss several broad-ranging topics including: The FBI's multi-faceted approach towards fleet electrification and sustainable buildings, including some of the mission's unique challenges; the State Department's use of eco-diplomacy to build international partnerships aimed at galvanizing support and building capacity to respond to the climate crisis; and the U.S. Postal Service's BlueEarth Program, which offers federal customers sustainable mailing and recycling services. The speakers offer their expertise in hopes that the provided information will spark better engagement and dialogue with their federal partners.

4.12 *Charting a Course to Net Zero Procurement for DoD Supply Chain Greenhouse Gases*

The Department of Defense is committed to significantly decrease its greenhouse gas emissions footprint, including indirect emissions generated in its supply chains for purchased goods and services. This panel presents work underway at DoD to engage with the defense industrial base on emissions reductions to reach its goal of net zero procurement by 2050.

4.13 *Sustainable Operations – Reducing the Footprint and Cleaning Up Afterward*

Jaramillo: Sustainable operations have never been more important as we face unprecedented fire behavior with some of the largest fires and longest fire seasons on record. The National Greening Fire Team (GFT)'s vision is to achieve net zero environmental impact at all large fire incidents by 2030, and their mission is to integrate sustainability best practices on incidents and within the fire community. Learn how this team is conserving energy and water, reducing fuel consumption, sustainable acquisition, and reducing waste on wildland fires.

Gaona/Cole: At the East Tennessee Technology Park, EM's original mission was to turn the Site from a community liability into a community asset. While sustainability may not have been formally in the original plans, the outcome certainly reflects it. ETTP went from a highly contaminated and unsafe location to one that brings environmental, social, and economic benefits to its community. After nearly two decades of work, EM completed the environmental cleanup while incorporating sustainability principles. More than 500 buildings, in excess of 13 million square feet, were demolished. Millions of cubic yards of soil and debris were remediated, and millions of gallons of surface and groundwater were tested and treated. Several million square feet of paved and impervious surface area were removed, and the land was returned to a natural state through native grass and wildflower reseeding projects which now provide habitats for animals and insects, especially important pollinators. EM has also transferred nearly 1,300 acres at ETTP to the community to date for industrial development. ETTP has been transformed into a prospering multi-use industrial park surrounded by green spaces and has also been designated a national park. Comprehensive environmental stewardship practices played an important role, including innovative recycling and reuse initiatives, greenspace creation, and renewable energy generation and usage. The effort transformed a former enrichment complex that presented a liability to the community into a marketable asset that is attracting new businesses and economic development. ETTP is now home to more than 20 businesses and two solar power farms producing more than 1.2 MWh of electricity annually. EM also designated nearly 3,500 acres for conservation, providing habitat for wildlife and hiking trails, bike paths, canoe launches, and other activities for residents and tourists. The completion of this first-of-a-kind cleanup project serves as a model for future sustainable environmental cleanup projects.

4.14 *Panel Theme: Strategies for Preventing and Reducing Government-Wide Food Waste*

Federal Sustainable Purchasing: Programs and Tools to Help Meet and Exceed your Goals (Part 2) is a panel presentation between the EPA's Safer Choice, WaterSense, SmartWay, and Environmentally Preferable Purchasing programs about how to accomplish your organization's sustainability goals through federal sustainable procurement. This panel presentation will also provide an overview of the new federal sustainable purchasing requirements within

Executive Order 14057 on Catalyzing American Clean Energy Industries and Jobs Through Federal Sustainability and the accompanying Federal Sustainability Plan. These EPA programs have been identified within the E.O. to be used within federal purchasing to the "maximum extent practicable".

Track 2 – Energy and Water Conservation (cont.)

2.11 Decarbonization Procurement Options in the Federal Sector

This training will help attendees understand options to reach 100% carbon-free electricity (CFE), as well as 24/7 CFE procurement market trends and considerations. Attendees will also learn how to maximize decarbonization through onsite and offsite CFE procurement strategies such as utility offerings, performance contracting, power purchase agreements, and offsite electricity supply arrangements. At the end of the session, attendees will leave with an understanding of procurement pathways to procure onsite CFE, options available to procure offsite CFE, current 24/7 CFE procurement trends, considerations for implementation, and available FEMP and other resources to help agencies meet decarbonization goals.

2.12 Energy Storage at Federal Facilities: What You Need to Know Now

As the cost of batteries continues to drop, the rapid growth of the energy storage industry is among the most important trends in climate and energy today. Building energy storage enables the grid to better manage intermittent renewable sources while giving building owners and operators the flexibility to use or release energy when it is of the most benefit or offers the greatest value, e.g., considering time of use rates and demand response programs. Executive Order 14057 requires federal agencies to transition to "100 percent carbon pollution-free electricity", and as part of that goal, "to match use on an hourly basis to achieve 50 percent 24/7 carbon pollution-free electricity, by fiscal year 2030." As part of this goal, agencies are asked to develop "new...energy storage capacity." While few agencies have significant experience with building energy storage, the time is ripe to learn the fundamentals, the costs, benefits, challenges and opportunities related to energy storage and how to get started with storage projects where they make the most sense. This session will provide an overview of the state of the field, outline the recommendations of GSA's Green Building Advisory Committee on the topic, and present an energy storage case study from a GSA building. Among the issues to be covered are cost-effectiveness, safety, resilience, financing and implementation, and the strategies that make the most sense for federal agencies, given the current and emerging state of the building energy storage market. Attendees can expect to gain a foundation for evaluating whether energy storage is something they should consider incorporating in their facilities, and if so, how to plan to make it happen.

Committee Members

José Jiménez	EPA
Jenna Larkin	EPA
Jessica Schlafstein	EPA
Morgan Everitt	EPA
Sharon Baumann	DoD
Marc Petrequin	Army
Nicole R. Johnson	USMC
Steve Luzzi	FedCenter - USACE
Dave Sperry	USACE
Leo Angelo Gumapas	DHHS
Jamie Bryant	DHHS
Diana Hirshfeld	DHHS
Mike Stefan	DHHS/NIH
Kenny Floyd	DHHS/NIH
Mansi Mehta	DHHS/NIH
Brian Kim	DHHS/NIH
Stephen Zettlemyer	DHS
Eric Bradley	DOE
Christopher Payne	DOE/LBNL
Karen Armijo	DOE/LANL
Steven Davis	DOJ/DEA
Jody McClarin	DVA
Howrey Ferguson	DVA
Lixa Rodríguez Ramón	NASA
Lori Levine	NASA
Janine Pollack	NASA
John Galbraith	USDA



2023 Federal Environmental Symposium

The Planning Committee wants to invite you to the 2023 Federal Environmental Symposium. The event is currently being scheduled for March or October 2023, at the Natcher Conference Center on the NIH campus once again, please mark your calendar. If you have suggestions (i.e., track topics, presentations, tours) and or would like to help, do not hesitate to send us a message to fes@fedcenter.gov.

Bios

1.1

Kelsey Hendrixson

Ms. Hendrixson works for Noblis and provides support to the Office of the Deputy Assistant Secretary of Defense (Environment and Energy Resilience) Chemical and Material Risk Management (CMRM) Program. Ms. Hendrixson is a licensed professional engineer with over 12 years of experience in addressing environmental, chemical, and public health risks. She has a B.S. degree in Environmental Engineering and Master of Public Health degree in Environmental and Occupational Health. Ms. Hendrixson assists the CMRM Program to identify, assess, and manage risks to the Department of Defense associated with emerging chemicals.

1.2

Antony Williams

Antony Williams joined the Center for Computational Toxicology and Exposure in the Office of Research and Development at the US EPA in May 2015. He is a cheminformatician focused on the delivery of the center's data to the scientific community. His interests include the aggregation and curation of chemical data, development of models to support physicochemical property prediction and development of software approaches to support non-targeted analysis.

He has over two decades of experience in cheminformatics and chemical information management with a focus on internet-based projects to deliver free-access community-based chemistry websites. He was one of the original founders of ChemSpider (with >100,000 users per day) and was the product owner for the EPA's CompTox Chemicals Dashboard (<https://comptox.epa.gov/dashboard>) from 2015-2021.

1.3

Linda Gaines

Linda Gaines is an environmental engineer and environmental health scientist. Previously she worked as a consultant performing environmental site assessments and water and wastewater work and then worked for the Texas Commission on Environmental Quality writing Title IV and V air permits and later RCRA hazardous waste permits. After earning her Professional Engineer's license, she went back to school for her Ph.D. to focus on environmental health, and now works in human health risk assessments. She maintains the Superfund Chemical Database Matrix (SCDM) and the Regional Screening Levels (RSLs). The majority of her time is spent as the Superfund subject matter expert for per- and polyfluoroalkyl substances (PFAS). Currently she is on detail to EPA's RCRA office to work on adding certain PFAS to RCRA Appendix VIII.

1.4

Alexander Domesle

Alexander Domesle is the Senior Advisor for Chemistry, Toxicology, and Related Sciences at USDA's Food Safety and Inspection Service. In this role, Mr. Domesle provides advice, strategy, and direction to senior Agency leadership on the scientific implications and regulatory dimensions of issues related to veterinary drugs, pesticides, and chemical contaminants in food.

Mr. Domesle holds undergraduate degrees (in chemistry and in international studies) and an M.S. degree (in environmental health) from the University of Washington, and a J.D. from the George Washington School of Law

1.5

Rachel Carter

Rachel Carter, MS, CHMM has over ten years of experience in the environmental field. She is a scientist, hazardous material manager, and project manager and has completed over 30 diverse environmental projects for the U.S. military in the past five years. Ms. Carter's more recent projects include managing several installation-wide radon testing and technical services contracts conducted at multiple Navy installations across the continental U.S.

1.6

Michael Brucker

Mr. Bruckner works for Noblis, an independent non-profit organization, and has supported the Office of the Deputy Assistant Secretary of Defense for Environment and Energy Resilience for almost a decade. His work includes sustainability policy, life cycle assessment, chemical and material risk management, pollution prevention, and

climate change. Mr. Bruckner was previously a Fellow at the Harvard Kennedy School of Government and conducted similar work in the private sector. He holds master's degrees in Management and Environmental Engineering and a B.S. in Biological Engineering.

1.7

Dr. Carole Mars

Dr. Carole Mars is a 2020 AAAS Science and Technology Policy Fellow. During her fellowship, she is working in the Office of Environment and Energy Resilience. Her work focuses on sustainable procurement and the intersection of chemical regulation and DoD supply chains. Prior to her fellowship, Dr. Mars was the Director of Technical Development and Innovation for The Sustainability Consortium., founded the Circular Innovation Hub at TSC, and served as a Technical Advisor to the Responsible Battery Coalition. Dr. Mars earned her PhD at Pennsylvania State University in surface analytical chemistry and her Bachelor of Science in chemistry at the University of Arizona.

1.8

Susan Burden

Dr. Susan Burden is currently the PFAS Executive Lead for EPA's Office of Research and Development (ORD) where she coordinates ORD research efforts on PFAS. She is also a member of the EPA Council on PFAS. In addition to her PFAS responsibilities, Dr. Burden is the Scientific Support Advisor in ORD's Office of Science Advisor, Policy and Engagement (OSAPE) where she provides leadership for OSAPE on research planning and scientific support issues. Prior to this position, Dr. Burden served as the Chief of the Regulatory Support Branch within OSAPE and worked with a team of scientists to integrate ORD's scientific research and expertise into EPA regulations, guidance, and policies. Dr. Burden was also a major contributor to EPA's study of the potential impacts of hydraulic fracturing for oil and gas on drinking water resources. Dr. Burden started her career at EPA in 2010 as a Presidential Management Fellow, after receiving a B.S. in Chemistry from Carroll College and a Ph.D. in physical chemistry from the University of Wisconsin-Madison.

1.9

Rob Seifert

Rob Seifert is the Director of the Office of Subsurface Closure in the Office of Environmental Management at the Dept of Energy. He has served in the EM program for nearly 29 years. Starting in 1993 at the Paducah Gaseous Diffusion Plant, Mr. Seifert has held a number of technical and management positions as both a contractor and DOE federal employee. Mr. Seifert joined the DOE Headquarter team in 2014 as the Director of the Office of Regulatory Compliance. Mr. Seifert has a degree in Chemistry and Biology from Murray State University.

2.1

Nichole Liebov PhD

Dr. Nichole Liebov is a AAAS Science and Technology Policy Fellow at the U.S. Department of Energy's Federal Energy Management Program (FEMP), where she supports federal agencies' needs related to distributed energy, energy procurement, and resilience. Prior to her fellowship, she worked in industry as a Senior Staff Scientist. She holds a BS in Chemistry from the University of Georgia and a PhD in Inorganic Chemistry from the University of Virginia.

Jal Desai

Jal Desai is a member of the Strategies & Implementation Group in the Integrated Application Center. He graduated with MS in Electrical Engineering from Carnegie Mellon University in 2016 and BS from Nirma University in India. Mr. Desai joined NREL in 2017 and has research interests in renewable energy deployment and technologies as well as issues related to policy and international development.

Andy Walker PhD PE

Dr. Walker is a Senior Research Fellow in the Energy Systems Integration Directorate of NREL. Dr. Walker has a PhD, MS and BS in Mechanical Engineering from Colorado State University and has been an engineer at NREL since 1993. Dr. Walker is the author of several publications including "Solar Energy: Technologies and Project Delivery for Buildings," published by John Wiley and Sons and several awards including the Thomas A. Edison

Patent Award in recognition of the innovation and impact of the Renewable Energy Optimization (nrel.gov.reopt) software.

2.2

Dustin Madden

Dustin grew up in Northwest Alaska and has family roots in the Norton Sound region. He currently manages the Alaska Native Tribal Health Consortium (ANTHC)'s Rural Energy Program, which develops and implements energy efficiency and renewable energy projects in partnership with Alaska Native villages to reduce energy costs for water and sewer systems. The Program, under legal agreement with the Indian Health Service to carry out health services for native beneficiaries in Alaska, has eight staff that manage and provide engineering support for over 60 projects in remote Alaskan communities. He previously was with the Cold Climate Housing Research Center, where he worked in a variety of areas including evaluating energy efficiency retrofit programs, researching efficiency of public facilities, and developing and updating energy efficiency standards for Alaska.

2.3

Lt Col Brock Sissel

Lt Col Sissel is the Base Civil Engineer and Commander of the 184 Civil Engineer Squadron located at McConnell AFB, Kansas. In his role, he is responsible for the base infrastructure and the training and readiness for a 67-person Civil Engineer team. As the Base Civil Engineer, he leads the strategic planning and project management of all of the Kansas Air National Guard facilities at McConnell and Smoky Hill Bombing Range. He is a licensed Professional Mechanical Engineer. He has 17 years' experience with Geothermal HVAC systems. Since 2005, he has converted sixteen facilities to geothermal heating and cooling. The sixteen systems total 733 Wells and 854 tons of cooling and serve over 223,000 square feet of facilities.

2.4

Jofrey Quintanar

Jofrey Quintanar serves as a Sustainability and Infrastructure Project Manager at Argonne National Laboratory. As a licensed architect and a native of Queretaro, Mexico, Jofrey brings a unique perspective and 20 years of experience collaborating with multidisciplinary teams and managing complex projects with a strong focus in sustainable design. He obtained a master's degree from Northwestern University in project management specialized in construction, and holds the LEED AP (Leadership in Energy and Environmental Design) credential, the CDT (Construction Document Technologist) certification, and the PMP (Project Management Professional) certification.

2.5

Kerri Hartung

As the Sustainability Coordinator for NIEHS, Kerri Hartung is responsible for collaborating with scientific, facilities and operations personnel to help them carry out their duties and achieve their objectives in an environmentally sustainable manner. Recent sustainability initiatives under Ms. Hartung's tenure include a campus net-zero energy feasibility study, Green Researcher certification program, sustainable cold storage lifecycle program development, and publication of the NIEHS 2021 Sustainability Report. Ms. Hartung received her Master of Science in Environmental Science from Indiana University and her Bachelor of Science in Chemistry from Santa Clara University. Prior to joining NIEHS, she was a sustainability advisement consultant to public and private sector clients.

2.6

Andrew Gomes

Andrew Gomes is Physical Scientist at Utilities Systems Design & Technical Service Branch, Division of Technical Resources, National Institutes of Health. He graduated from Bergische Universitaet Wuppertal, Germany with his doctoral research on tropospheric ozone formation. He has three-decade academic research experience in air pollution, wastewater treatment, and materials science. His other areas of research include electrocoagulation technology, intercalation materials, nanotechnology-based treatment, thylakoid based air purification system, analysis of pesticides in river water and phthalates in plastics using LC-MS, and removal of emergent water contaminants using bio-sorbents. He is author of 30 peer-reviewed articles, 51 conference proceedings, and 5 book chapters. Before joining to federal employment, he worked at Lamar University as Research Associate Professor.

John Fratangelo

John Fratangelo is currently a Lead Engineer for the Department of Technical Resources at the NIH Central Utility Plant and the Contracting Officer's Representative for the water treatment contract. Prior to joining NIH, Mr. Fratangelo was employed at the University of Maryland, College Park as the Assistant Director of Utilities. Mr. Fratangelo worked in power plant construction, engineering, commissioning and project management for the Potomac Electric Power Company and as Vice President with Pepco Energy Services. Mr. Fratangelo is a graduate of the University of Maryland, College Park in mechanical engineering.

Chris Lyon

Chris Lyon is currently employed as Industrial Water Technician at Central Utility Plant of National Institutes of Health.

2.7**Jaroslav Sebek**

Jaroslav Sebek is an environmental engineer with the National Institutes of Health. His current focus is to reduce energy consumption and greenhouse gas emissions from laboratory equipment.

2.8**Phil Voss**

Phil Voss is a Senior Project Leader in the Integrated Applications Center at the National Renewable Energy Laboratory (NREL). Phil provides technical support to the U.S. DOE FEMP ESPC, Utility, and Distributed Energy programs, including direct project assistance, training, quality assurance, and M&V support.

Jeff Gingrich

Jeff Gingrich is a Project Manager for DOE who manages program and training development for the FEMP Utility Team at the National Renewable Energy Laboratory. He is an advisor in supporting development of UESC projects and develops resources and curriculum for the internationally accredited UESC training courses for federal agencies and regulated utilities.

2.9**Nichole Hanus**

Nichole Hanus, Ph.D., is a Project Scientist in the Electricity Markets and Policy Department at LBNL and a co-lead of the Center of Expertise for Energy Efficiency in Data Centers. Nichole conducts research aimed at improving electricity grid resiliency and reliability and increasing data center energy efficiency. Her work is informed by her background in mechanical engineering, behavioral decision sciences, and public policy.

Nichole holds a Ph.D. and M.S. in Engineering and Public Policy from Carnegie Mellon University, as well as a B.S. in Mechanical Engineering from the University of Dayton.

Alex Newkirk

Alex Newkirk is a Research Associate in the Building Technology and Urban Systems Division at the Lawrence Berkeley National Lab. Alex researches the diffusion of innovation, procurement of emerging technologies, and organizational behavior. He received a B.S. in Physics from Carleton College, and tries to bring an interdisciplinary approach to his work. Prior to joining the lab, Alex was an energy innovation policy consultant for IHS Markit, providing international innovation case study comparisons and analyzing the role of incubators and accelerators in the domestic innovation ecosystem.

2.10**Nick Graves**

Nick Graves is an environmental analyst for DOE at Lawrence Livermore National Laboratory. He is currently leading California cap and trade action plan focusing on natural gas GHG reduction.

2.11**Douglas Gagne**

Douglas Gagne is a Project Analyst at the National Renewable Energy Laboratory (NREL). He currently provides early stage federal project development support for renewable energy and resilience projects. He has evaluated the

transaction structures, valuation and technical characteristics of projects spanning most conventional renewable energy technologies, and brings a robust understanding of solarphotovoltaic project costs and financing mechanisms. He joined NREL after graduating from the University of Denver with a Master of Business Administration.

Jenny Heeter

Jenny Heeter is a senior energy analyst at the National Renewable Energy Laboratory (NREL). She researches equitable solar deployment, voluntary purchasing of renewable energy, and community solar deployment and cost. She is currently serving on a detail assignment with the Department of Energy's Office of Economic Impact and Diversity to support implementation of President Biden's Justice40 Executive Order.

Chandra Shah

Chandra Shah is a senior project leader at the National Renewable Energy Laboratory. She is the laboratory lead for the Federal Energy Management Program's (FEMP) utility program and has been supporting FEMP since 1998.

John Myhre

John Myhre is a senior project manager at the National Renewable Energy Laboratory. He provides training, technical analysis, and support for the Federal Energy Management Program in the areas of performance contracting and distributed energy procurement.

Elisabeth McClure

Elisabeth McClure is a AAAS Science & Technology Policy Fellow at FEMP where she supports sites in meeting net-zero emissions goals and facilitates equitable energy planning. Dr. McClure holds a B.S. in Physics and a Ph.D. in Microsystems Engineering with a focus on solar cell materials research.

2.12

Ken Sandler

Ken Sandler is a Green Building and Sustainability Advisor to the General Services Administration (GSA) Office of Federal High-Performance Buildings. He has shaped federal research, policy and communications on sustainability through his work at 5 different agencies (EPA, GSA, CEQ, DOE & HUD) over 30+ years. He has worked on a broad range of green building issues from clean energy to healthy buildings to green roofs. Ken co-chairs the Interagency Sustainability Working Group and manages GSA's Green Building Advisory Committee, which produces policy papers on such issues as building-to-grid integration, embodied carbon and federal building decarbonization. Ken has a Bachelor's degree in English and Political Science, a Master's degree in Political Science, and a PhD in Environmental Science & Policy.

Nick Tumilowicz

Over the past twenty years, Nick Tumilowicz has been deploying distributed energy resources and developing advanced technologies, products and services to scalable, commercial deployments. In his current capacity as Electric Power Research Institute (EPRI)'s Principal Manager leading the energy utility and customer research initiatives, Nick is accountable for transmission, distribution, and customer connected energy storage research. By demonstrating scaled deployments across the international community, he leads a team addressing grid/customer challenges of highpenetration renewables (solar), accelerated electrification opportunities (EV's and home energy management), and business models tied to customer energy independence. Tumilowicz is a recognized international industry expert on solar /energy storage markets, technology evaluation, and economic feasibility. With EPRI, he is focused on advancing the safe, reliable, affordable, and environmentally responsible deployment of streamlined customer energy resources into real-world applications.

Alex Cate

Alex Cate is an Engineering Manager with Ameresco, a leading cleantech integrator and renewable energy asset developer, owner, and operator. He graduated from the University of Tennessee with a degree in Mechanical Engineering, is a licensed Professional Engineer, and is a Certified Energy Manager. Mr. Cate has over 13 years of experience developing large-scale and innovative energy projects at federal buildings, military bases, prisons, VA hospitals, industrial facilities, and other government sites, leading design and development engineering teams from project conception to construction. He was the lead project developer for the GSA NDER3 Region 9 ESPC that

resulted in the installation of a Battery Energy Storage System at the Schwartz Federal Building and Courthouse in San Diego, CA.

David Kaneda

David Kaneda has collaborated on many of the greenest buildings in the US. He is an expert on electrification, decarbonization, renewable energy, energy storage/microgrids, plug loads, all-electric kitchens, lighting/daylighting, and smart EV charging strategies and has led the electrical design for dozens of AIA COTE Top 10, LEED Platinum Certified or Well Certified buildings as well as over 40 - net zero energy buildings, the first ILFI Net Zero Energy Certified Building and one of the first Zero Carbon Certified Buildings. David is an electrical engineer, a Fellow in the AIA, a LEED Fellow and a Senior Fellow with the New Buildings Institute and chairs the GSA Green Building Advisory Committee. He serves on the GSA National Register of Peer Professionals and AIA California's COTE.

3.1

Liz Mees

Liz Mees is the GSA Regional Historic Preservation Officer for the New England Region. She is member of AIA and is a LEED-certified architect, with many years of Section 106 experience.

Melissa Wiedenfeld

Dr. Melissa Wiedenfeld has over three decades of experience with NEPA and Section 106. She has worked for CBP for 7 years, handling a variety of environmental and historic preservation issues.

3.2

Matthew Nowakowski

Mr. Nowakowski is the AFCEC East Region Cultural Resource Subject Matter Specialist. He earned a Master's Degree in Historic Preservation and has 26 years of experience in the field, 10 years in federal service for the Air Force, Air National Guard and Environmental Protection Agency.

Adrienne Lazazzera

Dr. Lazazzera is an AFCEC Cultural Resource Specialist serving Air Force installations in the Northeast for the past seven years. She holds a Ph.D. in Anthropology with a focus in North American archaeology. Both authors support cultural resources and tribal consultation programs at multiple installations in the East Region.

3.3

Angela Jones

Angela Jones received her bachelor's degree from East Carolina University with a major in Chemistry and a minor in Business Administration in 2004. From 2004 to 2019, Jones worked as a chemist at Norfolk Naval Shipyard under Naval Sea Systems Command. In March 2019, Jones accepted a position with Naval Facilities Engineering Systems Command Mid-Atlantic, onboard Joint Expeditionary Base Little Creek-Fort Story, where she served as the Stormwater Media Manager. Jones joined the Navy Region Mid-Atlantic Regional Environmental Coordination team in March 2021, where she coordinates outreach events within the Mid-Atlantic region, reviews proposed state Clean Air Act legislation and regulations, and supports the DoD Chesapeake Bay Program through participation in partnership, outreach, and educational programs.

3.4

Melissa Wiedenfeld

Dr. Melissa Wiedenfeld has over three decades of experience with NEPA and Section 106. She has worked for CBP for 7 years, handling a variety of environmental and historic preservation issues.

Michelle Brown

Ms. Michelle Brown manages the Planning and Compliance Branch of the U.S. Customs and Border Protection's Office of Facilities and Asset Management, Energy and Environmental Management Division. Her main job objective is to ensure resources and relationships exist to support the environmental professionals at CBP as they work to support the CBP mission. Michelle has been at CBP for three years, but has nearly 30 years of experience supporting environmental programs for federal, state and local government agencies.

Dennis Lew

Dr. Dennis Lew has been providing NEPA, environmental compliance, and environmental remediation support for over 30 years. He has been sharing his expertise with CBP for 14 years.

Tom Brown

Mr. Tom Brown – has over 25 years of commercial construction management experience ranging from small building construction to large full-scale building/site historical renovations. Tom has worked for both public and private sectors over his career. He has been with CBP for approximately 13 years as both a contractor and a Federal Employee.

Santiago Gala-Aguilera

Mr. Santiago Gala-Aguilera, Assoc. AIA has been an architect for the Puerto Rico SHPO for the past twenty years advising and assisting in the areas of Review and Compliance, National Register, Survey and Inventory and Education.

3.5**Jessica Rodriguez**

Ms. Rodriguez currently serves the Navy as one of the DoD Chesapeake Bay Program Coordinators. In her role, she works as part of a team that represents the DoD interests, tracks and reports on the annual progress toward meeting the DoD's federal planning goals, coordinates with all the DoD Services to collect and report annual BMP data to report to the jurisdictions and partners with jurisdictions to address issues and challenges with TMDL reporting and crediting. Prior to her role with the Navy, Ms. Rodriguez worked for the U.S. EPA HQ office and brings many years of experience related to the development of environmental policy and collaboration with internal and external stakeholders at both a national and regional level to the DoD CBP team.

3.6**James Jackson**

James R. Jackson is the NEPA Program Lead for Battelle Energy Alliance, the operations contractor for Idaho National Laboratory. As a member INL's Environmental Support Services, James supports mission research and operations through preparing and managing NEPA documents, providing guidance on day-to-day NEPA activities, and assisting BEA meet its NEPA commitments. Prior to joining INL, James was the technical lead for the Land Use and Conveyance program at Los Alamos National Laboratory and supported LANL's NEPA, RCRA, Wildland Fire, Biological, and Cultural programs. James specializes in environmental impact analysis, regulatory compliance, document management, and project management.

4.1**Stephanie Gresalfi**

Stephanie Gresalfi is the Branch Chief of GSA Fleet's Offering Management Program and is currently detailed to GSA Fleet's Zero Emission Vehicle (ZEV) team. In her role she advises agencies on how to electrify their fleets and make efficient vehicle choices, take advantage of GSA Fleet's many offerings and plan for electric vehicle charging in support of E.O. 14057. In 2016, she served as a Senior Sustainability Advisor to The White House Council on Environmental Quality working to obtain commitments from cities and states to deploy electric vehicles nationwide and improve acquisition management across government.

Stephanie is a 2019 graduate from the Partnership for Public Service's Excellence in Government Leadership Program. Stephanie holds a master's degree in Business Administration from University of Maryland's Smith School of Business.

Allison Young

Allison Young is a Research Architect at the Engineer Research & Development Center (ERDC) Construction Engineering Research Laboratory (CERL) for the U.S. Army Corps of Engineers. She has primarily worked on the Source Reduction & Resource Resilience team with a focus on recycling and waste reduction but has recently branched out to also work in Sustainable Design and Cultural Resources.

Ms. Young holds a Bachelor's degree in Architecture from the University of Cincinnati, and a Masters in Urban Planning from the University of Illinois at Urbana-Champaign. She previously worked in architecture in the private sector for over five years.

4.2

Jeanine Smith

Jeanine Smith is the Director of the DHS Fleet Electrification Project Management Office in the Office of the Chief Readiness Support Officer (OCRSO). In this role, Ms. Smith centrally manages the DHS fleet electrification strategy in support of Component requirements. Prior to this position, she served as Planning Director for the Regional Mission Support Division of OCRSO. For over twenty years, Ms. Smith has served in strategic planning, change management, communications, and information technology positions with both public and private sector organizations. She holds an M.S. in Resourcing National Security Strategy from the Eisenhower School at the National Defense University and an M.A. in Public Communication from American University.

Karyn Andersen

Karyn Andersen is a Sustainability Project Manager in the Project Management Organization at Argonne National Laboratory. In this role, she is responsible for supporting and implementing projects that further the Laboratory's sustainability goals, including leading efforts in the Mobility and Resource Conservation programs. These programs include employee electric vehicle charging, bike share, carpooling, fleet, pollution prevention, green infrastructure and green purchasing. Karyn is a Project Management Professional (PMP) with more than 15 years of experience in the environmental compliance and sustainability disciplines.

4.3

Ken Sandler

Ken Sandler is a Green Building and Sustainability Advisor to the General Services Administration (GSA) Office of Federal High-Performance Buildings. He has shaped federal research, policy and communications on sustainability through his work at 5 different agencies (EPA, GSA, CEQ, DOE & HUD) over 30 years. He has worked on a broad range of green building issues from clean energy to healthy buildings to green roofs. Ken cochairs the Interagency Sustainability Working Group and manages GSA's Green Building Advisory Committee, which produces policy papers on such issues as building-to-grid integration, embodied carbon and federal building decarbonization. Ken has a Bachelor's degree in English and Political Science, a Master's degree in Political Science, and a PhD in Environmental Science & Policy.

Jeremy Alcorn

Jeremy is a Certified Energy Manager and serves as a Climate and Sustainability Officer for the Public Buildings Service, U.S. General Services Administration (GSA). He has over 20 years of experience in sustainability, facility energy and water management, high performance buildings, renewable energy, greenhouse gas (GHG) mitigation, and climate risk. Prior to joining GSA, he served as a consultant with private and not-for-profit organizations as well as a U.S. Peace Corps Volunteer in Eastern Europe. He holds a BS in Environmental Science and Political Science from Allegheny College and a MS in Environmental Science and Policy from George Mason University.

Kent Peterson

Kent Peterson is Chief Engineer at P2S Inc., a 300-person consulting engineering firm specialized in high-performance operation. He has over 35 years of experience working in the building and infrastructure industries. Kent is a Presidential Member of ASHRAE and recipient of the F. Paul Anderson Award and the Exceptional Service Award. He is also a Louise & Bill Holladay Distinguished ASHRAE Fellow. Mr. Peterson is currently a member of the ASHRAE Task Force for Building Decarbonization, chair of the ASHRAE Building Decarbonization Position Document Committee, active member of the DOE Better Building Alliance Embodied Carbon Working Group, and co-chair of the U.S. GSA Federal Building Decarbonization Task Group.

Clay Nesler

Clay Nesler is the Senior Fellow for Buildings and Energy at the World Resources Institute. Prior to that role, Clay spent 39 years at Johnson Controls where he held a variety of global leadership positions in research, product development, innovation, strategy, manufacturing, sustainability and regulatory affairs. He also served as Interim President of the Alliance to Save Energy in 2019. Clay currently serves on the GSA Green Building Advisory Committee where he co-chairs the Federal Building Decarbonization task group and several ASHRAE's Task Force for Building Decarbonization working groups. He received his BS and MS degrees in Mechanical Engineering from the University of Illinois at Urbana-Champaign.

4.4

Don Horn

Don Horn, FAIA, LEED Fellow, GSA Office of Federal High-Performance Green Buildings, works to improve the effectiveness of federal buildings through policy and advocacy. His experience includes developing best practices, guidance and tools for government-wide use.

Walter Tersch

Walter Tersch, GSA Office of Design and Construction, tracks the features, goals, and results of federal construction and modernization projects, including compliance with the Guiding Principles, energy savings, and embodied carbon avoidance.

Adina Torberntsson

Adina Torberntsson, GSA Office of Governmentwide Policy, is a procurement analyst focusing on sustainable procurement policy. She co-chairs the SAMM interagency working group and has experience as a contracting officer and procurement analyst.

4.5

Ryan Cerone

Ryan Cerone is a licensed architect with special expertise in the areas of sustainability, wellness, and resiliency. As a member of the Embassy After Next Innovation team within OBO, he oversees initiative efforts and advances strategic partnerships around green building practices, environmental integration, and sustainable process development. Prior to joining OBO, Ryan worked in private industry for over 10 years at firms specializing in sustainability and high-performing buildings, such as Perkins and Will.

He holds a Masters of Architecture Degree from City College of New York and a Bachelors Degree in Sociology from The College of William and Mary. He has additional accreditations in LEED, WELL, Fitwel and RELi standards.

Wayne Evelo

Wayne Evelo is the National Nuclear Security Administration's Program Manager for Green Buildings and Utilities. He is a General Engineer, Federal Project Director, Contracting Officer's Representative, a Leadership in Energy and Environmental Design (LEED) Accredited Professional, and a Project Management Professional with over 30 years of experience working at 6 different sites across the country. He is passionate about his work and demonstrates it by also living in a highly sustainable and resilient home.

Kurt Kesseloot

CDR Kesteloot received his United States Public Health Service (USPHS) commission in 2004 and served with the Indian Health Service (IHS) from 2004 to 2010. CDR Kesteloot worked as an Engineer with the Navajo Area IHS in Many Farms, AZ, Winslow, AZ and Tuba City, AZ for the Navajo Area IHS designing and constructing water and wastewater sanitation facilities. He deployed aboard the USNS Comfort on a humanitarian mission in 2009. CDR Kesteloot has worked for the National Park Service since 2010.

4.6

Kari Meier

Dr. Kari Meier is a member of the Sustainability and Greenhouse Gas teams in the Office of the Deputy Assistant Secretary of Defense (Environment and Energy Resilience). She is an atmospheric chemist by training, with experience developing quality systems and processes for environmental measurements as applicable to mitigation and reduction programs in DoD.

Michael Bruckner

Mr. Bruckner works for Noblis and has supported the Office of the Deputy Assistant Secretary of Defense for Environment and Energy Resilience for almost a decade. His work includes sustainability policy, life cycle assessment, chemical and material risk management, critical minerals, and climate change. Mr. Bruckner was previously a Fellow at the Harvard Kennedy School of Government and conducted similar work in the private

sector. He holds master's degrees in Management and Environmental Engineering and a B.S. in Biological Engineering.

David Gill

David Gill currently works as a Procurement Data Scientist applying technology, data visualization, and machine learn to support procurement goals. He has served previously in a number of different procurement positions including Contracting Officer, Procurement Policy Analyst, and Supervisory IT Specialist. Mr. Gill holds a Bachelor of Political Science and Public Administration from the University of Maryland, Baltimore County and a Master of Business Administration from the University of Baltimore. He holds Level III Federal Acquisition FAC-C and FAC-COR certifications.

Julie Volny

Julie Volny serves as a Program Analyst, in GSA's Office of Policy & Compliance, supporting sustainability and climate adaptation efforts. She has been in federal service for 13 years and also worked in the private sector as a federal government contracts manager for 11 years. Julie manages the GSA's Green Procurement Compilation and works closely with the GSA's SFTool team and agency partners to deliver a comprehensive green purchasing resource.

Michael Bloom

Michael Bloom is a High-Performance Buildings Program Advisor with the U.S. General Services Administration, Office of Federal High-Performance Buildings. With over 20 years of experience at GSA, Michael manages the Sustainable Facilities Tool, (www.SFTool.gov).

4.7

Jenna Larkin

Jenna Larkin is an Environmental Protection Specialist with EPA's Environmentally Preferable Purchasing (EPP) program. The EPP program helps federal purchasers identify & procure sustainable products and services. Jenna helps manage the Recommendations of Specifications, Standards and Ecolabels for Federal Purchasing which includes over 40 private sector standards/ecolabels/certifications across 30 product categories. Jenna holds dual master's degrees in Environmental Science and Public Affairs.

Andrew Jermolowicz

Andrew Jermolowicz Director Business Development Division USDA Rural Development Andrew Jermolowicz serves as the Assistant Deputy Director of the Business Development Division. In this capacity he oversees the Cooperative Services and Public Private Partnerships branches. He leads the development and execution of policies and strategies to better engage in collaboration with other Federal partners, private-sector companies and other stakeholders to support economic development in rural communities. He also oversees the Biobased Markets Program – a Federal procurement and biobased product certification program. Since 1986, Jermolowicz has served in multiple program and policy positions within Rural Development and maintains interests in rural business development, value added agriculture, food systems marketing and biobased economic development. Jermolowicz received B.S. and M.S. degrees, both in Agriculture Economics, from the University of Kentucky.

Ksenija Janjic

Ksenija Janjic is an environmental protection specialist in the Office of Resource Conservation and Recovery (ORCR) at the U.S. Environmental Protection Agency (US EPA). Mrs. Janjic works in the Comprehensive Procurement Guideline (CPG) program. She also works on projects related to sustainable management and measurement of waste materials being used and generated in the construction and demolition of the buildings and roads of our built environment.

Katharine Kaplan

Katharine Kaplan, Manager, ENERGY STAR Product Development and Program Administration, leads the team that develops ENERGY STAR® Specifications for more than 75 product categories, the ENERGY STAR® Most Efficient program, and the administration of the ENERGY STAR products program. She holds a Bachelor of Science in Journalism and a Master of Public Administration.

Bella Maranion

Ms. Bella Maranion is Chief of the Alternatives & Emissions Reduction Branch at the U.S. Environmental Protection Agency in Washington, D.C., where she has worked for over 25 years in developing national regulations and policies and managing domestic and international projects related to stratospheric ozone layer protection and climate protection. In her work with EPA's Stratospheric Protection Division, Ms. Maranion supports the global transition away from ozone-depleting substances (ODS) in various sectors of use through evaluation of the human health and environmental effects of alternatives, creation of government and industry partnerships to address issues affecting the global transition and supporting changes in national and international standards. She has served as a member on various technical committees for various national and international standards organizations. Her current work includes addressing climate-damaging hydrofluorocarbons (HFCs) under the American Innovation and Manufacturing (AIM) Act. Her work also includes specialized sectors of use such as aviation, marine, and the military; promoting partnerships and public sector initiatives to reduce ODS and GHG emissions; and management and responsible disposal and destruction. Under the Montreal Protocol on Substances that Deplete the Ozone Layer, Ms. Maranion has served as a co-chair of the Technology and Economic Assessment Panel since 2012. She holds a Bachelor of Science degree in bioengineering from the University of Illinois at Chicago.

4.8

Michael McGhee

Mr. Michael McGhee is the Executive Director for Climate Resilience at the Office of the Deputy Assistant Secretary of Defense for Environment and Energy Resilience. He is responsible for DoD's sustainability, installation energy, and climate change programs. Previously, he was the Director for Clean Energy at the White House Council on Environmental Quality, Acting Deputy Assistant Secretary of the Army for Energy and Sustainability, Executive Director of the Army Office of Energy Initiatives, and Acting Deputy Assistant Secretary of the Air Force for Energy, Environment, Safety and Occupational Health. He holds an M.S. in National Resource Strategy, an MBA, an MA in Management, a BS in Mechanical Engineering. Mr. McGhee is a licensed Professional Engineer.

Dave Asiello

As the Director of Sustainability and Acquisition, Mr. Asiello currently leads technical and policy support teams in the Office of the Assistant Secretary of Defense (Sustainment). David's areas of responsibility include overseeing DoD Environmental Technology Programs; leading development and implementation of the DoD Sustainability Plan; Integrating Sustainable Procurement Policy and maximizing the use of Green Products at DoD Installations; and integrating Environment, Safety, and Occupational Health considerations into Weapon Systems Acquisition Programs. David has been with the Office of the Secretary of Defense (OSD) since March 2000. Prior to coming to OSD, David held a variety of logistics, operations & maintenance, and environmental positions for the Chief of Naval Operations, and for the Commander, Naval Air Systems Command. David received a Bachelor of Science Degree in Aerospace Engineering from Auburn University 1986, his Master of Business Administration Degree from Marymount University in 1990, and is a 2003 graduate of the National Defense University with a Master of Science Degree in National Resource Strategy and Senior Acquisition Certification from the Industrial College of the Armed Forces. In 2008, Mr. Asiello graduated from the Defense Leadership and Management Program and from the Federal Executive Institute.

4.9

Susannah Davidson

Susannah Davidson is a Community Planner at the US Army Corps of Engineers Construction Engineering Research Laboratory in Champaign, IL, with a research focus on waste streams and source reduction. Her experience working on an organic vegetable farm in Connecticut, using minimal packaging and turning waste into compost, piqued her interest in sustainable materials management. She has a Master's degree in Urban Planning from the University of Illinois at Urbana-Champaign and a Bachelor's degree in Japanese Language from University of California - Berkeley.

Lana Coppolino Suarez

Lana is an Associate Chief at the US Environmental Protection Agency and leads the Sustainable Management of Food efforts. Lana joined the agency in 2004 and previous to her present position, she supported federal agencies meet sustainability goals, coordinated federal partnerships for urban waters, and reviewed pesticide labels. She

served as Peace Corps volunteer in Nicaragua. She attended the University of Michigan and received academic training in Environmental Policy and Behavior.

Jean Buzby

Dr. Jean Buzby has worked at the U.S. Department of Agriculture for over 25 years and is currently the USDA Food Loss and Waste Liaison in the Office of the Chief Economist. Prior to this position, she was on detail at the U.S. Environmental Protection Agency's Resource Conservation and Sustainability Division as a Senior Policy Analyst. For most of her career, she has worked at USDA's Economic Research Service (USDA/ERS), first as an Agricultural Economist and then as the Chief of the Diet, Safety, and Health Economics Branch in the Food Economics Division. Prior to moving into management, her primary areas of work were food safety, food consumption, and food loss research. Dr. Buzby's food safety research included estimating the costs of foodborne illness, analyzing the legal incentives for firms to produce safer food, and exploring international trade and food safety issues. Her food consumption research was primarily centered on using information gleaned from the Food Availability (Per Capita) Data System. Dr. Buzby is domestically and internationally known for her estimates of food loss at the retail and consumer levels in the United States. Dr. Buzby received her Ph.D. and M.S. in Agricultural Economics from the University of Kentucky.

4.10

Carole Mars

Dr. Carole Mars is a 2020 AAAS Science and Technology Policy Fellow. During her fellowship, she is working in the Office of Environment and Energy Resilience. Her work focuses on sustainable procurement and the intersection of chemical regulation and DoD supply chains. Prior to her fellowship, Dr. Mars was the Director of Technical Development and Innovation for The Sustainability Consortium., founded the Circular Innovation Hub at TSC, and served as a Technical Advisor to the Responsible Battery Coalition. Dr. Mars earned her PhD at Pennsylvania State University in surface analytical chemistry and her Bachelor of Science in chemistry at the University of Arizona.

Elizabeth Keysar

Elizabeth Keysar is an Energy and Sustainability Policy Advisor with Concurrent Technologies Corporation (CTC). For twenty years she has supported policy development and implementation in support of environmental sustainability and energy and water resilience for the Department of Defense, to include the Army's Energy and Water Resilience, Net Zero Installation Initiative, and sustainability for the Army Medical Command. She has completed applied research at the organizational, installation, and regional scales, linking sustainability concepts with installation operations, contingency bases, and health care. Dr. Keysar holds a BS in Biology from the State University of New York at Buffalo, MS in Public Policy from Georgia Institute of Technology, and a PhD in Environmental Planning, also from Georgia Tech.

Kristine Sedey and Brenda Adams

Kristine Sedey and Brenda Adams are government innovators with a demonstrated history of project management centered around environmental and energy reporting with the United States Postal Service. Skilled in creatively approaching projects, gathering and learning from stakeholder feedback, building consensus, and enhancing communication for all.

4.11

Darcy Sharp

Darcy Sharp is an Environmental Compliance Program Manager and former fellow at the U.S Green Building Council, Ms. Sharp now manages the FBI's Electric Vehicle Supply Equipment program, in addition to its NEPA and hazardous waste programs.

Brooke Siegel

Brooke Siegel is a Sustainability Program Manager at the FBI. Prior to joining the FBI, Ms. Siegel worked for the D.C. Department of Energy and the Environment's Affordability and Efficiency Division. She currently manages the FBI's sustainable design and construction programs, as well as its Recycling Proceeds Recoupment Program.

Mark Pituch

Mark Pituch is a Foreign Service Officer at the Department of State. He works on the Greening Diplomacy Initiative (GDI). GDI is driven by the concept of eco-diplomacy, a term the Department coined to reflect the importance of leveraging the Department's facilities and operations as a strategic platform to advance the conservation of natural resources and highlight U.S. environmental technological and policy successes.

Ronald Robbins

Mr. Robbins works for US Postal Service as the Manager (A), Corporate Sustainability Initiatives (CSI). Mr. Robbins has a Bachelor's and Master's degree in Environmental Science from SUNY College at Purchase and SUNY College of Environmental Science and Forestry in Syracuse, NY. Over his 35 years working in the field of environmental and sustainability management, Mr. Robbins has been instrumental in leading, developing and managing several award winning environmental/sustainability programs for the Postal Service. Mr. Robbins' work has been recognized with a United States President's Individual Challenge Award, three Presidential White House Closing the Circle Awards, and the U.S. Vice President's Hammer Award.

4.12

Michael Bruckner

Mr. Bruckner works for Noblis and has supported the Office of the Deputy Assistant Secretary of Defense for Environment and Energy Resilience for almost a decade. His work includes sustainability policy, life cycle assessment, chemical and material risk management, critical minerals, and climate change. Mr. Bruckner was previously a Fellow at the Harvard Kennedy School of Government and conducted similar work in the private sector. He holds master's degrees in Management and Environmental Engineering and a B.S. in Biological Engineering.

Carole Mars

Dr. Carole Mars is a 2020 AAAS Science and Technology Policy Fellow. During her fellowship, she is working in the Office of Environment and Energy Resilience. Her work focuses on sustainable procurement and the intersection of chemical regulation and DoD supply chains. Prior to her fellowship, Dr. Mars was the Director of Technical Development and Innovation for The Sustainability Consortium., founded the Circular Innovation Hub at TSC, and served as a Technical Advisor to the Responsible Battery Coalition. Dr. Mars earned her PhD at Pennsylvania State University in surface analytical chemistry and her Bachelor of Science in chemistry at the University of Arizona.

Kari Meier

Dr. Kari Meier supports the Office of the Deputy Assistant Secretary of Defense (Environmental and Energy Resilience). She works for DoD's climate sustainability and mitigation initiatives, with emphasis in greenhouse gases and sustainable chemistry, to promote supply chain chemical transparency and disclosure, enhance DoD's ability to leverage purchasing power, and encourage advancements in sustainable procurement. She received her PhD in Atmospheric Chemistry from Georgia Tech.

4.13

John E. Conover, Jr. PE

John Conover is the Solid Waste Program Manager at Eielson Air Force base in Alaska. His previous job was environmental engineer for NYS Dept of Environmental Conservation where he had 4 different jobs over 30 years as solid waste, air pollution, remediation and enforcement coordinator. He has also worked for the County Environmental Department, as a consultant, cleanup contractor, and an environmental laboratory equipment manufacturer. John has over 40 years experience and has worked 3 years with the Air Force.

Kelly Jaramillo

Kelly Jaramillo, USFS, was born and raised in New Mexico. She is committed to a career in public service and has worked and lived across the US and abroad. Currently, she serves as the National Greening Fire Team (GFT) Chairperson and has championed the GFT's efforts to reduce energy, water, and waste from wildfire incidents and fire operations. She championed the agency's first incident recycling Blanket Purchase Agreement to reduce waste with a turn-key contract solution. Kelly received her Master of Science degree in environmental technology management from Arizona State University and her Bachelor of Science Degree in mechanical engineering and international studies from Worcester Polytechnic Institute, MA.

Albes Gaona

Mr. Albes Gaona manages the Sustainability and Resilience Program at the Environmental Management Office (EM) in the DOE. For over two decades, Albes has worked to advance environmental, sustainability, and climate resilience initiatives. Since 2010, he has worked to meet and exceed the goals required by sustainability and climate Executive Orders bringing benefits to DOE and local EM communities. Mr. Gaona received a BS degree in Environmental Science and a Master's In Policy and Management.

4.14

Jenna Larkin

Jenna Larkin is an Environmental Protection Specialist with the U.S. Environmental Protection Agency (EPA). She is a member of the Environmentally Preferable Purchasing (EPP) program, which helps federal purchasers identify and procure sustainable products and services, influencing over \$650 billion each year. Jenna manages the Recommendations of Specifications, Standards and Ecolabels which includes over 40 private sector sustainability standards/ecolabels/certifications that can be used within federal procurement. Jenna also participates in the development of product sustainability standards and is currently the lead of the professional services sector and provides technical support for the electronics and building materials sectors.

Denise Kearns

Denise Kearns is an environmental professional who through her research, writing, and communications supports finding solutions to improve supply chain efficiency through better transportation and logistics management. She's been a team player on EPA's SmartWay program for the past 10 years. Over past several months, Denise has been working remotely, editing and writing the SmartWay monthly e-update, coordinating and leading the program's advanced technology and corporate social responsibility programs. In her free time, most recently, she's been enjoying cold winter hikes, hot chocolate and building snowmen! With spring on the horizon, she looks forward to biking, gardening and getting out on Lake Michigan.

Stephanie Tanner

Stephanie Tanner is the Lead Engineer for the U.S. Environmental Protection Agency's WaterSense® Program. She is responsible for all technical aspects of the development of labeled products, including setting efficiency and performance criteria as well as managing the certification process. Prior to EPA she managed a water efficiency program for Federal Facilities and wrote several guides to water efficiency for federal facilities. She holds B.S. in Marine Engineering from the U.S. Merchant Marine Academy and a Master of Engineering Management from the George Washington University.

Clive Davies

Clive Davies leads EPA's Safer Choice program. He is committed to advancing EPA's chemical safety mission, and is proud to work with a talented and innovative group of environmental professionals. Clive built Safer Choice, the Agency's program to distinguish and label safer products, such as cleaners and detergents. Safer Choice-certified products – about 1,900 branded cleaners, detergents, and other classes of products – can be found in retailers and distributors across the country. The program also developed and maintains the Safer Chemical Ingredients List (SCIL), which includes hundreds of high-functioning chemical ingredients that meet rigorous health and environment criteria. These ingredients can be used to manufacture Safer Choice-certified products, and are being used to process or manufacture safer products around the world.

5.1

Peter Therkelsen

Dr. Peter Therkelsen is the Deputy of the Building and Industrial Applications Department at the Lawrence Berkeley National Laboratory. His research focuses on industrial energy management business practices and policies as well as the development and deployment of responsible heat and power technologies. In this role he actively studies barriers to the implementation of industrial energy efficiency measures, supports the implementation of energy management systems in the United States, and serves as a delegate of the United States at International Standards Organization meetings for energy management and savings.

5.2

Jimmy Parrish

Jimmy Parrish is the Chief, Environmental Management Division, DLA Installation Management Richmond. DLA Installation Management is an activity of the Defense Logistics Agency, Fort Belvoir, Va. He assumed his position in May 2016. Mr. Parrish's office provides environmental compliance, environmental operations, and installation restoration support to the Defense Supply Center Richmond and its tenants. The installation's Environmental Management System became registered to the international environmental management standard, ISO 14001, in 2005 and is the only DLA activity to ever obtain and maintain this level of environmental recognition. This EMS also won the White House's Closing the Circle Award in 2005 and in 2009, and the Secretary of Defense Environmental Award in 2011. Mr. Parrish has nearly 40 years of Federal service.

5.3

Joan Hughes

Joan Hughes serves as NASA's Agency Energy Manager, leading the Agency's energy and water efficiency program planning and policy development to support NASA's mission by improving the affordability and sustainability of NASA facilities. She began her career as a petroleum engineer, then spent time exploring other fields, all concerned in one way or another with sustainability. Hughes is an Association of Energy Engineers, CEM, and Certified Measurement and Verification Professional.

Jerrilyn Goldberg

Jerrilyn supports federal adoption of continual improvement management systems as a member of the 50001 Ready program team. This supports her research on organizational barriers that limit improvements to organization-wide sustainability efforts/programs.

5.4

David Kumar

Mr. David Kumar is an Environmental Engineer with HQ USAF Civil Engineering Directorate (Pentagon) and Registered Environmental Manager with 30 years' experience in the Air Force. DAF EMS policy/program manager.

Whitney Miller

Ms. Whitney Miller is an Environmental Subject Matter Expert for the DAF EMS at the Air Force Civil Engineer Center, San Antonio, TX; and has been leading Air Force execution of EMS and Management Reviews at approximately 90 EMS appropriate facilities.

5.5

Karen Salvini

Karen Salvini is a Sustainability Project Manager at LBNL where she works on communications, modernizing lighting, managing an EV charging program, and implementing ISO 50001 for energy and water management. Previously, Karen worked in marine research and policy at the National Oceanic and Atmospheric Administration (NOAA). Karen received her undergraduate degree in Environmental Science at Wesleyan University, her MBA at the University of California Berkeley, and a LEED AP certification.

5.6

Allan Federman

Allan is a VA Energy Warrior as a member of the VA's Energy Advisory Board. Over his 12 years at the VA, Allan has supported energy performance improvement across multiple VISNs progressing from Project to Lead Engineer and is currently transitioning to a new role within the VA as the Deputy Chief FMS.

Jerrilyn Goldberg

Jerrilyn supports federal adoption of continual improvement management systems as a member of the 50001 Ready program team. This supports her research on organizational barriers that limit improvements to organization-wide sustainability efforts/programs.

5.7

Patricia Harrington

Dr. Pat Harrington is a Sr Energy Program Analyst at DHS with over 30 years of experience in energy management, resilience, environmental restoration, waste management, and environmental planning across federal and NYS governments. She manages development of the DHS Building Assessment Tool (BAT) for integrated facility assessments and has developed policy, guidance, and training for DHS energy, resilience, and sustainability programs. Ph.D. Ecology, Registered Environmental Manager, LEED AP.

Kevin DeGroat

Kevin is a Senior Program Manager for the Antares Group, Inc, and has worked in the field of energy and environmental policy since 1985, specializing in clean energy technology and utility markets, energy policy, equipment standards and certification procedures. For the Federal Energy Management Program (FEMP) he provides analysis and advice on renewable energy, greenhouse gas (GHG) accounting and energy data for both FEMP and FEMP's agency clients. For the Department of Homeland Security, he assembles and checks all energy and GHG reporting, analyzes trends, and organizes the energy and environmental data for additional analysis. He is currently leading a team developing an easy to use, no-cost software program for agency energy auditors to enter data on building energy systems during walk-throughs to help populate DHS' databases on building condition and energy systems. For Sandia National Labs, Kevin helped organize and coordinate their joint research on smart grid technologies with other laboratories in Europe and Asia under the International Energy Agency (IEA) International Smart Grid Action Network's (ISGAN) Smart Grid International Research Facilities Network (SIRFN).

Christopher Lindsey

Chris is a consulting engineer with the Antares Group, Inc. with nearly 30 years of experience in the energy industry focusing on clean energy technology and project development. His expertise stretches across the commercial, industrial and utility scale and he has worked on projects for both public and private sector clients. He holds a BSME from Virginia Tech and is a project management professional.

6.1

Richard Albores

Richard L. Albores is currently acting Federal Facilities Office Director in the Office of Enforcement and Compliance Assurance. He comes to the position from his role as Attorney Advisor in the Solid Waste and Emergency Response Law Office of the Office of General Counsel (OGC). He counsels client offices in regulatory development and defensive litigation under the Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA), the Clean Water Act, the Oil Pollution Act of 1990, as well as counseling on Presidential Directives governing emergency activities for disaster response, recovery and mitigation issues.

He previously served as Associate Deputy General Counsel where he assisted in the leadership team to manage and oversee the Agency's legal issues across the nation. Prior to that he was Acting Office Directory and Acting Deputy Office Director leading and directing the Agency's federal facilities enforcement office of the Office of Enforcement and Compliance Assurance (OECA). Richard also spent four years as Chief of Staff and Legal Counselor in the Immediate Office of OECA providing litigation, legislative, and regulatory counseling to the Assistant Administrator on a wide range of administrative, civil, and criminal enforcement matters, as well as, the compliance activities of the Agency. Richard is admitted to practice in the State of California and is a member of the U.S. Supreme Court Bar. He received his J.D. from the University of California-Berkeley School of Law, and his B.S. in Biology, magna cum laude, from Loyola University of Chicago.

6.2

Timothy Adkins

Timothy (Ty) Adkins is a physical scientist with NIH's Office of Research Facilities (ORF), Division of Environmental Protection (DEP).

Craig Upson

Craig Upson is a physical scientist with NIH's Office of Research Facilities (ORF), Division of Environmental Protection (DEP).

Bill Steinmetz

Bill Steinmetz is an environmental compliance specialist at the National Institute of Environmental Health Sciences in Research Triangle Park, North Carolina.

Paul Johnson

Paul Johnson serves as the environmental manager at the National Institute of Environmental Health Sciences in Research Triangle Park, North Carolina.

6.3**Ellen Mank**

Ellen Mank began work with Maryland Department of the Environment's Oil Control Program in April of 2015 and currently inspects underground storage tank facilities for regulatory compliance and responds to surface spills of oil. She has also worked for Wildlife International, Ltd. in Easton, MD from 1990 to 2000 as an aquatic toxicologist/chemist. Ellen graduated from VA Tech in 1990 with a B.S. in Biology.

6.4**Annie Hoyt**

Annie Hoyt is the lead-based paint enforcement coordinator for EPA Region 3 in the Enforcement and Compliance Assurance Division. She develops enforcement cases related to the Renovation Repair and Painting Rule and the Lead Disclosure Rule. She also provides compliance assistance. She has been with EPA for over 20 years.

Paul Ruge

Paul Ruge is a lead inspector for the USEPA. He inspects for compliance with the Repair, Renovate, and Paint Rule (RRP) and 1018 Lead Disclosure Rule. He also audits training classes for compliance with the EPA curriculum, and for training class certification as well as attending various home shows to inform the public about the dangers of lead paint and the requirements they should be concerned about when purchasing, leasing, or repairing a pre-1978 constructed residence.

Bruce Haber

Bruce Haber is the Director of the Program and Regulatory Support Division in the HUD Office of Lead Hazard Control and Healthy Homes. He is based in Washington, DC and provides program oversight and technical support to grantees and stakeholders. He is responsible for evaluation and enforcement of the federal Lead Disclosure Rule and Lead Safe Housing Rule in private and publicly assisted target housing. Prior to joining HUD, he was a licensed lead inspector and risk assessor for over 20 years and was a principal training instructor for state licensure in lead, asbestos and hazardous material courses at a private engineering and consulting firm.

Stephanie Brown

Stephanie Brown is an enforcement attorney at EPA headquarters, in the Office of Civil Enforcement within EPA's Office of Enforcement and Compliance Assurance. She has been an environmental attorney for over 30 years – and has worked in EPA's lead-based paint enforcement program for over 18 years.

Aimee Hessert

Aimee Hessert works at EPA headquarters, in the Federal Facilities Enforcement Office within EPA's Office of Enforcement and Compliance Assurance. Her work includes lead-based paint enforcement at federal facilities. She has over twenty years of experience in EPA's in the Office of Enforcement and Compliance Assurance.

6.5**Tim Goering**

Tim Goering is an Environmental Professional working for Triad National Security at Los Alamos National Laboratory. He has a Bachelor of Arts degree in Environmental Science from the University of Virginia, and an Master of Science degree in Hydrology and Water Resources from the University of Arizona. He has more than 35 years of experience in the environmental field, with much of his work in hydrology and environmental characterization and remediation. He currently works in the Environmental Protection and Compliance Division at Los Alamos National Laboratory on a variety of issues, including providing technical support related to development and implementation of, and compliance with, New Mexico Water Quality Standards under Section 20.6.4 NMAC.

6.6

Russ Brauksieck

Russ Brauksieck is an engineer with EPA's Office of Underground Storage Tanks and has been with EPA since February 2021. Prior to joining EPA Russ was with NYS Department of Environmental Conservation where he was involved with the underground and aboveground storage tank programs for over 35 years. Russ also had the opportunity to participate with the National Workgroup on Leak Detection Evaluations for 8 years and with the ASTSWMO Tanks subcommittee for 10 years.

6.7

Kevin Kennedy

Kevin Kennedy serves as the Regional Environmental Coordinator for the Army's Regional Environmental and Energy Office - Northern.

6.8

Julie Jordan

Julie Jordan is a Management and Program Analyst in the front office of the Enforcement and Compliance Assurance Division at US EPA Region 9. In her current role she acts as Federal Facilities Program Manager and FIFRA Enforcement Officer. She is also the main Contracting Officer's Representative for the Division and manages the federal credential and training program, amongst other duties. She has been with EPA Region for 22 years and spent her early years with the region in the Pesticides Office.

6.9

Sasha Gerhard

Ms. Gerhard has over 20 years' experience with the Environmental Protection Agency (EPA) developing rulemakings, policy, and guidance as it relates to the thermal treatment of hazardous waste and energetic hazardous waste under the Resource Conservation and Recovery Act. She currently serves as the Energetics Team Lead within EPA's Office of Resource Conservation and Recovery and focuses on regulatory and permitting challenges related to open burn/open detonation (OB/OD) operations, as well as facilitation of alternatives to OB/OD.

7.2

Salma Elmallah

Salma is a detailee with the J40 initiative in the Department of Energy's Office of Economic Impact and Diversity, as well as a PhD candidate in the Energy and Resources Group at UC Berkeley and a Graduate Student Research Assistant at Lawrence Berkeley National Lab. Her research primarily applies mixed qualitative and geospatial methods to questions surrounding infrastructure planning and just transitions.

7.3

Natalie Popovich

Dr. Natalie Popovich is a Research Scientist in the Energy Analysis and Environmental Impacts (EAEI) Division at Berkeley Lab and a Justice40 Fellow for the Department of Energy Office of Economic Impact and Diversity. She is an environmental economist whose research focuses on the interactions of land use, networks, and travel behavior. She examines how transportation systems affect community resilience and accessibility. Her current focus is on potential grid resilience impacts of battery-electric rail and marine modes. She completed her PhD in Agricultural and Resource Economics and her MS in Transportation Policy at UC Davis.

7.4

Jimmy Parrish

Jimmy Parrish is the Chief, Environmental Management Division, DLA Installation Management Richmond. DLA Installation Management is an activity of the Defense Logistics Agency, Fort Belvoir, Va. He assumed his position in May 2016. Mr. Parrish's office provides environmental compliance, environmental operations, and installation restoration support to the Defense Supply Center Richmond and its tenants. The installation's Environmental Management System became registered to the international environmental management standard, ISO 14001, in 2005 and is the only DLA activity to ever obtain and maintain this level of environmental recognition. This EMS also won the White House's Closing the Circle Award in 2005 and in 2009, and the Secretary of Defense Environmental Award in 2011. Mr. Parrish has nearly 40 years of Federal service.

7.5

LaToria Whitehead

Dr. LaToria Whitehead is currently serving on a temporary assignment as a Senior Advisor at the Department of Health and Human Services (HHS), Office of the Assistant Secretary for Health (OASH), Environmental Justice Unit (EJU). In this role, Dr. Whitehead provides subject matter expertise by leveraging information and research to create original, innovative ways to address both new and historical environmental justice issues for disadvantaged communities. She has been at CDC for 18 years.

Leo Gumapas

CDR Leo Gumapas is a South Carolina licensed Environmental Engineer who graduated from Clemson University with a both Bachelors of Science in Chemical Engineering and a Master of Science in Environmental Engineering. He has over 13 years of environmental engineering experience in drafting permit applications, enforcing the Clean Air Act, developing and implementing pollution prevention strategies as well as managing environmental compliance programs. He currently serves as the Environmental Program Chief for Program Support Center. He has served as both a Project and Program Manager for the National Institutes of Health (NIH) developing both the Environmental Compliance Program and the Industrial Water Treatment Programs for the NIH Bethesda Campus Central Utility Plant (CUP). He was recognized for these efforts in the CUP for being the 2020 National Society Professional of Engineers (NSPE) NIH Engineer of the Year award recipient.

7.7

Jimmy Parrish

Jimmy Parrish the Chief, Environmental Management Division, DLA Installation Management Richmond. DLA Installation Management is an activity of the Defense Logistics Agency, Fort Belvoir, Va. He assumed his position in May 2016. Mr. Parrish's office provides environmental compliance, environmental operations, and installation restoration support to the Defense Supply Center Richmond and its tenants. The installation's Environmental Management System became registered to the international environmental management standard, ISO 14001, in 2005 and is the only DLA activity to ever obtain and maintain this level of environmental recognition. This EMS also won the White House's Closing the Circle Award in 2005 and in 2009, and the Secretary of Defense Environmental Award in 2011. Mr. Parrish has nearly 40 years of Federal service.

7.8

Krystal Brumfield

Krystal J. Brumfield is Associate Administrator, Office of Government-wide Policy, of the General Services Administration. Ms. Brumfield has a storied career serving in various roles where she has led cross-functional teams to ensure streamlined performance, promoting the inclusion of minorities and women, lead legislative agenda on contracting and taxes, and vetting nominees for the Small Business Administration.

Nina Albert

Nina M. Albert serves as the Commissioner of the Public Buildings Service (PBS) at the General Services Administration (GSA). As PBS Commissioner, she manages the nationwide asset management, design, construction, leasing, building management and disposal of approximately 371 million square feet of government-owned and leased space across the United States and six territories. Albert brings 20 years of experience in public real estate disposition, public-private partnership negotiations, economic revitalization, and sustainable development to GSA. Albert most recently served as Vice President of Real Estate and Parking at the Washington Metropolitan Area Transit Authority (WMATA), where she managed a multi-billion-dollar real estate portfolio. A military veteran, Albert served as a first lieutenant and Company Executive Officer of the U.S. Army Signal Corps. Albert holds a Master of Business Administration and Master of City and Regional Planning from the University of North Carolina Chapel Hill and a Bachelor of Science in Mechanical Engineering from Tufts University.

8.1

Kylie Burkett

Ms. Kylie Burkett is a Masters' student at the University of Illinois at Urbana-Champaign majoring in Civil and Environmental Engineering with a focus in Energy, Water, Environment Sustainability. She is also a student researcher with the USACE Construction Engineering Research Laboratory. Her interests are in water resilience, water accessibility, and environmental justice.

Aaron Takahashi

Mr. Aaron Takahashi is a researcher with USACE Construction Engineering Research Lab seeking out innovative solutions around water resources to provide mission assurance through sustainability and resilience. His twenty years of experience is primarily infrastructure planning, project management, and construction and is mixed between public and private industry.

Bennett Kang

Mr. Bennett Kang is a graduate student at the University of Illinois at Urbana-Champaign. He also assists in completing water resilience projects for USACE ERDC-CERL. He enjoys learning about the relationship between water and society, a broad field generally known as socio-hydrology.

Mike Duczynski

Mr. Mike Duczynski is a research civil engineer at the USACE Construction Engineering Research Laboratory. His focus is water and environmental security, sustainability, resilience, and climate adaptation.

Noah Garfinkle

Mr. Noah Garfinkle is a research civil engineer at the USACE Construction Engineering Research laboratory. Noah is the program manager for the Army Engineer Research and Development Center Water Use Security research program, where he specializes in infrastructure resilience and security.

8.2**Ethan Epstein**

Ethan Epstein is the Program Manager and Technical Lead for the Federal Energy Management Program's (FEMP) resilience program. At FEMP, Ethan works with both the National Renewable Energy Laboratory (NREL) and the Pacific Northwest National Laboratory (PNNL) to provide federal facilities with technical assistance and develop resources and tools focused around energy/water resilience and climate change. This includes developing strategies to integrate various programmatic efforts including but not limited to climate adaptation, mitigation and resilience, decarbonization, resilience quantification, and resilience planning.

Julia Rotondo

Julia Rotondo is a Program Manager at Pacific Northwest National Laboratory with over 8 years' experience working on energy, cybersecurity, climate change, resilience, and buildings efficiency issues. This experience includes leading cybersecurity strategy development, research on connected technologies, and technology roadmap development. At PNNL, Julia works on developing resources to enhance the resilience planning capabilities of federal facilities, developing resources to enhance the cybersecurity posture of federal facilities, and strategic approaches for addressing climate change.

Hannah Rabinowitz

Hannah Rabinowitz is an Earth Scientist at the Pacific Northwest National Laboratory whose work strives to improve energy and water resilience at federal sites, with a particular focus on resilience to natural hazards, including those impacted by climate change. This includes developing strategies for sites to incorporate decarbonization and resilience priorities into their energy and water planning decisions. At PNNL, Hannah's research includes developing and implementing risk assessment methodologies as well as investigating challenges and opportunities related to renewable energy technology deployment.

8.3**David Keller**

David Keller currently manages the Department of State Bureau of Overseas Buildings Operations' (OBO) Climate Security & Resilience Program. In this role, he manages a number of contracts, in-house subject matter experts, and interagency partnerships to support OBO and diplomatic posts in identifying and reducing risks to personnel and property from natural hazards such as earthquakes, extreme winds, tsunamis, landslides, flooding, extreme heat, and water stress. Prior to joining OBO in 2015, Mr. Keller worked for seven years as a structural/blast engineer at Weidinger Associates in Washington, DC conducting vulnerability/feasibility studies, providing blast resistant

designs, and offering other structural engineering services for various government agencies. He received his Bachelor's and Master's Degrees in Civil Engineering from the University at Buffalo.

8.4

Tim Harper

Tim Harper is the FLETC Energy and Sustainability Program Manager for FLETC's four Training Delivery Points. He has a degree in Mechanical Engineering from Auburn University and has worked for FLETC for over 26 years. Prior to FLETC, he worked for the Army and the Navy.

Todd Braun

Todd Braun is the Cheltenham Administrative Officer. He oversees a \$10.3M budget; 24 service contracts; 2,052 items of accountable property; 72 facilities on 374 acres, including a 157,000 square foot indoor firing range and 2.2-mile driver training track; 52 environmental permits, plans, and reports; and a 94-vehicle training fleet. Mr. Braun originally served as the site Environmental Protection Specialist. He came to FLETC from the U.S. Air Force, where he served as the Water Program Manager at Joint Base Andrews, Maryland. Mr. Braun previously served 20 years on active duty with the Air Force in the Civil Engineer career field.

8.5

Marie Britt

Marie Britt, P.E., is an Energy Engineer and Environmental Program Analyst with the Resilience, Sustainability, & Energy Management Program at the Department of Homeland Security. She supports a team that is responsible for implementing policy and guidance for the Department on resilience, sustainability, and energy/water related matters. She led the development of the DHS Climate Action Plan, which was submitted and approved by the White House in September 2020. Over the past 12 years she has led and supported large-scale government, sustainability, energy, and environmental programs and projects. Prior to Federal service, Marie worked in the private sector on hydraulic projects and developed computer models for floodplain management. She is a registered Professional Engineer and Certified Energy Manager.

Anneke Frederick

Anneke Frederick is the Environmental, Energy and Sustainability Program Lead, within the Operations Support Office, of the Cybersecurity and Infrastructure Security Agency (CISA). As the Environmental Program Lead, Anneke is responsible for assisting and supporting CISA operations and facilities to ensure they comply with Federal, state, and local environmental laws, regulations, Executive Orders, and DHS Directives to protect human health and the environment. Anneke's primary goal in her role as CISA's Environmental Program Lead is to update agency environmental policy and directives and continue increasing awareness and integration of environmental considerations into CISA programs and activities. Anneke joined DHS in 2005 and was the lead for the US Customs and Border Protection Historic Preservation Program. Prior to her service with DHS, she worked for the Department of Navy, Naval Air Systems Command (NAVAIR) as the lead for the development of Programmatic Environmental, Safety and Occupational Health Evaluations (PESHE) and was the lead for the Naval Sea Systems Command (NAVSEA) program for environmental compliance inspections and the tracking and reporting of injury and illness metrics at naval installations. Ms. Frederick is a well-rounded environmental professional with 29 years of experience in environmental planning and compliance, occupational, safety and health, policy development, and identification and resolution of environmental issues. She is also a DHS Joint Mission Fellow trained and certified in crisis leadership.

David LoVullo

David LoVullo is an engineer and project manager at the U.S. Department of Energy (DOE) National Renewable Energy Lab's (NREL). He leads NREL's support for the U.S. Department of Homeland Security's (DHS) energy and resilience program. He leads resilience planning activities, provides technical assistance for building and campus-level energy assessments, and facilitates energy and resilience meetings for DHS components. He developed the Resilience Baseline Assessment Scoring Tool utilized in DHS's component resilience plans. David is the project manager for the Architect of the Capitol's Utility Master Plan and Resilience Assessment efforts and is a technical assistance lead for the DOE Federal Energy Management Program's Technical Resilience Navigator pilot program. He has conducted resilience and energy assessments at more than a dozen federal agency

sites. He has a Master of Science in Architectural Engineering from the University of Colorado at Boulder and a Bachelor of Science in Physics from Syracuse University.

Bonnie P. Herriott

Bonnie P. Herriott is currently the Sustainability Program Manager with the Energy and Environmental Division (EEMD) at the Department of Homeland Security at the Customs and Border Protection Agency and is the EEMD liaison for the Climate Change program. Bonnie previously served on Active Duty in the United States Air Force for seven years and has always had a passion for environmental awareness and upon separating from the military, she dove headfirst into everything she could that was environmentally related. She previously mapped the GPS locations of the rain gardens and green roofs in DC at the time, conducted a white paper analysis of the effects of Lead in the Drink Water in children as well as a host of environmental internships. Bonnie graduated with an Associates in Science in Marine Science and Water Quality as well as a Bachelor of Science in Environmental Science from the University of the District of Columbia. She later went on to attend the George Washington University where she received her World Executive Masters in Business Administration. She has held positions at the DC Army National Guard and the Food and Drug Administration working with sustainability efforts and initiatives with the Environmental Management System (EMS) program.

8.6

Brent Kurapatskie

Brent Kurapatskie is a Sustainability Program Manager in the Energy and Resource Efficiency Program within the Office of Facilities, Information and Asset Management. He is responsible for the development and oversight of policies and programs addressing energy, environmental and sustainability requirements and regulations across the department.

He has 23 years of environmental policy and strategy development experience at the U.S. Department of Transportation, U.S. Postal Service and private sector. He holds a Ph.D. in Environmental Science and Public Policy from George Mason University, a Master's degree in Environmental Science and Policy and an M.B.A. from Johns Hopkins University.

Dr. Dan Flynn

Dan Flynn is a data scientist at the Department of Transportation's VOLPE National Transportation Systems Center with 15 years of experience in quantitative research on transportation safety, land use, and environmental science. His research projects span across modes, using statistical tools to derive insights from and create compelling visualizations of complex data sets.

8.7

Abigail Rice

Ms. Abigail Rice is a researcher at the U.S. Army Corps of Engineers, Engineer Research and Development Center's Construction Engineering Research Laboratory in Champaign, IL. As part of her organization, she collaborates with an interdisciplinary team in the Source Reduction and Resource Resilience (SR3) program studying a variety of environmental topics of interest, including solid waste, in the setting of Military Installations and Military contingency operations as it relates to policy and agency mission objectives. Ms. Rice's research efforts enable the development of tools and solutions for informed best management and sustainability practices into the future.

8.8

Ann Kosmal

Ann Kosmal F.A.I.A. is an Architect for the Office of Federal High Performance Buildings at the U.S. General Services Administration. Ann safeguards assets from the observed and expected changes in climate for prudent investment, risk management, and augments life safety, public safety, health, and security. She prompts design innovation and bolsters our Nation's global competitiveness in the emerging sector of climate security which cannot be off-shored or outsourced. Ann is a co-author of the United States' Fourth National Climate Assessment's Built Environment chapter. She is a Fellow of the American Institute of Architects, a Certified Passive House Consultant, and a Certified Permaculture Designer.