

U.S. Environmental Protection Agency
Environmental Financial Advisory Board

Meeting Summary

August 21-22, 2018

Meeting held at:

EPA Region 5
75 W Jackson Ave., Chicago, IL

EPA-850-S18-002

The minutes reflect a summary of remarks and conversation during the meeting. The Board is not responsible for any potential inaccuracies that may appear in the minutes. Moreover, the Board advises that additional information sources be consulted in cases where any concern may exist about statistics or any other information contained within the minutes.

Meeting Purpose

The EPA's Environmental Financial Advisory Board (“EFAB”) held a public meeting on August 21-22, 2018. The EFAB is an Environmental Protection Agency (“EPA” or “the Agency”) advisory committee chartered under the Federal Advisory Committee Act to provide advice and recommendations to the EPA on creative approaches to funding environmental programs, projects, and activities. The purpose of this meeting is to hear from informed speakers on environmental finance issues, proposed legislation, and EPA priorities.

Attendees

EFAB Members

- Aurel Arndt, Lehigh County Authority
- Lori Beary, Iowa Finance Authority
- Janice Beecher, Michigan State University
- Theodore Chapman, S&P Global Ratings
- Rudolph Chow, City of Baltimore, Department of Public Works
- Edwin Crooks, Transurban
- Hope Cupit, Southeast Rural Community Assistance Partnership (RCAP)
- Lisa Daniel, Public Financial Management
- Yvette Downs, Sewage & Water Board of New Orleans
- Ted Henifin, Hampton Roads Sanitation District
- Heather Himmelberger, Southwest Environmental Finance Center, University of New Mexico
- Craig Holland, The Nature Conservancy
- Jeff Hughes, Environmental Finance Center, University of North Carolina at Chapel Hill
- Daniel Kaplan, King County, Washington Department of Natural Resources and Parks
- Suzanne Kim, SPI Partners
- Pamela Lemoine, Black & Veatch Management Consulting, LLC
- James McGoff, Indiana Finance Authority
- Chris Meister, Illinois Finance Authority
- Marie Roberts De La Parra, BMB Construction Properties
- Eric Rothstein, Galardi Rothstein Group
- Linda Sullivan, American Water
- Joanne Throwe, Maryland Department of Natural Resources
- Angie Virnoche, FCS Group
- Jeff Walker, Texas Water Development Board
- Richard Weiss, Morgan Stanley
- William Stannard, RAFTELIS
- David Zimmer, New Jersey Infrastructure Bank

EFAB Members unable to attend the meeting:

- Brent Anderson, RESIGHT
- James “Tony” Parrott, Metropolitan Sewer District of Louisville
- Carl Thompson, Infiltrator Water Technologies, LLC
- Jennifer Wasinger, Freese and Nichols, Inc.

Additional Attendees

- Gerry Baker, EPA Region 5
- Glenn Barnes, Environmental Finance Center, University of North Carolina at Chapel Hill
- Lisa Bonnett, Illinois Finance Authority
- Mary Ann Boyle, Metropolitan Water Reclamation District of Greater Chicago
- Sonia Brubaker, EPA
- Dr. Elliott Campbell, Maryland Department of Natural Resources
- Heather Cannon, Environmental Finance Center, Rural Community Assistance Corporation
- Sarah Cardona, Metropolitan Planning Council
- Gabriella Carvalho, EPA Region 10
- Edward Chu, EPA Region 7 Deputy Administrator, EFAB Designated Federal Officer
- Tim Colling, Great Lakes Environmental Finance Center, Michigan Technological University
- Jennifer Cotting, Environmental Finance Center, University of Maryland
- John Covington, EPA
- Alecia Crichlow, EPA
- Khris Dodson, Environmental Finance Center, Syracuse University
- Josh Ellis, Metropolitan Planning Council
- Brad Fletcher, Illinois Finance Authority
- Leo Gueriguian, EPA
- Ray Kljajic
- Thomas Liu, Bank of America Merrill Lynch
- Justin Keller, Metropolitan Planning Council
- Ramsey Mahmoud, Environmental Finance Center, California State University at Sacramento
- Timothy McProuty, EPA
- John Murray, Metropolitan Water Reclamation District of Greater Chicago
- Ryan Occhsler, Illinois Finance Authority
- John Padalino, Environmental Finance Center, National Rural Water Association
- Michelle Pugh, Environmental Finance Center, Wichita State University
- Dr. Andrew Sawyers, EPA
- Martha Sheils, New England Environmental Finance Center, University of Southern Maine
- Scott Sigman, Illinois Soybean Association
- Adam Slade, Metropolitan Planning Council
- Cathy Stepp, EPA Region 5 Administrator
- Cameron Wilson, Illinois Finance Authority

Day 1 – August 21, 2018

Introductions & Opening Remarks

Dr. Andrew Sawyers

Ed Chu

Joanne Throwe

The meeting began at 8:46 am with *Ed Chu* welcoming all attendees. Before beginning discussion of the meeting's agenda, Mr. Chu thanked *Dr. Andrew Sawyers* for his service to the Board.

Dr. Sawyers – thanked all in attendance, especially the Environmental Protection Agency (EPA) team who organized the meeting. He extended his appreciation to *Chris Meister* for providing a good welcome to Chicago and the Environmental Financial Advisory Board (EFAB). He noted that this was not a farewell to the Board in full. Dr. Sawyers shared that the Board has provided many reports that have made a difference at the agency, on both financial ideas and programs. He noted the importance of the EFAB going forward, as it is a critical time for the agency in terms of broad infrastructure; the administration has a broad infrastructure strategy that takes into consideration issues around life cycles, leveraging, and ensuring federal resources are used wisely. He advised the Board that many of the projects they are currently pursuing play a role in how the larger infrastructure strategy gets rolled out nationally. The Board continues to be an important advisor to the agency, and as conversations with the Administrator's office continue, the administration has expressed support for and understands the importance of the Board, both financially and programmatically. Dr. Sawyers recollected that when he was the acting Designated Federal Official (DFO), he wanted to pass the job to someone who did not work at the EPA Headquarters office, but a senior official from one of the other offices. He welcomed Ed Chu and reminded him of his role in supporting the Board, procuring additional support throughout the agency, and getting additional resources from the Administrator. He also introduced and welcomed *Joanne Throwe* as the new Chairperson.

Dr. Sawyers provided biographical information on Mr. Chu and noted his time as the Deputy Regional Administrator in Region 7. He has the distinction of being the most senior EPA official who has worked in the most regions. He has done an incredible job over his career in his leadership in energy, water, and during his time in Region 5 as Acting Administrator. He has a wealth of knowledge, has supported the Board extensively over the past few years, and will continue to support the Board through leadership and stewardship, with the hope that the Board will continue to support the agency. Dr. Sawyers again welcomed Mr. Chu and thanked him for accepting this role. He noted his anticipation to hear the important conversations the group would have over the next two days.

Mr. Chu – thanked the Board for their public service. He acknowledged that they all have full time jobs, yet they show up to workgroup meetings, providing a public service to the country, the EPA, and all who try to protect the environment. He shared that he previously wanted this role ten years prior, but was told he was not ready, so he waited. Dr. Sawyers made the role one Mr. Chu really wanted and noted his excitement in working with the Board. Mr. Chu continued that Ms. Throwe and he hope the Board will continue to spend the extra time they've all committed to continue the good work they've been doing. He noted that the EFAB is one of the longest established advisory boards at the EPA, with a proud and long tradition of great public service.

Ms. Throwe – greeted the group and reminisced that when she was approached to become chair, she was extremely interested, knowing Mr. Chu would be leading it. She remarked that the group would have a lot of fun together, with a wealth of diversity to the issues, including the multimedia aspect of the EFAB that she believes will come into play. She also thanked Dr. Sawyers for his work on the Board, as well as *Alecia Crichlow, Sonia Brubaker, John Covington, and Timothy McProuty* for their roles in organizing the meeting. She noted that the Alaska Backhaul workgroup owed Mr. McProuty a debt of gratitude for bringing very thick copies of their report with him to the meeting. Ms. Throwe also recognized *Tom Liu*, who has significant expertise and experience with the EFAB, and who agreed to serve as an expert consultant to the Board. She encouraged new members to reach out to him. She noted her excitement to meet new members and conduct their orientation and thanked existing members for their hard work. Finally, Ms. Throwe introduced *Cathy Stepp* and asked the room to introduce themselves.

Ms. Throwe noted her appreciation that Ms. Stepp could join. She explained that Ms. Stepp oversees environmental protection efforts in the Great Lakes states as well as 35 federally recognized tribal governments. She manages the Great Lakes National Program, at which she leads restoration and protection of one of the largest freshwater systems in the world. Prior to her work at Region 5, Ms. Stepp served as the Principal Deputy Regional Administrator for Region 7 and the Secretary of Wisconsin's Department of Natural Resources (DNR), the third largest state agency, where she was responsible for state enforcement and protection of wildlife, fisheries, state parks, trails, forests, and environmental permitting. Ms. Stepp also served as a Wisconsin state senator from 2003-2007, representing nearly 160,000 constituents. Ms. Throwe again welcomed Ms. Stepp.

Welcome to Chicago/What's Going on in Region 5

Cathy Stepp

Ms. Stepp – thanked the group and welcomed them to Chicago. She explained that while she had prepared talking points, she thought it would be more productive to conduct a question and answer session and offered an opportunity for the Board to provide her with any important information about the EFAB or messages to deliver to the Administrator. Ms. Stepp noted that one of the most important things about environmental regulation is transparency and public involvement, which is why she is excited about the EFAB. The Board is a group of busy people who can take time away from jobs and families on behalf of the country to help the EPA move in the right direction on these important conversations and decisions. She expressed her appreciation for their tireless efforts in this regard, as the topics covered are ones the EPA needs guidance on and there is no better place to learn what's working or not than from those who see where the dollars actually hit the streets. She asked the group how the EPA can do that better and produce results that are measurable so that the successes can be conveyed to Congress and the President.

Ms. Stepp noted that in Region 5 there is never a dull moment. During her time in Region 7 there were fewer challenges, with much of that credit going to Mr. Chu's efforts, as he is someone who never says no to a challenge, always sees things through, and gives significant thought to all issues. When Ms. Stepp moved to Chicago, she was able to bring her expertise from Wisconsin to the region, particularly on issues pertaining to the Great Lakes such as drinking water and water quality challenges, including algal blooms. She noted that there is never a boring day in the region with its plethora of legacy

challenges, which is why they need gifted, brilliant and passionate people around from the public to guide the direction the EPA needs to go. Ms. Stepp continued that the EPA is science driven, but that it also needs to understand how the decisions it makes impact the public it serves. She asked how they can better explain to the public not only the risks of an incident, but also the benefits of the work they do. Government is good at bragging about how much money it provides, but the average person may ask why that matters, as those numbers are dizzying. Ms. Stepp noted that the EPA needs to do a better job of selling the benefits so that the average person understands. As an example, she noted that when discussing algal blooms, the EPA typically uses acronyms that people do not understand. However, they do understand when they cannot go swimming or fishing due to blooms, or when the drinking water they count on is unsafe to drink. She identified that active, two-way conversations and the involvement of people like those on the Board are a way to change that. She thanked the EFAB again and paused to allow questions and discussion.

Discussion and Questions

Aurel Arndt – asked Ms. Stepp where the Great Lakes Program is headed in the next few years.

Ms. Stepp – responded that one of the items she is paying particular attention to is the outcomes of investments they have made. She wants to ensure that when they fund projects, there are measurable deliverables, so they can demonstrate, document, and celebrate successes to present the program’s importance to policy makers in Washington, DC. She again noted the concept of selling benefits and highlighting successes where their investments enhance quality of life. She noted her belief that there will be more support in the future if they are able to accomplish this.

Eric Rothstein – asked if Ms. Stepp could offer her perspective on Michigan’s adoption of the new Lead and Copper Rule, and how that might affect things beyond Michigan. He also asked about the status of remediation.

Ms. Stepp – answered that they are continuing to build the relationship between the state and Flint, Michigan. She noted that it is a bit challenging at times, but that they continue since the ultimate goal is safe drinking water. She added that lead line replacement is going well. With regards to the Lead and Copper Rule, Ms. Stepp noted that the EPA is reviewing the rule. She added that the one positive outcome from this issue was that people and policy makers started paying attention to drinking water quality and failing infrastructure across the country. There is increased attention being given to the rule from the Acting Administrator as well. Ms. Stepp continued that Region 5 has provided opinions regarding the current rule and its challenges, especially given that there is increased science and technology available for better lead and copper regulation.

Ms. Throwe – noted that the EFAB would be having a discussion the following day about new charges and areas to take on. She asked Ms. Stepp whether she could think of any direction or guidance Region 5 had yet to work on that the EFAB could explore.

Ms. Stepp – responded that she would think about it. She added that she counts on the board members to inform the EPA on the issues they see. She noted emerging challenges, such as Per- and Polyfluoroalkyl Substances (PFAS) and Perfluorooctanoic Acid (PFOA), as a significant challenge, and added that while there is research being conducted in academia, the EPA also needs help with what the real risk is, as it is hard to communicate to the public without that knowledge.

Dr. Sawyers – expressed his curiosity as to what Ms. Stepp is considering when looking at quantifying benefits, not just in the Great Lakes, but also in the State Revolving Funds (SRFs). He explained that there were a number of great SRF managers in the room and asked if there were any financial challenges Ms. Stepp saw in Region 5 that she would like the EFAB to consider.

Ms. Stepp – replied that when she was at Wisconsin DNR, her team would advise her on their projects using SRF funds, but that she did not dive into the mechanics of the process. She noted her interest in learning more about that process and questioned if it is as easy as it needs to be to quickly move funds to action, whether there are process challenges, and if there are other creative ways to leverage additional funding from the private sector. She added that examples of innovative ideas could be shared with Headquarters. Ms. Stepp explained that she is a former home builder and once owned a company that sold approximately 40 homes per year. One of her greatest lessons learned from that experience was that there are sellers who show you a home and ramble off housing jargon, and there are sellers who do not focus on the home's features, but instead on how they will benefit the prospective buyer. She reiterated that if there is a way to enhance and better explain the benefits that they're investing in, they will be more successful. She provided examples such as depicting children in a tube pulled by a boat, a father and daughter duck hunting in a marsh, and healthy children smiling, all of which convey importance through emotion. She noted that the approach is somewhat like an advertising campaign, so that the EPA is in the news for positive reasons.

Mr. Meister – thanked Ms. Stepp and the agency for maintaining funding for the SRF program and noted that when projects pay less for their capital improvement funding, it translates to paying less in taxes and rates. He asked if Ms. Stepp had other suggestions for what some in attendance – particularly those from the SRFs across the country – could do to continue to deliver the message that it is a successful program.

Ms. Stepp – suggested that opportunities to speak to the public can be used to provide examples of some of the great initiatives the federal government is pursuing and why they matter. She suggested using terminology such as “SRFs” to increase awareness, as well as going out and interacting with the public to sell the benefits and provide examples of good stories that typically do not get as much publicity. She noted that this was a successful strategy during her time at Wisconsin DNR. She added the need to make it popular to love the EPA and the work it does and implored the group to help in that mission.

Ted Chapman – noted that many states deregulate and asked Ms. Stepp's opinion on whether that is positive, negative, or indifferent.

Ms. Stepp – shared her caution in giving opinions on relationships between states and municipalities. She noted that her experience in Wisconsin was that relationships differed depending on the town or city in question. Municipalities have different strengths and deficiencies, which may require increased oversight where needed. She added that some depend on individual states and how they believe they can best serve their constituents. She noted the need to remember that whether coming from the local or state level, the same people are affected.

Jeff Walker – emphasized the need to promote SRFs more but added that he feels the messaging coming from Washington, DC is that public-private partnerships (P3s) and the Water Infrastructure Finance and Innovation Act (WIFIA) are the solutions. No one seems to know about the SRF program. He provided an

example that while it may be easy to demonstrate some benefits, that may not be the case in a small community in west Texas (not located near a regional provider) that has naturally occurring radionuclides (RADs) in the water. The community is being told it must spend \$30 million to address it, or approximately \$20,000 per household, and residents ask what the benefit is. He noted the similarity to lead, where some argue there is no safe level, and asked how to show the benefits.

Ms. Stepp – responded that Administrator Pruitt had not felt there was sufficient information on WIFIA, and thus there was a push to increase awareness across the country. She noted that she was encouraged that Mr. Walker heard so much about it. She acknowledged that small community issues are difficult and solutions for issues like RADs may be unsustainable. Having conversations to raise awareness amongst the public then puts pressure on lawmakers to address federal level infrastructure improvements across the country. She added that people want to know what they are investing in, and there is a need to talk about water as an investment, not a cost. Ms. Stepp finished by thanking the Board for the work it has done, as well as for what it will continue to do.

Presentation to the Board

John Murray, Acting Executive Director, Metropolitan Water Reclamation District of Greater Chicago
Mary Ann Boyle, Treasurer, Metropolitan Water Reclamation District of Greater Chicago
Josh Ellis, Vice President, Metropolitan Planning Council

Mr. Chu – announced that prior to the next speakers, he wanted to touch base on some of the themes Ms. Stepp mentioned. He explained that one of the reasons Dr. Sawyers mentioned the multimedia program was Mr. Chu's expertise and interest in the regional differences across the country. Mr. Chu continued that a key priority area for the meeting is to look at new projects and charges for the EFAB, and that while the Board currently focuses a great deal on water infrastructure projects, he would like those in attendance to think of the broader interests of the EPA, beyond water. He noted the Alaska Backhaul project as an example and asked the Board to suggest projects that align with their interests and expertise so that the EFAB and EPA's interests are brought together and balanced.

Mr. Chu then introduced the next presenters, *John Murray, Mary Ann Boyle, and Josh Ellis.*

Mr. Ellis – began by explaining that the Riverwalk in downtown Chicago has been successful with tourists given the river's clean water and noted that efforts are funded in part by purchase of beer and wine from the restaurants along the stretch. He said that had anyone in attendance been on the Riverwalk yesterday, they would have been very wet given the intense storms. He described a situation in which tens of thousands of people in the region likely observed the storms and wondered if their basements would flood and provided two examples of crew teams who row on the Chicago River and may have wondered what would be floating in the water next to them during practice. He further described the runners along Lake Michigan who may wonder if the water fountain is safe to drink given a couple of fountains they'd heard about that tested positive for lead. Similarly, he described the families purchasing bottled water because a neighbor's house tested positive for lead. Mr. Ellis added that the average municipal size is 10,000 people, and the communities range in affluence. He explained that the poorest have the higher water rates because of the uniform socioeconomic situation and lack of affluent customers to offset rates.

Mr. Ellis noted that many communities have little capacity and mayors with no water experience, so while tools such as the SRF, WIFIA, and P3s are available, those in office do not know what they are or how to access them which makes it challenging to solve and get ahead of issues in the region. However, Mr. Ellis recognized Metro Water, who is doing a significant amount of work on the topic. He noted that while some communities are doing water work, others are not simply because they cannot, given competing priorities such as keeping schools open or paying pensions. He noted his interest in regionalization and added that he is increasingly convinced that some of the problems will require consolidation to solve. Along this point, he explained that while 200 separate utilities use Lake Michigan, others are on groundwater. He noted his interest in learning more about nutrients, stormwater, and other topics during the meeting.

Mr. Murray – provided an overview of the Metropolitan Water Reclamation District of Greater Chicago where he's been employed for 16 years. He explained their mission is to both protect Lake Michigan, the source of their drinking water, and to manage stormwater. Cook County is 885 square miles, encompassing Chicago and 120 additional municipalities, which leads to many complexities. They have combined and separate sewer areas, and seven plants that treat 1.4 billion gallons of wastewater per day. They spend approximately \$40 million on electricity and gas and are looking into ways to reduce that use through equipment and options to buy or generate their own. Mr. Murray continued that some of their plants are 70-80 years old, and that regulations have changed since they were built, necessitating rehabilitation efforts and addition of new processes to keep them running. He also noted their focus on resource recovery, including their historic use of biogas at the plants to heat boilers. Recently they restored a turbine that had been out of service for roughly 20 years, and now generates approximately 3 megawatts per day. He added that they are considering additional ways to use biogas as well. Mr. Murray continued that they operate the world's largest Ostara facility to recover phosphorus using Crystal Green, which doesn't dissolve in water. Thus, it can be taken from pre- and post-digester feeds and spread on agricultural fields where it is absorbed in the soil and does not end up in runoff. The plant has been operational for about one year, and while it does recover some of the chemical costs, it is not a revenue generator; it is, however, great for the environment. Two other large plants are under a permit requiring phosphorus limits of 1 mg/L, and they are exploring options to fulfill that.

Mr. Murray noted that they have also been charged with stormwater management since 2004 and have been building regional detention basins ranging in size. When the program began, they created watershed plans for each of the seven watersheds, working with municipalities and watershed planning councils to collect data and update the floodplain maps. The projects are large, and while building them on Metro's property is simple, it becomes more challenging to build them elsewhere, necessitating work with local stakeholders and procurement of property. Mr. Murray noted that approximately 40 projects came out of that, some of which are still ongoing. They also looked at localized flooding, green infrastructure, and smaller projects to address issues that overbank flooding would not. This phase was wildly successful. Mr. Murray explained that a large number of projects were proposed, and many communities expressed their difficulties with flooding. Mr. Murray responded that a solution would be buyouts of homes and opening of the space. After an initially negative response, they received legislative authority to buy out homes and have created open spaces, which has been successful. He also noted their work with green infrastructure, first incorporating it through sewer permit ordinances, then consent agreements that require a certain amount. Mr. Murray provided an example of one of the

partnerships between water reclamation, city water management, and the Chicago public schools. The water groups installed the infiltration infrastructure and the Chicago public schools payed for playgrounds, in what resulted in an award-winning partnership, of which Mr. Murray indicated he was very proud.

Mr. Murray continued by explaining the development of a Watershed Management Department that applied to communities outside of Chicago and required them to capture one inch of runoff by volume. This could be achieved through permeable pavement, rain gardens, swales, and more. This plan alone has increased storage capacity by almost 40 million gallons. He also outlined the regional tunnel and reservoir system, conceived in the late 1960's to early 1970's to manage stormwater. The reservoirs can hold almost 8 billion gallons. Since the project went online, Mr. Murray noted that there had only been a couple of overflows in the region, where in previous years there had typically been dozens. He added that the overflows that did occur served as learning moments that allowed them to make structural changes. They have not had one in about a year.

Ms. Boyle – explained her role as treasurer and provided background on the group's financial stability, with a AAA rating by Fitch and a AA+ rating by S&P. She thanked the Illinois EPA for their loan program, which she cited as an important source of funding for their programs. She explained that many projects qualify as water quality projects, and they recently had one approved as a stormwater loan. She provided additional background on their funding, explaining that they use ad valorem real estate taxes as their primary funding source. They do not set rates for residential customers, although they do set rates for commercial and industrial users as a cost recapture program. Ms. Boyle noted that this has worked well for them. Because of their AAA rating, they have access to capital markets, and have recently tried the SRF, which they found to be a spectacular program for many of their projects. They budget to spend approximately \$200 million per year in capital costs and have a 30-year financial plan to achieve that. Because they are under a tax cap and are limited in how much they can increase levies each year, low-interest loans work best. The engineering team helps Ms. Boyle develop a capital funding forecast, and they provide a 5-year capital program that is updated quarterly. This ensures a long time-horizon and allows for controlled scheduling of projects.

Ms. Boyle noted that their first plant will soon be 100 years old, so rehab has become their focus, as well as phosphorus and nutrient removal and technological needs. Metro has 59 loans outstanding, totaling close to \$1 billion. The largest project's financing was \$250 million, with an interest rate of 1.75% for the first loan and 1.76% for the second loan which are historic lows in interest rates compared to capital markets. Ms. Boyle added that they did issue their first refund in 2014. She noted that the engineers talk directly to investors, explaining projects, how they are evaluated, and the different metrics used. They also sold bonds in 2014 and 2016 for new capital financings. Ms. Boyle continued that looking to the future, the WIFIA may be another subsidized financing arena for them, although they are not yet sure how exactly it will fit into their program given the successes they have achieved with the SRF. However, Ms. Boyle did conjecture that the WIFIA would likely be of interest when they approach longer useful life programs, since the SRF only has 20-year loan amortization. She noted that they listen to webinars and find them very helpful. Ms. Boyle added that while they have not looked at P3s, they may be of interest for resource recovery. She finished by saying they are always listening for new opportunities and continuing to focus on having capital funds available. She thanked the partners in the room and noted that the loan programs have greatly benefited taxpayers.

Discussion and Questions

Heather Himmelberger – commented that in regionalization, oftentimes large utilities have smaller ones within their boundaries, or just outside. She asked if they do anything actively to encourage regionalization, how they feel about it, whether they try to get systems to join up, and generally how that process works.

Mr. Murray – responded that they do not actively pursue making the agency bigger, as it started with the city of Chicago and has grown over the years.

Mr. Ellis – added that from the water supply side, they have seen regionalization occur when utilities were in the process of determining whether to remain on groundwater or switch to Lake Michigan. In the western edge of the area, there are many suburban communities facing limitations on groundwater, and there are clusters of communities looking at the Fox River or Lake Michigan. He noted that he is helping them consider their options and weighing potential benefits and detriments. He noted that he imagines these issues will trigger some regionalization efforts. Mr. Ellis noted his interest in the low-capacity staff areas connected by drinking water pipes in the Lake Michigan resource area, and whether it makes sense for them to regionalize service and operations to address current rate structures and achieve better loan ratings. He added that he is encouraging that as a pathway.

Jeff Hughes – noted his fascination with the ad valorem tax approach and explained that he works with challenges of allocating costs, especially in locations such as Baltimore, Atlanta, and Philadelphia where there are significant stormwater fees. He asked how they found the experience of using ad valorem taxes, and given their successes in raising money would they recommend them?

Ms. Boyle – responded that they are very protective of their ad valorem taxes. She noted that there is some leveling out for economically disadvantaged communities, but it has been a long history that has been successful compared to a rate assessment. She continued that because of the strong statute in Illinois, collection is guaranteed; if a homeowner does not pay then the mortgage pays, or they lose the property. This has provided a consistent collection of 97% per year. When asked what their rate is, Ms. Boyle responded that it is 40 cents.

Richard Weiss – referenced a show he watched explaining the history of the Chicago River, including its reversal, and asked about that.

Mr. Ellis – responded that the Chicago and Kennedy Rivers were reversed, and canals connecting the Mississippi River system to the Great Lakes were built. This created a pathway for invasive species, most notably carp, but also mussels, small fish, viruses, bacteria, weeds, and more. He noted that just this past week, three new invasive species were discovered. This issue has prompted some to think about separating the two systems, whether by physical or chemical means. He noted that given the city's reliance on the waterways for shipping and transportation needs, there is no current pursuit of re-reversal.

Lisa Daniel – commented that a number of her clients are dealing with infrastructure around resilience planning and noted that the EFAB has taken this issue on as a charge: where to invest to prevent costs later. She asked whether they have thought about capital plans as an investment in preventing costs and loss later.

Mr. Murray – responded that yes, they have.

Mr. Chu – thanked the presenters and provided brief housekeeping information. The Board then separated into the workgroup breakout sessions.

EFAB Report Out: Chesapeake Bay Metrics

Suzanne Kim
Craig Holland

Mr. Chu – welcomed the group back after a lunch break and introduced the Chesapeake Bay Metrics workgroup.

Suzanne Kim – began the presentation by relaying that the report was almost final and needed members' comments. She indicated that they would send the written manual and a Microsoft Excel spreadsheet around for comment. She explained that their aim was to provide a perspective on private equity capital versus debt capital, and they created a model to demonstrate how the fund manager is aligned with the project. She added that without achieving a return or certain type of hurdle, investors would not pay.

Craig Holland – continued that the original charge was to determine how to leverage additional private capital financing into Chesapeake Bay water quality projects, but as they worked with the Bay Program they decided to split the charge into a few components. He added that this charge is somewhat of a financing 101 type of charge, in which they are attempting to clearly explain the perspective of the private equity investor and how he or she might view the project, it's potential stakeholders, and how it would be transacted. He continued that it was not meant to be an exhaustive review of procurement or financing structures but rather a basic understanding of the private equity investor perspective.

Ms. Kim – reviewed that the key stakeholders fall into the following groups: equity providers, debt capital lenders, project developers, market regulators, and municipalities that must meet regulatory requirements (i.e. credit purchasers). She noted that their model depicts where and how equity and debt investors earn returns. She then reviewed the model and explained that black values are outputs and blue values are inputs. The model includes five fake projects with various inputs, which are described in the accompanying document, all of which roll up into a fund cash flow. The final output is the amount the investor would return, based on cash flows, and what the fund manager would get, as a means of showing how key stakeholders receive their capital.

Mr. Holland – added that they did not conceive of the model as a decision-making tool, but instead one to show the variables that a private equity investor would consider when determining whether to invest. He acknowledged that should the Bay Program input real numbers they could use the model to pitch new programs or projects, but again reiterated that they did not envision it as a decision modeling tool. The model and its accompanying explanation of basic financial concepts and stakeholder perspectives was the first charge. Mr. Holland continued that the second charge is how this private equity structure may use public dollars such as the SRFs and under what circumstances those funds could be used. He also identified a potential third charge that would entail expansion of revenue sources that could secure financing.

Ms. Kim – reiterated that for this charge, the model attempts to capture benefits as credits purchased by the municipality and includes capital costs and recurring O&M costs beyond the timeframe when the

model is generating purchasable credits. In summation, the model attempts to capture all the costs in a project, and by doing so, establish who the stakeholders are. She noted that they had hoped to have the draft finalized by the meeting but would welcome comments so that it can be finished soon. She also added that they are soliciting additional help on the committee, especially from those with experience in private structures, bringing private borrowers into the structure, and borrowing SRF financing. She also asked if any board members know of case studies they could review to support their efforts.

Discussion and Questions

Martha Sheils – noted that Vermont is changing its state legislation to allow private investors to borrow from the SRF to ensure sustainable systems. They are offering funds just below market rate, but above what a public entity can borrow at. She indicated that she could put the committee in touch with someone in Vermont.

Ms. Throwe – asked whether there were any board members who could provide guidance on the charge.

Yvette Downs – asked to clarify that this portion of the charge is complete, and that it is seeking approval.

The committee responded that was correct, and that guidance would be needed on part two of the charge.

Mr. Holland – added that if others with experience in P3s and/or raising public money into private structures for alternative delivery would be able to join and assist, they could use their help. He noted that because of the issue's complexity and its plethora of interrelated issues (regulation, local policy, securing revenue, procurement, various financing structures, legal issues, etc.), they had primarily focused on how to procure private financing for water quality projects.

Mr. Throwe – noted that the work is necessary and important, and commented her interest in a charge from a regional office's program where the state governors are playing an active role. She noted the opportunity to provide recommendations and move forward.

Ms. Daniel – asked whether the workgroup was thinking about private equity and SRFs in the context of social or environmental impact, or whether those were separate.

Mr. Holland – responded that it is a structure they could look at, but that to date they had been only considering more traditional private equity.

Ms. Kim – added that if a project is targeted at a 5% return, it likely would not attract a private equity investor but that if it had a low-cost leveraging mechanism it could be boosted and potentially become more attractive.

David Zimmer – noted that when his group in New Jersey is involved, they fund an entire project except the small percentage that is not covered under the SRF. He noted that after thinking about the issue, he only sees redevelopment projects as ones where SRF and private equity models could merge to split risks. He added that typically he does not want to take on that risk but would rather fund his piece of the project 100% with less than 2% interest.

Mr. Holland – responded that Mr. Zimmer’s point made sense and added that because the Bay Program deals with nonpoint source pollution, some of the financing needed would not qualify for the SRF. However, if there were a way to subdivide the financing and generate water quality credits, for which there is a demand, that could be an idea the Bay Program may like to explore further.

Mr. Zimmer – commented that his perception is that the SRF works on a larger redevelopment project with a municipality, of which stormwater is an aspect. However, since SRFs cannot fund stormwater projects, he suggested that a municipality would take on the risk and loan funds for the redevelopment program. The municipality would approve of the project and rates, so they would borrow funds, lend them, then be compensated for the construction risk. The redeveloper would agree to provide benefits for a period of time under contract and would receive inexpensive funds in exchange. Finally, a private equity investor would finance the remainder of the project. Mr. Zimmer indicated that this was his sense of how the SRFs could be leveraged with P3s.

James McGoff – noted that he could think of only one example from the SRF program, which is in preliminary discussions now. The example concerns a large pump manufacturer in discussion with a small start-up private equity investor interested in the \$5-\$10 million range and willing to look at the shorter term. The pump manufacturer would supply its own funding to the project, and private equity would be deployed at the start, with expectations of approximately 3% return over five to seven years. The project would have SRF debt on the back side. He noted that in his experience, the only way to bring in private equity is to look at the short term. He suggested that in the prior example, he would have the manufacturer pay for the pumps and the SRF would fund the pump lines with its money on the back side of the yield curve.

Mr. Hughes – noted that this idea came up during the P3 workgroup’s discussions, and that they searched for a blended SRF equity deal. He reported that based on that research, they only identified ones where it was broken into several components. He expressed his opinion that because the SRFs are so project-specific, they do not want to add a percentage of money to a larger project. He cited Carlsbad as an example where the project was split, with the SRF taking on a piece.

Mr. Holland – noted that he had engaged in conversations in the Bay with SRFs who may be interested in acting as credit aggregators, where they purchase water quality credits from privately developed projects, regardless of how they were financed. They would be aggregated at the SRF and then sold at a rate negotiated between the SRF and the purchaser – likely MS4 communities with permit obligations which can be met with credit purchases over a longer duration. He noted this model could also prove interesting.

Daniel Kaplan – asked who sets the price for the credits, and whether it would be a negotiation between the credit supplier and purchaser.

Mr. Holland – replied yes, but that much of this is preliminary. He noted the Bay Program’s desire to try innovative strategies and added that everything is on the table because the total maximum daily load (TMDL) is increasing and also because of compliance obligations. He noted that the role of the EFAB is to help the Bay Program understand whether some structures being suggested are unrealistic, or whether some are durable solutions.

Ms. Throwe – asked the committee for a date for the Board to provide feedback, and after a short discussion settled on September 10, 2018. She noted that the next step would be to send a form around to the Board where members can concur and sign off with comments.

EFAB Report Out: Pre-Disaster Resiliency Investment and Finance

Ted Chapman

Jennifer Wasinger (unable to attend)

Mr. Chapman – noted that while the charge was quite expansive, the group had identified three primary areas of opportunity for pre-disaster resiliency and financing:

- Missions: this entails an attempt to discuss policy overlap and silos since there is a bit of this topic in many other areas. The committee asked how they could make specific recommendations for utilities and identified the issue of competing interests of missions for groups such as the Federal Emergency Management Agency (FEMA), the US Department of Agriculture (USDA), and others, where different departments and agencies have the same purpose. He added that this may provide an opportunity for better alignment.
- Messaging: he noted that outside of the EPA there is a need for better promotion, such as the notion that best management practices (BMPs) exist, which can be applied and replicated. He added that messaging can be lost on local leadership.
- Money: a large reason for pushback is the lack of a comprehensive capital plan. Given the competing interests at the local level, oftentimes there may not be a backup plan, but instead the hope that an emergency does not occur, and if it does, federal safety nets are in place. He added that these safety nets may disincentivize longer term planning. He likened this notion to an insurance policy, and the decision between paying to avoid an emergency, or hoping one does not occur.

Mr. Chapman remarked that the current document is approximately 45 pages long, in which it attempts to highlight the three key areas of opportunity and make recommendations. As an example, he noted the competing interests at the federal level, such as FEMA and SRF eligibilities, and whether they could become more open-ended to include stormwater; and if stormwater were included, whether flood control could be as well. He also noted the lack of data or mechanisms for determining the specific effects of an emergency on a community, such as loss of tax base, loss of community, and others. Mr. Chapman continued that based on his work at a credit rating agency, he has seen that many communities consider business-as-usual options, but that he would rather consider those items relative to credit, such as demographic shifts, collateral damage, contingencies that could occur, etc. He noted that while investors certainly consider the rate of return, there is a growing interest in doing the “right” thing, whether in respect to the environment, society, or governance. He noted that while Wall Street does play a role, there is significant opportunity at the local level, where messaging is critical. He added that Mr. Kaplan had discovered examples of cities that have looked at expanding beyond their silos to look at the larger resiliency picture.

Mr. Chapman also noted the example of a system that may have put an asset into service in 1978, and thus goes into the financial books at that value. However, the system may not know what the cost to

replace the asset in 2022 will be, and thus that capital cost may not be in the budget. He added that money and messaging have significant correlation, and that asset management and lifecycle costs will appear as recommendations in the final report.

Mr. Chapman noted that there are many case studies, which he views as positive. He remarked that oftentimes local communities do not want to be the first to try a new approach, but that there are examples across the country where these strategies have worked well. He noted that while the group's focus has been on flooding, there are other perils across the country that may also come into play but that were deemed outside of the charge.

Discussion and Questions

Mr. Throwe – asked for an estimated time of completion.

Mr. Chapman – responded that he believed it would be done around September 30, 2018.

Mr. Chu – noted that a 45-page document may be daunting, and that a shortened version would be appreciated.

Mr. Chapman – agreed and noted that the committee wanted to ensure the document served not only the EPA, but local communities as well to demonstrate best practices and examples of occasions where they have been successfully implemented. When asked what he viewed as the primary takeaways, Mr. Chapman responded that messaging was a significant area of opportunity. He noted that local decisionmakers may not know what is available to them. He also noted their focus on missions, and the need for some clarity surrounding who should do what, any incentives, a potential hazard mitigation program, and the notion that better resilience ahead of time may lead to greater eligibility of bailout later.

Mr. Zimmer – asked whether the EPA's stance changed in internal discussions and with the FEMA following Hurricanes Harvey and Maria, particularly regarding how new capital grants should be handled. He added that his experience following Hurricane Sandy was that there were some differences in opinion regarding SRF lending as capital grants and therefore duplication of benefits.

Dr. Sawyers – responded that there had been subsequent conversations on that issue and noted that the FEMA has strict requirements regarding eligibility. He believes a workgroup was established to discuss what portion may be available for SRF loans. When asked if there was a report, Dr. Sawyers answered that he would see if one was available.

Mr. Holland – noted that the US Housing and Urban Development Agency (HUD) ran a successful national resilience competition in 2015, with the intent of having local governments create and institutionalize plans and frameworks for resilience thinking. He questioned whether anyone has reviewed the plans that had been implemented in the wake of that competition, and whether those cities' financial standing improved, or if there were impacts on decision making. He noted that he was not asking the committee to conduct this research, but noted that the data is thin and this may be an area to find new information.

Mr. Chapman – responded that in his experience, those participating cities tended to be larger, with more human and financial resources and higher credit ratings. He added that Boston Water and Sewer

Commission had taken those plans and incorporated them, but that the city was highly rated and had a strong financial capacity prior.

Mr. Holland – followed up that he had been one of the subject matter experts and had worked with poor communities and had found the competition to be highly effective. He added that highlighting the operational aspect is critical so that recommendations can be operationalized.

Ms. Throwe – commented that resiliency could potentially dovetail with the regionalization charge. She noted that the resilience bonds and collaborations with the Rockefeller Foundation, Goldman Sachs, and others was fascinating, and continued that these are items the EFAB could consider as potential recommendations.

Lori Beary – added that she may be able to provide a contact, and Mr. Zimmer followed up that Shalmi Valhalla was hired by the Rockefeller Foundation and that her group may have metrics.

EFAB Report Out: Water System Regionalization

Eric Rothstein

Linda Sullivan

Linda Sullivan – began by announcing that the group's executive summary is almost complete, although work remains on identifying longer-term solutions and innovative ideas. The group's next step is to hold an in-person workgroup meeting to brainstorm additional ideas. She continued that while the issue is broad, the committee is attempting to narrow the charge to look at implementable items. She noted that there is significant fragmentation of the water market in the United States, with additional issues surrounding water quality and infrastructure, with regionalization as a potential solution. The group reviewed the issue from a structural perspective and identified several structural options for regional solutions including public authorities, municipal systems, privately owned systems, P3s, and public cooperatives. They reviewed evaluation criteria advantages as well as barriers to regionalization, many of which depend on the system, location, local political issues, and more.

Mr. Rothstein – noted the complexity of the subject matter and its implications for existential issues, like how to structure utility governance and equitable finance infrastructure investments, which have made defining the charge itself difficult. He also noted the differences in potential solutions depend on whether a system is small and rural versus suburban or urban. What works in one place will not necessarily work elsewhere. He explained that the charge expressed an interest in incentives regarding a change in governance in utilities and the difficulties in honoring local control and decision making, while at the same time recognizing that local decisions can disadvantage customers and populations that cannot defend themselves. Providing populations with access and ability to afford water and wastewater services has been a difficult issue, with some general ideas but few silver bullets. He noted that the executive summary discusses various regionalization structures and potential options that might be successful in advancing their adoption. He provided examples such as having SRF programs provide some level of funding, preferential rates, or grants for regionalization studies. Mr. Rothstein added that a challenge in the committee's future work will be to explore the mechanics of how regionalization could work. He listed Alabama and Kentucky as two progressive states in regionalization with interesting examples of successful steps they've taken, which may be applicable as models

elsewhere. He noted the difficulty in trying to prescribe governmental options when considering a very diverse set of states, with highly different ways of thinking and managing programs.

Ms. Sullivan – indicated that much of the group’s discussions have gone beyond financing solutions and looked at how regionalization might level the playing field of what is required to effectively operate a water system and contribute to making it affordable in low-income areas. She reiterated Mr. Rothstein’s point that there is not a one-size-fits-all solution, and that the committee is looking at this charge as having different options that a community could consider.

Mr. Rothstein – noted the immutable fact that the large number of systems is inefficient and, in order to have increased water affordability, regionalization of systems must occur. Yet, this consolidation also means a reduced number of utility directors, CFOs, and others associated with the systems. He also noted the dilemma of the many communities or subpopulations within larger communities that are not in the position to afford financing their infrastructure. He remarked that the fundamental decision is whether to subsidize these improvements to some degree, or to essentially determine that water and wastewater services are not a social good and that those who can afford to pay associated costs have access, and those who cannot do not.

Discussion and Questions

Ms. Throwe – asked about the timing of the proposed in-person workgroup meeting and wanted to ensure the group was continuing to move forward.

Ms. Sullivan – responded that the idea for the in-person meeting came up that day during the workgroup breakout session, and they are just beginning to work on its logistics.

Ms. Throwe – replied that a few years ago a transit-oriented development charge had a workshop with interesting results. She noted her interest in the idea.

Ms. Himmelberger – noted that California had passed human rights legislation that included some mandatory regionalization. It detailed that if a small utility is failing and not meeting public health requirements, it can be forced to consolidate with a larger utility. She noted that the most significant problems stem more from the larger utilities than the smaller ones. The small utilities are glad to be taken over but convincing the bigger utility of the benefits is harder. The state is attempting to incentivize the consolidations through SRF funding deals for certain projects that the larger utilities want to undertake. She noted that several case studies are on California’s consolidation website and added her surprise that the smaller utilities in California were eager for the consolidations, as she had the opposite experience in New Mexico. She reiterated that California has some good information and case studies if the committee has yet to review those.

Ms. Downs – thanked the committee for its hard work. She noted the difficulty of politics entering into these decisions and provided the example of Cincinnati, where a 50-year agreement to share resources had almost come to fruition, until differences in politics caused the plan to fall through. She also noted her interest in seeing additional discussion of resource and cost sharing, as those can be viable alternatives to relinquishing autonomy. She added that she would be interested in the in-person meeting, as her experiences with regionalization have been mixed. She noted a valuable addition could be a lessons-learned section from the times regionalization did not succeed.

Ms. Throwe – suggested that as the committee moves forward with the meeting planning, they utilize the Environmental Finance Centers (EFCs).

Khris Dodson – noted that New York is engaging in some work at the county level looking at opportunities to share prior to regionalization. Another EFC member reiterated her interest in the EFC's involvement in the in-person meeting.

Mr. Chu – added that he hoped the committee would include the Wichita EFC and other midwestern perspectives, as regional differences are acute, especially with regards to rural communities.

Adam Slade – introduced himself and informed the Board that his organization had published a report titled Drinking Water 1-2-3, which has some discussion of regionalization and service sharing.

Mr. Meister – asked whether the committee had further details on Alabama and Kentucky's successes in regionalization.

Mr. Covington – informed the group that several years ago Kentucky had well over 1,000 utilities, but today has a total of approximately 400 community and noncommunity water systems. He noted that the state does not have utilities serving less than 500 people, which are common elsewhere. He provided an example of a county in eastern Kentucky that is mountainous and poor, which went from over 100 utilities to three. He noted another example of a western county that consolidated 13 utilities to three, two of which are managed by the same entity. He continued that these changes did not occur overnight, but began to occur in earnest in 2000, when planning areas were established around the state. Mr. Covington added that Kentucky rarely adds new systems, but instead first looks to regionalization and while it may not ultimately be the option chosen, it is always on the table. He informed the Board that Kentucky has one of the highest populations served by potable water in the country, currently at about 95%, which is second only to California. He added that in Alabama, regionalization is based off health-based violations and if a community has a violation, they either must fix it themselves or merge with another utility that can. Alabama does not have the number of health-based violations that other states have, in part thanks to this policy.

Janice Beecher – added that a large contributor to its success in Alabama was someone in leadership who championed it. She also cited the 1996 Safe Drinking Water Act (SDWA) Amendments' Capacity Development requirements as providing benefit.

Mr. Covington – added to Ms. Beecher's point that a key for Kentucky's regionalization successes was that the governor considered potable water for the whole state a major policy initiative and worked for bipartisan legislation providing resources for planning and funding. The state used severance and packet settlement money to fund infrastructure, and until the 2008 financial crisis the issue received significant funding. Mr. Covington then reiterated the importance of strong leadership.

Ms. Himmelberger – suggested that keeping the focus on public interest is key, and that the issue is not about the utilities but about serving safe water. She noted an example in Arkansas that seemed to be a clear-cut scenario for regionalization, where a small utility had violations, a deteriorating well, no operators, and all volunteer-provided support. A neighboring utility was willing to take them on but asked that when the pipeline was installed to connect the systems, people along the pipeline also be added. That stipulation caused the deal to fall apart. Ms. Himmelberger suggested that it would be beneficial if at times a regulatory entity could enter and determine that the regionalization must occur,

as state dollars would otherwise be wasted. She noted that Pennsylvania has some language in its legislation that if consolidation saves money and a utility refuses, they must procure funding elsewhere.

Mr. Rothstein – reiterated the difficulty in working with some perverse interests and commented that many board members benefit from larger numbers of systems, as this means more clients and issues to solve. He noted that the industry may need to contradict the conventional ratemaking guidance and pursue options such as funding for affordability programs and class subsidies to effect better long-term outcomes.

Ms. Beecher – responded to Ms. Himmelberger’s comment and noted that what she described was a classic economic regulatory question, where there is a monopoly, so economic regulation substitutes for a competitive market, and complements local markets. She noted that these types of regulations are in place but that they are not applied well to the water sector. She added that she is writing a brief paper on economic regulation in Michigan for the same reasons and while it may not be a panacea, it also does not require the invention of something new; instead it just requires applying an existing strategy to this specific issue.

Mr. Chu – thanked the committee and noted the complexity of the project. He asked what the committee’s plan was for creating a more manageably-sized deliverable.

Mr. Rothstein – responded that the in-person workgroup meeting would help the committee to define some substance and that their work ahead would focus on the kinds of financial incentives to identify and the best approaches to include. He noted that while they could talk about government structures, they felt that in staying true to the EFAB they should focus on financial tools that could be a part of a toolbox and applied in various contexts. He imagined that the charge would require a few more months, but that they would know more following the workgroup meeting.

Wrap-Up/Adjourn – Day 1

Ed Chu

Joanne Throwe

Ms. Throwe – expressed her excitement to see relatively new board members taking on leadership for some of the charges, and that some of the longest-serving members are using their expertise in new charges. She asked members to provide additional support to the Chesapeake Bay charge and encouraged especially those not currently engaged in charges to get engaged. She noted her excitement and anticipation for further presentations and discussions the following day.

Mr. Chu – seconded Ms. Throwe’s sentiments and asked the Board to consider improvements to the charges and deliveries overnight ahead of a discussion on the topic the next day. He then provided some information for the group dinner and new member orientation and closed the day’s meetings.

Day 2 – August 22, 2018

Opening Remarks – Day 2

Ed Chu

Joanne Throwe

The meeting began at 8:45 am.

Ed Chu – welcomed everyone back and remarked that the dinner the previous night had been a fabulous opportunity to talk and mingle. He thanked Ms. Crichlow for arranging it.

Ms. Throwe – asked that attendees attempt to stay until the end of the meeting and promised to try to stick to schedule. She also acknowledged new members David Zimmer, *Bill Stannard*, and *Ted Henifin*. She noted that another new member, *Carl Thompson*, was unable to attend the meeting. She then introduced the Alaska project, which she had previously worked on. She noted it's challenges and unique nature relative to other charges the Board had taken on.

EFAB Report Out: Alaska Solid Waste Backhaul

Hope Cupit

Heather Himmelberger

Ms. Himmelberger – greeted the Board and introduced *Gabriella Carvalho* from EPA Region 10. She noted that in her long tenure on the Board, this is the most complex charge she has seen. She explained that the charge concerns remote, miniscule villages in Alaska ranging from tens of people to a couple hundred. The villages are very remote with limited access; some can only be accessed via air or boat. She continued that many of these villages operate with bartering as the primary form of economy, presenting challenges for funding options. She explained that some federal agencies and the military had constructed projects and in the process had generated and left legacy waste in the communities. While in the contiguous United States the waste would typically enter a landfill, that is infeasible in Alaska. She added that the proximity of the waste to the communities raises concern for leaching of contaminants into waterways, especially as some of the waste is hazardous. The questions posed to the committee were how to remove the waste from the villages, as leaving it there is also infeasible. Not only is the content of the waste challenging but the locations of the villages pose problems as well. The materials must be sorted and packaged properly, after which they must be shipped out, yet because many of these villages are cashless societies there is a question of how to pay the villagers who do this work. She noted that at every turn it appears there's a barrier. Ms. Himmelberger also added that there is a pilot program in 15 villages to train residents on how to package the waste. She explained that in the first few months of the charge the group spent time learning about and wrapping their heads around the issue. Over the next few months, they spent considerable time developing the current report.

Hope Cupit – thanked the group for their efforts on a highly complex project. She noted that she had rearranged her schedule to attend the meeting today given the importance of the issue at hand. She explained that the group broke the paper into three components:

- A look at fee-based options, and what could be done at the village level.

- Financing and funding options, including other revenue streams that might help remove the waste.
- An exploration of innovative opportunities to fund and run the Backhaul program.

She continued that when they first received the charge, they were informed that the Indian General Assistance Program (IGAP) funds would be eliminated; however, they later received information that they could in fact be used for backhauling. She noted that this was not a solution but a component of a funding toolbox that could help. Ms. Cupit continued that there are three steps to review how to enforce a fee-based program. The first is understanding that it is a challenge that requires local solutions specific to the tribes. The second is communicating to a collective voice, where all are in agreement and there is a citizen advisory group for each tribe. The third is consideration of the best metric used in choosing a fee. The group identified options such as a charge per person, a charge based on household income, and a charge per unit of waste or unit of consumption. The group also reviewed a tax rate based on property size. Ms. Cupit noted that in her research she saw many stations where the waste is burnt, which requires significant gas and energy and results in negative air quality effects. She also questioned whether illegal dumping would ensue if a fee were charged.

The group also considered the rate collection process and options such as a sliding scale per village and richer villages subsidizing poorer ones. Ms. Cupit pointed the Board's attention to page 23 of the draft report and asked for additional input on how to move money from the village level, to the hub level, to the haulers in an efficient way. She noted that this section of the report contains a business template with a long spreadsheet put together by *Brent Anderson*, Ms. Carvalho, and *Dr. Lynn Zender*. It looks at recycling as an option for removing the waste and creating jobs and opportunities, all in a way that is self-funding. She also pointed out a report from the Institute of Scrap Recycling Industries that evaluates the scrap industry and its job creation in Alaska, generating an overall economic impact of over \$195 million. Recycling has generated approximately 778 jobs with \$79,300 as an average wage. She continued that the committee had researched the creation of a co-op for each village.

Ms. Cupit directed the group's attention to the model on page 51 and explained its intentions were to demonstrate the financial implications of the program, its fundraising needs, and its use as a tool for revising projections as they become available. The plan looked at nine regions and each region's costs over the next ten years for personnel, supplies, shipping, trucking, and more. The model considers household costs and assumes that the Backhaul Program's costs are accurate and up to date, no capital is included, there is no inflation, and that there is a linear cost structure for each region. She noted that the model does not include operating or capital costs and does not account for inflation. She noted that the model should allow each village to input values to determine what to charge and whether it will be profitable.

Ms. Himmelberger – added that if anyone on the Board had expertise with business models, they would appreciate feedback. She continued that the group also considered the military as an alternative funding source. She questioned whether the military could conduct an exercise where they pack and haul out the waste but determined that while that innovative use of the military has happened prior, it does not represent a long-term, sustainable solution. She noted that the state of Alaska is under some financial strain and thus cannot support a large portion of the project financially. However, the state could still play a key role and pointed to the GSA, which shows the guaranteed prices from a vendor for a given item. She questioned whether the state could provide something similar: a list of pre-negotiated

transport costs, so that each village would not have to negotiate on its own and could quickly determine costs.

Ms. Himmelberger added that the committee has attempted to find similar situations elsewhere but noted the difficulty in finding them. Greenland has similar issues with backhauling waste from remote villages; however, those villages are located on the coast and can be accessed by boat, while some in Alaska cannot. There are some Canadian examples that the committee is reviewing. She explained that phase one of the project was completing this report and phase two will be determining how to collect the fees at the village level, who should collect them, and where they should go. For example, would it make more sense to collect the money in the village and keep it within that community, or should it be moved to a regional group level that then pays the costs. She noted that given the Board's background, the question of how to move the money would be well-suited to its expertise, and she solicited help in determining the most cost-effective and fair mechanisms. Ms. Himmelberger also noted that beyond financing, the committee was considering which government structures and entities could be the most useful and commented that the regionalization working group may have some parallels. The federal government does not want to run the program or participate as the major purveyor of funds, so she questioned what its supporting role could be. She added that in the workgroup breakout session the day prior, the group discussed the potential need to educate the communities about the waste and considered whether a foundation, the USDA, or the EPA could provide funding for the educational pieces, separate from the backhauling component. She noted that the committee still has work to do and welcomed any board members to join.

Ms. Carvalho – noted that she approved of the summary and was incredibly pleased with the committee's work thus far.

Discussion and Questions

Mr. Chu – added that prior to discussion, he wanted to note that the EFAB is an advisory board to the EPA and the Administrator. This means that at the charge's culmination, they need to provide a recommendation letter with actions for the EPA to take. He acknowledged the challenges of this project but asked the Board to think about what actions can ultimately be recommended to the EPA and the Administrator at the culmination of each charge.

Mr. Holland – offered two points. The first was asking whether the group had reviewed the Alaska Permanent Fund, which contains the oil and gas royalties and which every Alaskan citizen is eligible for. He believed it totaled a couple thousand dollars per year. As a permanent revenue source with an administrative board, there may be a mechanism for using a portion of these funds. His second question was whether the group had researched Alaskan state law for establishing special purpose districts. He noted that there is likely an example that already exists in the United States of one for trash collection. Special purpose districts grant taxing authority to the district for a special purpose, which may provide an alternative source of funding. Mr. Holland also noted that he receives inquiries from graduate students working on capstone projects every year, and that a business plan for this charge would be a potential benefit for both a student and the committee. He noted Columbia and Duke as two programs that connect students with clients to engage in this type of work.

Mr. Chapman – asked whether the backhauling would be eligible for Superfund money.

Mr. Chu – noted his support for all of Mr. Holland’s ideas, and asked once again how to take the group’s work and identify actionable items for the EPA. He noted that questions about using Superfund money are the types of questions he would ask and answered Mr. Chapman that Superfund money would not be applicable here, but that the EPA programs concerning Brownfields could potentially be leveraged. He reminded the group to consider how the EPA could act on each idea that arises.

Ms. Carvalho – added that the state has a solid waste program that has permitting authority, so it does inspection. The approach has been to work with the communities to get land permitted, but that has been a challenge for the state. Alaska is not at the point where it could take enforcement actions. She added that she often hears that contractors are in the communities but that their waste is not being handled properly. She noted that this could be an opportunity for the state to engage and make the project successful.

Mr. Chu – commented on the good discussion and added that a question arose on whether the Board should comment on the EPA’s oversight of Alaska’s Solid Waste Program. He noted that the challenges in Alaska are significant and that both the state and the EPA are attempting to work within the context of geography, social systems, and politics. He returned the conversation to what items may be actionable for the EPA.

Ms. Himmelberger – responded that the mechanism by which the EPA has been funding the program – through IGAP – is unsustainable and proposed that determining a business model or fee-based structure could be a direct role for the EPA.

Ms. Downs – asked whether Ms. Himmelberger meant that this recommendation to the EPA could potentially consist of advising them to transmit the report to the state or community.

Mr. Chu – responded that was not necessarily the case but that for the Board to be effective, the recommendation must be actionable. He noted that he would prefer not to see a year’s worth of hard work result in an action of suggesting the Administrator pass along the report to the state. He raised the topic of other funding sources that may be available and suggested that those may provide an opportunity for clear, actionable items.

Ms. Cupit – asked whether the document would be public once it was sent to the Administrator, and Mr. Chu responded that was correct.

Ms. Downs – thanked the group for their work and asked what the average income in the villages is, as a means of understanding how different rates per household would affect percentage of average income.

Ms. Throwe – responded that incomes are typically subsistence wages.

Ms. Kim – commented that Alaska is carbon rich and questioned whether tribes have access to substantial amounts of land. She continued that if they do, they might create a carbon offset program, and noted that her previous employer worked on a similar, successful project in southern Alaska. It was also noted that tribes possess land through regional and village corporations but that they do not actually own the land and that an offset approach would be interesting.

Marie Roberts De La Parra – commented that the US Department of Transportation (DOT) possesses funding for infrastructure and revitalization needs.

Ms. Beecher – asked that additional consideration be given to externalities. She noted that the committee might review the existing literature and consider ways to allocate costs to the originators of the problem. She added that there is a cultural story at play as well, in the notion that where there are significant areas of open space, anything goes, but this mentality does not consider the connection tribes have with the land.

Ms. Himmelberger – responded that an item the committee would like to review are how the Federal Acquisition Regulations are applied across the country, and whether it is in a fair and uniform manner. She noted that if they are not, this may be an actionable item for the EPA to address.

Mr. Arndt – noted that the committee could research the petroleum industry to understand how they address waste backhaul when operating in the region.

Ms. Throwe – noted her interest in hearing more from the group as they continue their work. She thanked Ms. Carvalho for her dedication, as well as Dr. Zender. She asked whether the group would be completing the report in October.

Ms. Himmelberger – responded that the plan is for this portion to be complete by October but that a second piece of the charge may unfold, in which the committee would gather additional information and better recommendations, which would be completed by the next board meeting.

Ms. Throwe – commented that she noticed a trend of increasing numbers of second phases amongst the projects. She cautioned against this, as the Board would be having a discussion of potential new charges later in the day.

Mr. Chu – added that the Board should remember the opportunity costs of time spent on charges and noted that new charges cannot be pursued if old ones are still ongoing. He also noted the jobs and commitments that board members face in their personal lives.

Ms. Kim – noted that she had observed the charges becoming broader in her time on the Board, which has resulted in committees breaking them into smaller pieces.

[EFAB Report Out: P3/Alternative Project Delivery](#)

Lisa Daniel

Richard Weiss

Ms. Daniel – began by noting that the workgroup had not received a specific charge to produce any documents until the most recent term, when the group worked with Mr. Hughes to produce seven to nine case studies of water P3 partnerships. She explained that the committee's current charge is to help support products concerning alternative delivery.

Mr. Weiss – thanked the workgroup for their input. He explained that their charge is the development of tools that could be employed for predevelopment activities in evaluating feasibility, ranging from design-build to privatization, public-public, or public-private partnerships. He continued that the group is focused on two tools, one of which is a learning module being developed by the EPA that the committee is assisting *Leo Gueriguian* in reviewing, and another is a decision framework matrix for predevelopment decision-making that is being developed by the workgroup. The matrix is a standalone document that is currently nine steps, although he added that it will likely contain 10-12 steps once complete. It reviews

who and what is involved and the financial, legal, engineering, and political considerations. Mr. Weiss noted that most importantly, the matrix identifies motives, objectives, and barriers to pursuing alternative delivery. He added that the matrix is approximately 80% complete and will contain additional information on identifying decision makers. He noted that the matrix's applicability would vary based on the type and size of a community. He reiterated that the matrix would be complementary to the learning module, as the intent is for the two to be used together. The committee expects the matrix to be complete by October 2018.

Mr. Gueriguan – added the workgroup has gone in a wonderful direction on the matrix. The learning module and matrix would provide decisionmakers with information on choosing a path forward.

Ms. Daniel – added that the committee refined the title to “Decisionmakers Guiding Principles for Project Delivery Options.” She again thanked all the committee members.

Discussion and Questions

Edwin Crooks – added that the workgroup attempted to avoid recreating existing resources and noted that the learning module provides extensive information. He explained that they attempted to create a tool to help decisionmakers who are considering alternative mechanisms, but do not know how to begin. The goal of the document is to walk a decisionmaker through the early stages where all options are open. He noted that the document does not advocate one option over another, but instead provides information on what considerations must be taken into account when thinking about alternative delivery.

Ms. Beecher – asked whether the document is aimed at providing information for the process, evaluation, or projects, and noted that those are three different areas that the committee could provide guiding principles for. She asked for clarification on whether the group is offering principles for those who are undertaking evaluation.

Ms. Daniel – responded that the intent of the document is to set up the framework for evaluating and thinking through options.

Mr. Holland – noted that predevelopment has a specific meaning for the P3 spaces and commented that the document looks to be focused on program predevelopment. He suggested clarifying that the document concerns programmatic predevelopment, as opposed to project predevelopment. He added that many municipalities have recognized that predevelopment is not financeable for project developers, and that there are ways to engage in project predevelopment where bidding contractors have sufficient information to price their services.

Mr. Kaplan – said when he has discussed it with project managers ranging in experience, they have done the projects and acknowledged the benefits of guaranteed maximum price contracts. However, because design-bid-build is so prevalent in state law and projects must undergo review by the state board, there are barriers. He noted these as practical problems with how project managers perceive P3s.

Mr. Meister – responded that the workgroup's document is attempting to address that issue and provide information on all the considerations that must be evaluated at the beginning. He added that the committee's idea is for this 8-15 page document to provide high level concepts so that a project manager can understand the initial questions that must be answered.

Mr. Chapman – added that in Virginia there is a similar process and he thinks this will be a beneficial document for those who are just learning about what to consider. He added that they go through a similar process internally that allows decision making on a project-by-project basis.

Mr. Chu – thanked the workgroup for its work and announced a brief break. He noted there was a member of the public who wished to make a public comment later in the day's agenda.

Environmental Finance Center Updates

Khris Dodson

Mr. Chu – reconvened the meeting and remarked that when he was working in Region 4 there were two Environmental Finance Centers (EFCs), but once he arrived in Region 10 there were none, and he worked with Region 10 staff to establish one in the region. He introduced Mr. Dodson and noted they were working hard at the agency to find funding for the EFCs.

Mr. Dodson – began by directing the Board's attention to a draft brochure in their folders, which provides a basic overview of the EFCs. It provides information on what the EFCs offer such as technical assistance, training, and facilitation. He explained that the EFCs' work is management and finance, and that through facilitation, they conduct some cost benefit analyses for projects such as regionalization. He noted that there is one EFC per region and two in Region 9, and that while many focus on the regions they are in, they also work at a national scale. Mr. Dodson noted that different EFCs have different areas of expertise, resulting in a set of complementary skills. He explained that in addition to the draft brochure, each EFC has an additional one page insert that can be added to further explain its unique strengths and projects.

Mr. Dodson then presented some ideas the EFCs hope to pursue in the future and asked the Board for any feedback. One project area was rural resiliency, given rural populations are growing older and decreasing in wealth and size. He commented that it may not be drought or floods that hurt them financially, but the erosion of their communities and infrastructure. Mr. Dodson provided an example of the south shore of Lake Ontario, which had significant flooding last summer. Tourism and agriculture are the primary economic drivers, so the EFC is conducting economic assessments to determine how resiliency can be maintained. He also noted affordability as an area of interest, including microfinance models, Go Fund Me pages for water utilities, and more. Stormwater utility development, climate resiliency, and work with small systems are additional areas of continued interest. He noted that he had spoken with the Water System Regionalization co-chairs and offered EFC support in their workgroup. Mr. Dodson also reminded the Board that the EPA's funding provides a small amount of the EFCs' overall budgets – approximately \$60,000 this year – and reiterated the EFCs' commitment to supporting the Agency and the EFAB.

Discussion and Questions

Mr. Walker – asked for a clarification on the EFCs' role with the EFAB, and what the relationship between the two is.

Mr. Chu – responded that the agency has supported the EFCs for many years, and that the EPA Regions as well as Headquarters find enormous value in their efforts. He added that there may not be a formal connection between the EFCs and the EFAB per se and opened the discussion for others to contribute.

Ms. Throwe – added that the EFCs could be utilized as expert witnesses as their work on local levels could provide reality to the Board’s charges. She noted the symbiotic relationship between the two groups and emphasized its potential for adding value to projects.

Dr. Sawyers – added that he would go so far as to say there is a formal relationship between the EFCs and the EFAB. He noted that he has continued to advocate for additional funds for the EFCs and explained that because the EFCs have staff and graduate students available to provide support, they make up a significant footprint to the Board. He also commented on the overlapping project work, such as the work UNC’s EFC did on P3 projects, as well as Ms. Himmelberger’s work in support of not only the EFAB but the EPA as well. He concluded by reiterating his view of the EFCs as a formal extension of the Board.

Mr. Hughes – asked whether the EFCs are a resource for the Board to engage for research. He noted that he has had a difficult time grappling with the fact that the EFAB is an advisory board, not a research organization, and that it is supposed to be advising based on the research it sees.

Dr. Sawyers – responded that during his 12 years on the Board it was a working board, with members writing full board reports. He added that he would discuss how to facilitate work going forward with Mr. Chu, Ms. Throwe, and leadership at the EPA.

Ms. Himmelberger – added that while the \$60,000 the EFCs receive from the EPA is a small portion of their budgets, that money differs from other funding they receive. She described this money as their innovation funding, which allows them to pursue new and difficult ideas. She provided the example of asset management at small systems, and how the EPA funding was the means by which she was able to pursue that topic. She noted that decreased funding from the EPA stifles innovation, especially given the networks of students she has access to. She noted that they can work with the EFAB to take an innovative idea and continue it, especially with regards to on-the-ground implementation.

Ms. Throwe – encouraged the Board to utilize the EFCs and thanked them for all of their work.

[EPA Water Infrastructure and Resiliency Finance Center Activities](#)

Sonia Brubaker

Ms. Brubaker – introduced herself as the acting director of the Water Infrastructure Resiliency and Finance Center and expressed her excitement to work with the Board in this capacity. She noted that she would provide some information and updates on the work being undertaken at the Center and added that the Board had provided a broad range of recommendations that they are now implementing. Ms. Brubaker continued that over the past year they developed a Water Finance Clearinghouse, which is a web-based portal and one-stop-shop for all funding sources and resources for water finance. She added that the Clearinghouse has received approximately 40,000 hits since being launched last year. She explained features of the Clearinghouse, such as the capability for states to look at their own information and update it to reflect current annual funding allocations and better describe the work they are doing. She noted that there are over 130 state contributors keeping the information up to date and expressed her excitement at the number of visits the site has received. She continued that the next phase of the Clearinghouse is to develop a learning portal to provide access to modules on water finance topics. Ms. Brubaker explained that they determined there was a need for additional information and guidance on how to continue once funding sources have been identified, such as how a system can

finance a water loss project or how a homeowner can finance replacement of their septic system. Ms. Brubaker explained that they are developing learning modules to present this information, which are self-taught and will be accessed through the Clearinghouse. She noted that some board members are already familiar with the P3 module that will be published in the future but explained that the first modules nearing completion pertained to SRF, WIFIA, and septic systems. She conveyed her hope that these first three would be available next month, and that an additional module would be published in each subsequent month, covering topics such as agriculture, stormwater, water loss, and resiliency. She noted that the modules look modern, are easy to use, and are targeted at local decisionmakers. Ms. Brubaker noted that they are also working with the Southwest EFC to conduct research on different methodologies for measuring affordability for essential services. Ms. Brubaker expressed that she is looking forward to continuing to implement the Board's recommendations.

Discussion and Questions

Mr. Kaplan – informed the Board that King County closed on its first WIFIA loan in April. He noted that the commitment was \$134 million for a 5-year construction project at a fixed rate, which provides certainty to financial planning and allows for rates to be more affordable. He added that King County would be participating in a Government Finance Officers Association (GFOA) seminar to talk about their experience, and thanked the EPA for their support throughout the process. He expressed his sentiment that if Congress continues to support the program, utilities will be interested in participating.

Ms. Brubaker – responded that they are working on the WIFIA module now and will be adding case studies such as Mr. Kaplan's once it comes out.

Public Comment

Ms. Throwe – announced that although the agenda listed the Board's discussion of additional topics at this point, the public comment session would occur first as they were waiting on audio-visual support.

Mr. Scott Sigman – introduced himself as the transportation export infrastructure lead for the Illinois Soybean Association and thanked the members of the Board for their time. He recounted to the Board that his organization conducted an economic impact evaluation a few years ago on what it would take to improve the locks and dams on the Illinois and Mississippi Rivers for the purposes of soybean transport. During this evaluation, they realized that it was not solely the locks and dams, but the pools and levies that would require improvements as well. The infrastructure faced a backlog of deferred maintenance that the US Army Corp of Engineers (USACE) did not have the money to fully fix, so it was not fully addressed. He continued that in 2015 they returned to USACE and asked if they had gotten ahead of the challenge of improving the locks and dams. After an evaluation, they found that the cost had increased to \$599 million for the same improvements. Mr. Sigman explained that they again returned and asked if the issue had been addressed as the waterways serve a critical role for a multitude of benefits, such as municipal industrial water, cooling, irrigation, commerce, and recreation. The answer they received in February 2018 suggested that deferred maintenance would now cost approximately \$778 million. He noted that had this been addressed much earlier, it could have been cost effectively resolved.

Mr. Sigman explained that his group is an organization of farmers who are increasingly interested in water and noted it as a necessity that must be defended at all costs. He informed the Board that Illinois is the country's largest soybean producer with 60% of the crop exported. This includes export of the water used to grow the soybeans. Given the growing global population and significant number of areas

that cannot produce their own food, his organization is planning to help address that challenge. He explained that his point in coming to the EFAB was that there is a need for cross fertilization and dialogue amongst many related groups around the country. He noted that it takes a bit of a stretch to reach beyond comfort zones and go beyond agriculture, but he expressed his hope that he could help inform the EFAB and could also learn from the EPA to the benefit of others. He continued that whether engaged in the maritime administration, commerce, or supply chain, increasingly these groups are intertwined and silos need to be broken down. He reiterated Mr. Chu's point that there are synergies where value can be gained.

Discussion and Questions

Mr. Arndt – noted that he was not well-versed in the interagency aspects of water but pointed out that one of the pieces of WIFIA legislation is sustainable funding for the USACE, and that the USACE has not yet stood up their portion of WIFIA. He expressed his curiosity as to whether that is an avenue that Mr. Sigman's organization has looked at.

Mr. Sigman – noted that they are keeping tabs on the USACE and Congress' ability to fund it. He explained that side of the WIFIA is learning from the EPA's side of WIFIA, and that the USACE could use some improvement. He added that they try to collaborate with the USACE in order to help lift them as it's everyone's federal government. He noted that they are constantly learning, educating, and looking for opportunities to increase cost savings on projects based on the time value of money. He added that if they can secure rates that are more favorable to the projects, the ultimate benefit is to the community.

Ms. Cupit – asked if Mr. Sigman could clarify what he meant by exporting water.

Mr. Sigman – responded that water is embedded in the soybean, and as a resource that other states do not have, when they ship the soybeans to other states and countries for animal feed, vegetable protein, oil, and more, they are also shipping the embedded water.

Board Discussion: Additional Topics

Ms. Throwe – announced that Mr. Chapman had an opportunity he would like to present.

Mr. Chapman – thanked Mr. Chu and Ms. Throwe for adding him to the agenda. He explained that his idea was a bit different, but similar to WIFIA and the Transportation Infrastructure Finance and Innovation Act (TIFIA), which has worked. He continued that from the Wall Street perspective, roughly the 4,000 biggest water systems have rating relationships. They have access to low cost of capital. In the next tier are large and medium systems that might access the SRF, and finally there are the 5,000-7,000 smallest systems that may access the USDA. However, their access is less certain given that they are small and rural with naturally aging infrastructure and population. He continued that regardless of what comes out of Washington, DC, it will likely be the case that states and local governments will fund most of the cost of this infrastructure. Mr. Chapman provided P3s as an example of projects that the private sector is interested in and if there were a specifically structured vehicle that could be replicated easily, perhaps that could work. He noted that as a broad observation, P3s in the Middle East, Australia, and Europe have been utilized for decades. However, in the utility sector projects such as Rialto, Bayonne, and Poseidon have been one-offs with one-on-one confidential negotiations that are not easily replicated.

Mr. Chapman proposed master limited partnerships (MLPs) as a potential opportunity. He noted that as someone with public finance expertise, he does not deal with these himself but has observed that there are about 90 currently in play with a market capacity of \$400 billion ready to participate but that do not know how. One of the generic benefits of MLPs is that there are tax benefits; they are similar to a corporation but are only taxed once. The IRS tax code says, “any mineral or resource,” but there is a restriction that says water is not included. It has been in place for 20-25 years, but an act of Congress would be necessary to revise it. Mr. Chapman indicated that if this is the direction that things appear to be moving, why not consider this \$400 billion in capital as a potential source? Currently, the majority of MLPs are in midstream energy, such as oil and gas exploration, and there is a strong, direct correlation between MLPs and the price of oil. When looking at where the spending is coming from, there is a backlog of capital expenditure that is not being addressed. Some may be attributed to the 2017 tax reform, some because interest rates are going up and some because of the notion that DC may produce an infrastructure package. Mr. Chapman noted that it would be similar to the TIFIA and WIFIA, where regionalization and attracting investors would take scale. He provided an example of a Pennsylvania bridges project, where there were 558 structurally deficient bridges across the state. Private capital funded upfront costs and allowed the state to address all the bridges at once, providing scale and better pricing. He commented that if there is an opportunity for 558 bridges and a couple billion dollars rather than smaller microloans, it will attract more private equity and capital as well as better pricing.

Mr. Chu – noted that he hoped they could revisit the substance of Mr. Chapman’s talk in the future. He added that it was a good launching point to discuss the Board’s future planning process and how to engage its members to come up with projects and charges for the next year. He reminded the group that this is a public service they provide and that the work they choose to take on has important value to himself, the agency, and hopefully to the board members as well. He explained the process by which new projects are typically selected. In the fall he and Ms. Throwe go to the regions and the program media office and seek ideas for challenges they face that involve financing. Then the Board reviews the projects and determine which ones to take on. Mr. Chu provided the criteria that has historically been used when selecting projects and asked the EFAB members to comment on whether they would like to continue to use it moving forward. He also asked for feedback on the project work the EFAB currently engages in and whether there may be different options to pursue. He noted two recommendations from earlier in the day that the EFAB could discuss, the first being that the EPA should continue to support the WIFIA program and the second being a recommendation to the advisory board about the role of the EFCs. He added that these would differ from yearlong projects and sought feedback from the Board.

Mr. Chu also solicited opinions on how the work is completed. He noted his desire to determine how to most efficiently use time to produce deliverables that have an impact. He noted that when a recommendation goes to the EPA, the best chance of receiving an answer is if the recommendation was actionable. He then opened discussion up to the group to ascertain the Board’s sentiments as he and Ms. Throwe begin the planning process for the upcoming year.

Ms. Throwe – added that a few years ago she discussed lead financing as it was timely, although it was not something that the EPA had approached the EFAB about. She encouraged the Board to voice what they are seeing in order to match those observations with what the EPA needs.

Ms. Kim – asked whether other offices are aware of the EFAB and its capabilities and commented that oftentimes the charges are written as reports, where the EFAB revisits existing information and creates

summaries. She suggested that the Board clarify its role as an entity that does not just write reports but can provide real-time advice.

Mr. Chu – commended Ms. Kim on an excellent point. He added that the EFAB could better clarify client expectations at the outset. He also responded that yes, other offices in the agency are aware of the EFAB, and that in recent years it has been water-related. He added that while the Alaska Backhaul project may seem off base, it should not, as the agency needs help on a wide array of topics.

Dr. Sawyers – commented that the notion of recommendations being actionable and implementable is critical. He encouraged the Board to present ideas and noted that in his time on the EFAB they made recommendations that they knew the agency would disagree with but wanted to provide that opinion to the Administrator. He reminded the group that the EFAB is an independent board and that part of Mr. Chu's job is to corral the agency and ensure they are aware of the EFAB.

Mr. Meister – suggested that the EFAB clarify the process that was used to create the letter to the Administrator on the P3 project in 2017 to encourage EFAB members to work together within a framework and process to generate written communication back to Mr. Chu, Dr. Sawyers, and the Administrator in real-time. He noted his interest in what Mr. Chapman presented as it contains specific relevance and would represent an actionable item by the EPA and Congress to respond to some of the infrastructure financing challenges posed by the 2017 federal tax legislation. He thanked Mr. Chapman for the succinct and informative suggestion. In response to Mr. Chu's two suggested recommendations from earlier in the day, Mr. Meister responded that there were varied experiences with the WIFIA, and that the EFAB could be a forum to raise issues and clarify concerns in real-time so that they can be addressed. He added that the role of the EFCs is another example of a question that can be clarified quickly in the present.

Ms. Himmelberger – commented on the project timelines and noted that while Mr. Chu may reach out to the EPA for projects in September 2018, the committees do not start work on them until February 2019 but they are expected to have completed them by September 2019 in time for the next round of charges. She remarked that this does not allow sufficient time and expressed concern that the projects are being rushed. She noted that on complicated projects such as the Alaska Backhaul charge, it may take months to fully understand the issue before any work can be done. She suggested counting the year to work on the projects as the time the committees are spending on them, not the time from which they are first discussed with the EPA. She also added that the in-person EFAB meetings provide valuable time for collaboration on the charges and suggested extending the current 1.5 day meetings to 1.75 or 2 days long to provide more time for this.

Mr. Chu – responded that he and Ms. Throwe are compiling this feedback and would like specifics on how they could engage in the charges differently. He commented that on other advisory boards, charges are first discussed with experts before the Board decides how to proceed, rather than receiving them in written form.

Mr. Holland – commented that as a co-chair on one of the charges, he felt there was not a great deal of transparency regarding how charges are evaluated against the criteria and not much evidence of back and forth with the EPA to ask some of the hard questions about the charges to receive specific answers. He added that this process is essential to get charges defined. He also commented on the lack of transparency in how workgroups or chairs are selected and suggested that there should have been a

conversation rather than just an email informing him that he was a chair. He suggested that there be a conversation and some ability for the co-chairs to have some back and forth on how the criteria is applied to the charges prior to their official selection.

Mr. Rothstein – commented that the charges appear to be getting increasingly complicated, require more time, and reflect a greater recognition of integrated holistic needs rather than being confined to small project types. He suggested there may be potential benefit in taking some of the effort and looking at how the EFAB works collaboratively with organizations such as those dealing with agriculture for issues such as nutrient loading and phosphorus management.

Mr. Weiss – commented that it is necessary to define the scope of the charge when considering the timeline.

Ms. Sullivan – commented that she would encourage more discussion on emerging issues and increased flexibility to discuss issues that are relevant today. She noted that these ideas might spur a charge but that having discussions as an issue occurs is important.

Mr. Chu – responded that Mr. Rothstein’s comments highlight the need to make room on the agenda for these other important issues, such as the soybean issue, that have a clear nexus on the nutrient side. He noted the many interesting and critical issues that the EPA needs advice on, and the need to determine how to make room on the agenda for them.

Ms. Roberts De La Parra – commented that she appreciated all of the input from others, as it closely resembles what she herself has been thinking.

Ms. Cupit – noted that because she was a co-chair, she was unable to contribute to the Water System Regionalization project. She suggested looking at the structure to ensure that the EFAB is doing justice to the organization or group that solicited their help for a project, as she does not want to send something back that is not useful. She also noted that she has spent Saturdays, vacations, and holidays working on these projects and that when others approach her and ask about joining the EFAB, she tells them to be ready to work.

Ms. Kim – expressed her sentiment that many of the recommendations are general and that there may be a feeling of trepidation in making criticisms.

Mr. Chu – explained to the Board that recommendations and letters do not move forward unless there is consensus. The group must decide if the characterization of a recommendation is one they agree with, and while some may disagree with a given characterization, others may find it perfectly suitable.

Dr. Sawyers – acknowledged Ms. Kim’s comment and the sentiment that the reports are subtler than she may prefer and added to Mr. Chu’s point that it is important to consider how a recommendation is written in order to solicit a response. He noted that there is not an issue with a recommendation that informs the EPA it is not going down the right path, but the way in which it is written matters.

Ms. Throwe – asked the Board to help ensure she understands the messages from their work, what the recommendations are, and what the desired response is. She encouraged the Board to work with her to make meaningful recommendations.

Ms. Daniel – noted that it is difficult to build consensus with a large group, and that there must be sufficient time for debate and healthy friction. She suggested finding time for that in these meetings. She also noted that provocative ideas are harder to debate and build consensus around but that the Board has an opportunity to do that.

Mr. Kaplan – questioned whether the EPA has provided advice regarding legislation on the WIFIA and SRF to Congress and whether there may be a potential for a recommendation there.

Mr. Chu – clarified that board members are prohibited from lobbying and that the EPA does not lobby either. Thus, the EFAB should not recommend that they take a position on legislative issues.

Dr. Sawyers – The EPA provides technical assistance but does not lobby. Congress will take the information and make a decision.

Mr. Chu – noted that the purpose of the EFAB is to provide an experienced and diverse point of view and added that the recommendations provided are ones that the full group agrees with. While this may dilute views, it is positive for an advisory group.

Ms. Himmelberger – noted that the Water System Regionalization and Pre-disaster Resiliency workgroups had calls every week for the duration of the summer, and while she could not attend all of them she noted that the Board often gets a broad charge, goes too far back and lays everything they know about it out, and then moves forward. She noted that it would help if the EFAB did not need to do that background work first, but instead had charges that are more specific and focused on a single aspect. Then, if the group wants to focus on a different one, it can be pursued the following year. She added that this would help reduce the amount of time involved, as it is currently too demanding. She reiterated the earlier point that it disadvantages the EFAB when individual members cannot participate in multiple groups because they are so busy in one.

Mr. Dodson – responded to a question from Ms. Thrope asking for the EFC perspective, and he commented that an interesting charge idea may be one that looks at China's recent decision to close the door on recycling products and the resulting situation where local communities are spending 400% more to recycle because there is not currently a domestic market. He added that this may change since the market will likely establish, but a look at how to finance recycling could be pertinent. He also noted that there was a previous report on green infrastructure that the EFCs dug into and provided significant support on. He continued that building the EFCs into the project support can help with some of the time input that the board members are spending. He added that he was not suggesting taking effort away from the EPA staff, but that the EFCs could provide support with some of the meetings and calls.

Mr. Holland – added that once his group got into the process of the charge, the EFC engaged and helped with clarification of the process of making the charge relevant. He suggested that the EFCs continue to help define the charges as many tend to come up from research the EFCs are doing, and they have tremendous insight on items such as the vetting and scoring processes.

Mr. Chu – announced that the EFAB would not be following the traditional planning process and would take the comments back to review them. He asked those who did not speak up to please send their comments on all the questions he previously raised, and new ideas as well. He suggested that those who serve on other committees look at their practices to identify any that the EFAB can learn from.

Ms. Throwe – outlined the schedule moving forward. She said that they would begin working on the transmittal letter from the Chesapeake Bay workgroup. She indicated that she would attempt to listen in on calls and provide any feedback she can. Ms. Throwe noted that the next meeting would be in February or March 2019 in Washington, DC and that they would discuss new charges.

Ms. Brubaker – added that they could create a google form for feedback as well as criteria and charges, so the Board could expect something coming out on that.

Ms. Himmelberger – noted that that dates tend to shift, and while she blocks off the original date provided, six weeks out it changes, and she can no longer attend. She asked that if dates could be set to the greatest extent possible, it would be helpful.

Mr. Chu – noted the difficulty in confirming dates and asked for the Board’s patience. He noted that the staff has done an outstanding job so far.

Ms. Kim – noted that there have been discussions about the need for capital from other sources, but that she and Mr. Holland are the only two who represent private equity and private investor capital. She suggested increasing representation from that industry on the Board.

Mr. Chu – ended the meeting at 12:02pm, thanked the Board, and wished everyone safe travels.