

# U.S. Environmental Protection Agency Environmental Financial Advisory Board

## Public Meeting Minutes October 13, 2021

Location: Virtual Meeting via Zoom

Respectfully submitted by Edward H. Chu, EPA Designated Federal Officer  
Certified as accurate by Kerry E. O'Neill, Chair, Environmental Financial Advisory Board

NOTE AND DISCLAIMER: The minutes that follow reflect a summary of remarks and conversation during the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect consensus advice from the Board. Formal advice and recommendations may be found in the final advisory reports or letters prepared and transmitted to the agency following the public meetings. 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.

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## Purpose

The Environmental Protection Agency (EPA) Financial Advisory Board (EFAB or Board) is an advisory committee chartered under the Federal Advisory Committee Act to provide advice and recommendations to EPA on creative approaches to funding environmental programs, projects, and activities. The purpose of this meeting was for EFAB to provide workgroup updates and work products for previously accepted and potential charges, receive updates on EPA activities relating to administration priorities and environmental finance, and consider possible future advisory topics.

## Welcome, Member Roll Call, and Review of Agenda

The meeting was announced in the Federal Register (see appendix 1).

Designated Federal Officer (DFO) Edward (Ed) H. Chu opened the meeting. Ed Chu welcomed attendees and reminded everyone that the virtual meeting is being streamed live. He noted that all materials will be available on EPA's website. He further shared rules for providing public comment; specifically, the 3-minute time limit.

## Roll Call

Ed Chu turned the meeting over to the new EFAB Chair, Kerry O'Neill, for the roll call (see appendix 2 for EFAB member affiliations).

Members present or not present were as follows:

**Kerry E. O'Neill, Chair**, present  
**Ashley Allen Jones**, present  
**Brent Anderson**, not present  
**Janice Beecher**, present  
**Steven J. Bonafonte**,  
present  
**Angela Montoya Bricmont**,  
present  
**Stacy D. Brown**, present  
**Theodore Chapman**,  
present  
**Zachary Davidson**, present  
**Jeffrey R. Diehl**, present  
**Sonja B. Favors**, present  
**Jon B. Freedman**, present  
**Phyllis R. Garcia**, present  
**Edward Henifin**, present  
**Craig Holland**, present

**Craig A. Hrinkevich**, present  
**John L. Jones**, present  
**Margot M. Kane**, present  
**George W. Kelly**, present  
**Cynthia Koehler**, present  
**Colleen Kokas**, present  
**Pamela Lemoine**, present  
**Eric Letsinger**, present  
**James McGoff**, present  
**Christopher Meister**, present  
**James (Tony) Parrott**, present  
**MaryAnna H. Peavey**, present  
**Dennis A. Randolph**, present  
**Eric Rothstein**, present  
**William Stannard**, present  
**Carl Thompson**, present  
**David Zimmer**, present

### **EPA Invited Speakers and Guests**

**Janet McCabe**, EPA Deputy Administrator

**Michelle Madeley**, EPA Office of Policy

**Jeremy Martinich**, EPA Office of Air and Radiation

**David Widawsky**, EPA Office of Chemical Safety and Pollution Prevention

**Alison Kinn Bennett**, EPA Office of Chemical Safety and Pollution Prevention

**Heather Goss**, EPA Office of Water

**Rachel Urban**, EPA Office of Water

See appendix 3 for bios for Janet McCabe and Jeremy Martinich.

Kerry O'Neill reviewed the agenda (see appendix 4) and asked if there were questions. There were none.

### **DFO News**

Ed Chu noted that the meeting was already ahead of schedule, so he gave his DFO update at this point in the day. Ed Chu reported that he was contacted by the National Environmental Justice Advisory Committee (NEJAC) to discover potential areas for collaboration. Ed Chu met with a NEJAC workgroup concerned with budgets and how the workgroup could advise EPA on matters such as the Justice40 initiatives and finance. Ed Chu gave the NEJAC workgroup some background on the EFAB charter and what the Board has been doing recently. The NEJAC workgroup will bring this information back to the broader NEJAC group and discuss potential opportunities for collaboration with EFAB.

Ed Chu said that he had also discussed with the NEJAC workgroup the SOPs that ensure any advice is useful to and actionable by EPA. NEJAC is important to the current Administration, so there will be more discussion on the mechanics of how to make a partnership work between two advisory boards, should the larger NEJAC group want to pursue a collaboration.

Ed Chu turned the meeting back to the Kerry O'Neill.

Kerry O'Neill asked whether NEJAC operated similar to EFAB, such as by taking up charges and partnering with EPA.

Dennis Randolph, who is also a member of NEJAC, explained that NEJAC has both public- and EPA-generated charges. Dennis Randolph remarked that public comments at NEJAC meetings can last six hours. He said that NEJAC is interested in building and financing initiatives, so the group would benefit from training or advice on financing from EFAB.

Ed Chu said that collaboration with NEJAC could include the traditional way in which the two boards advised EPA on how the two groups could engage. Another way would be to form workgroups within each advisory group that could work together. The second way would be a more collaborative way to develop ideas before they get to the level of becoming a charge.

Kerry O'Neill agreed on the value of learning from one another and collaborating ahead of the charge.

Ed Chu said that NEJAC was not fully aware of EFAB's role, expertise, and work.

Kerry O'Neill mentioned that she is very excited about the possibilities of working with NEJAC.

Ed Chu introduced EPA Deputy Administrator Janet McCabe and welcomed her to the EFAB meeting (see appendix 3 for Deputy Administrator McCabe's bio).

## **Welcome and Q&A**

Janet McCabe thanked Ed Chu, Andrew Wynne, and everyone at EPA for assisting EFAB with its important work. She noted Ed Chu's continual advocacy for EFAB within EPA.

Janet McCabe expressed a strong appreciation for working with people such as those on the Board, who understand how financial systems can be used to effectuate and implement policy. She noted some challenges over the years that had straightforward technical solutions but needed funding solutions. Examples of such issues included radon, lead poisoning prevention in children, and reducing an individual's carbon footprint. She said that creative financing models can make choices for solar power, electric vehicles, and so on, available for more people.

Janet McCabe thanked Kerry O'Neill for her leadership and thanked everyone on the Board for their service. She said that to do it right, it takes a lot of time. She said EPA appreciates their public service and EFAB's input on current issues.

Janet McCabe said that EFAB priorities are closely aligned with those of the Biden–Harris Administration and include advancing social and environmental justice through infrastructure investment, assessing risks and costs of infrastructure financing, climate financing, and infrastructure maintenance.

Janet McCabe said the President's priorities, as conveyed through the executive orders he signed on his first day in office, were to protect public health, address the climate crisis, advance environmental justice and equity, and re-establish science and credibility as the backbone of decision-making at EPA.

Janet McCabe said much of EPA's work entails getting money into the hands of people who can put it to good use, particularly supporting underserved communities with innovative solutions.

Janet McCabe said that EPA Administrator Regan made clear that environmental justice must be woven into all EPA work, which means ensuring that all communities have a seat at the table, that there is transparency regarding how decisions are made, and that efforts result in reducing pollution and applying laws to address inequities.

Janet McCabe said that EPA is also working to support the President's Justice40 initiative; that is, devoting at least 40% of federal climate investment to underserved urban and rural communities, such as through green jobs and cleaning up legacy pollution.

Janet McCabe said lead poisoning is a very important issue for President Biden, and she feels hopeful that by looking at the issue holistically, we will make progress. She said that the Build Back Better initiative will allow us to get funds to address lead levels in children to communities that need it.

Janet McCabe thanked everybody again for their contributions and asked if there were questions.

Kerry O'Neill thanked Janet McCabe and asked if EPA would look at EFAB as a resource and bring charges to EFAB around some of the President's priorities.

Janet McCabe replied that lead, climate change, and infrastructure are priorities, and that she'd like to learn more about EFAB initiatives and the Board's areas of interest because collaboration is a 2-way street. Janet McCabe also suggested that one strategy could be to share EFAB's work with EPA leaders and staff to begin to explore how EFAB could help others at EPA.

Kerry O'Neill expressed her appreciation and asked if there were other questions. There were no other questions.

Kerry O'Neill thanked Janet McCabe, and Janet McCabe said she would follow up with Ed Chu about partnership opportunities.

Ed Chu thanked Janet McCabe for joining the meeting.

### **Opportunity Zones Workgroup**

Kerry O'Neill turned the floor over to Margot Kane and Bill Stannard, chairs of the Opportunity Zones (OZ) workgroup.

Bill Stannard reminded listeners that the workgroup's charge was to advise EPA on increasing OZ investment into both rural and urban communities alongside existing EPA funding tools, programs, and partners.

Bill Stannard said the OZ workgroup's effort has been to use a two-pronged approach to the charge, looking at:

1. Benefits derived by communities where OZs exist; and
2. EPA opportunities to coordinate with potential investors and communities to achieve objectives.

Bill Stannard then introduced Michelle Madeley, EPA Office of Policy, who was invited to talk about the current status of the OZ program.

Michelle Madeley thanked the EFAB OZ workgroup and subcommittees. [Referring to a panel of experts convened previously by the OZ workgroup], Michelle Madeley said she was struck by the panel's information on the role of the community in covering "soft costs" in development in top markets. She said that EPA collaborates a lot with communities to educate, plan, and build capacity to be development partners.

Michelle Madeley gave an update on Opportunity Zones at EPA. She said EPA supports the 8,700 OZ designations. One example was with a webinar for OZs in rural communities, hosted by EPA Region 7. She said it was well attended and that EPA received good feedback. She said that, in Region 4, they're doing a lot of post-disaster recovery initiatives for communities impacted by hurricanes. EPA is looking for feedback on working with communities with environmental justice concerns and with communities that do not have access to capital.

Bill Stannard opened the floor for questions.

Bill Stannard asked if there is sufficient support for the OZ program from communities, and whether there is a desire to move the program forward into the future. Michelle Madeley replied that OZ communities are interested in learning how they can leverage their OZ designation and access funds; disadvantaged communities still face challenges.

Bill Stannard remarked that the process cannot be driven externally; it requires communities and investors to get projects going.

Margot Kane asked Michelle Madeley to describe any formal or informal collaborations that are occurring between EPA and other agencies. Michelle Madeley replied that they have talked most recently with HUD, and in the past have worked with other agencies, including USDA and SBA.

Margot Kane thanked Michelle Madeley, Bill Stannard, and the subgroup chairs for moving the work forward.

Margot Kane mentioned that, in August, the workgroup put together an expert panel of OZ fund managers to better understand OZ investment practice. The panel of three were selected for their representation in areas EPA is most interested in, and they represented experience with rural and urban communities, various geographic regions, and numerous specialties, such as investment in business or housing. The panelists were Jonathan Tower from Arctaris, Alecia Hill from Enterprise Community Partners, and Stephanie Copeland from Four Points Funding.

Margot Kane shared some insights from that panel meeting. She said one important insight is the need for planning and development support before investors are engaged. Investors lack time, and communities often lack important pre-development information such as data regarding environmental risks. A second precondition for investor engagement is adequate water infrastructure and water rights. A third precondition is that proposed OZ projects reflect community buy in.

Margot Kane said the expert panel shared that one of the hardest parts is understanding risks, and that communities themselves often do not understand risk. Investors typically do not want to spend time and money to understand risks. Margot Kane also said that the OZ funding structure presents some challenges, such as requirements for project-level government subsidies, which may make projects unfinanceable, especially small projects or those in rural settings. She added that a specific issue related to OZs in particular is uncertainty, such as the future of tax benefits.

Margot Kane then opened the floor for questions.

Kerry O'Neill said that she heard a lot of positive feedback about the panel and wondered whether expert panels are an untapped resource for Board.

Margot Kane felt that having a clear idea for inviting experts would lessen the burden on EPA.

Ed Chu said that Margot's approach taps into expertise that the Board needed and is both transparent and expedient.

Kerry O'Neill turned the meeting to a brief report by OZ subgroup chairs Dennis Randolph and Chris Meister.

Dennis Randolph said his group is working on benefits to communities, including environmental justice communities. He noted that once investors were attracted to town, it was hard to keep them without first dealing with the problem of a lack of basic infrastructure. He said it is also difficult to show how communities as a whole will benefit from OZ investments. Ideally, communities experience a broad array of social and financial benefits and long-term success and prosperity. OZs cannot support new investment without workers, water, sewage, roads, broadband, and so on. These need to be in place before developers take interest. The subgroup will consider how to address the infrastructure challenge.

Chris Meister referred to Margot Kane's point that developers are the ultimate beneficiaries of OZ funding, and the burden falls to locals. He reiterated that private investors are looking for ease and a favorable cost-benefit ratio. He said the subgroup's next steps are looking to EPA for subject matter expertise on brownfields and water to be able to show what the benefits are for investors.

Chris Meister turned the floor back to Bill Stannard and Margot Kane.

Bill Stannard said the workgroup's next step is to have a concise draft at the first meeting in 2022.

Margot Kane invited participants to reach out to the OZ workgroup with ideas and examples.

Ed Chu said EPA did not record the expert webinar. Ed Chu said the meeting summary or transcript could be used as a one-page summary of the webinar.

Kerry O'Neill asked if EFAB would benefit from having a workgroup draft in advance of the spring meeting. She applauded the workgroup's ability to tackle the thorny issue and praised their hard work. Then she called for a break.

## **Climate Finance and Environmental Justice Discussion**

### **Climate Change and Social Vulnerability Report**

Ed Chu introduced Jeremy Martinich from EPA's Office of Air and Radiation.

Jeremy Martinich presented on findings from the [Climate Change and Social Vulnerability in the US](#) report (see appendix 5 for his PowerPoint slides).

Jeremy Martinich explained that the report is part of a larger project that involves a range of public-, private-, and academic-sector partners and aims to quantify climate change impacts in the United States and model results of greenhouse gas mitigation and adaptation efforts. He said the modeling framework has been used for more than a decade, but what's new in this report is the evaluation of how climate risks will be distributed across populations of the U.S.

Jeremy Martinich said the literature is clear that vulnerable populations face higher risks; this report takes a broader look than what has been previously produced. However, he emphasized that this is the first time the Agency has put out a major report of this type, so it's not the last word, but just the beginning.

Jeremy Martinich explained that the recent report focuses on six key economic impact categories that have disproportionate impacts on vulnerable communities:



1. Air quality and health
2. Extreme temperature and health
3. Extreme temperature and labor
4. Coastal flooding and traffic
5. Coastal flooding and property
6. Inland flooding and property

A question was raised in the chat about whether drought was examined. Jeremy Martinich said it was not.

Jeremy Martinich clarified that the terminology used in the report (e.g., “minority”) reflected U.S. Census terms. He also explained that although the country as a whole will get older and more diverse in decades to come, for the purposes of analysis, demographic distributions and patterns were held constant. He further explained that results are presented in an “impacts by degree” framework to help make information more understandable to non-scientists. Impacts by degree means that scenarios are drawn to predict what would happen if global warming increases at 2 degrees Celsius, or 4 degrees Celsius, for example.

Jeremy Martinich pointed out that rises in average global temperature will not affect all parts of the U.S. equally. For example, some parts of the U.S. are predicted to warm more than the global average.

Jeremy Martinich shared findings on analyses of air quality and human health, specifically on annual premature deaths from pollution. In the Midwest, climate changes, including increases in rain, are expected to wash out pollutants in the air on average, but in other places, such as the Southeast and Southwest, there may be more air pollution and hence greater incidence of premature death. The same pollutant drives incidence of childhood asthma.

Jeremy Martinich said that researchers looked at what parts of the country face these air quality impacts, and who is living in these areas. Data show that socially vulnerable people are more likely to live in highly impacted areas and are therefore more likely to experience negative impacts of climate change, such as premature death and childhood asthma. Black and African Americans are particularly at risk of experiencing premature deaths; there is a similar finding for new diagnoses of childhood asthma.

Regarding labor, researchers looked at the effects of extreme temperatures on workers exposed to weather, such as agricultural workers, construction workers, and those who work in processing and manufacturing. Here as well, low-income, minority, and individuals with no high-school diploma are more at risk from impacts, and American Indian and Alaska Natives, Black and African Americans, and Hispanic and Latino individuals face higher comparative risks.

Jeremy Martinich also discussed results of analyses that looked at coastal flooding and impacts on property values and options to protect those properties. Among the results he shared, depending on the level of sea rise, American Indian and Alaska Natives are at a significantly higher comparative risk of being excluded from adaptation (based on the scenario considered in the report), essentially being at higher disproportionate risk of losing their properties.

Jeremy Martinich thanked the EFAB for the opportunity to present a few findings and reiterated that the study represents an important advancement but is by no means the end of EPA research on the topic.

Kerry O'Neill thanked Jeremy for the report. While he was speaking, listeners posed questions in the chat box. Kerry O'Neill shared the following questions from the chat.

David Zimmer asked whether the impact of mold effects from flooding was studied. Jeremy Martinich replied that it was not.

Craig Holland asked if researchers looked only at riverine or fluvial flooding, or did they also look at flooding due to runoff and inadequate conveyance or infrastructure. Jeremy Martinich said they looked only at river flooding, not urban drainage. However, in the broader CIRA project, they do have an urban drainage analysis.

Ted Chapman asked if the air quality study made assumptions as to the future fuel mix of electric generation and vehicular use of internal combustion engines. Jeremy Martinich said that they had two base emission inventories for non-greenhouse gas emissions, one centered on 2011 and one on 2040, which had assumed regulatory policies to reduce anthropogenic emissions. The social vulnerability analyses under both inventories suggested that the number of deaths decrease when non-greenhouse gas emissions decrease but that disproportionality stayed the same.

George Kelly asked about assumptions built in on the number, size, and scope of wildfires and the impacts of those fires on air quality. Jeremy Martinich said that was not in the larger report, but the larger CIRA project has some information on health effects; there will be more to come on that topic.

Cynthia Koehler asked if EPA would be looking at drought impacts more deeply, particularly in the West. Jeremy Martinich replied yes and no; probably not regarding social vulnerability in the near future, but there are several ongoing studies in which drought plays a role.

Kerry O'Neill thanked Jeremy for educating the Board about the issue.

## **Environmental Risk and Cost of Capital Workgroup**

Kerry O'Neill noted that a challenge is finding a client for this work but is hopeful an internal client will emerge so that work will continue. She then turned the floor over to the Environmental Risk and Cost of Capital Workgroup co-chairs Jan Beecher, Ted Chapman, and Chris Meister.

Jan Beecher said that Jeremy Martinich's presentation could not have been better from the workgroup's perspective. Climate risk is economic risk, social risk, and public health risk. The workgroup wants to talk about financial risks, which compound inequalities.

Ted Chapman said that the group is still looking for a sponsor. He said he hears daily about the need to do more regarding environmental and social justice. The financial community has varying degrees of action and involvement, but social justice is on the radar. He said the two biggest hurdles for the financial community are disclosure and materiality. All of this could be correlated, but no standards or agreed-upon definitions exist.

Chris Meister said that recognizing successes would be helpful to EPA. He said EPA is the "original gangster" of climate and environmental finance with state revolving funds; it's a federal, state, and local financing and funding tool that brings tremendous results. Chris Meister shared his surprise that environmental justice communities would be skeptical of public finance mechanisms that bring benefits

to lower income people by lowering the cost of capital. He said he was gratified by the EPA/DOE partnership and said DOE must recognize that EPA has a built-in delivery system to the local level that can be used to address local priorities. The state revolving funds can have a big impact on environmental justice. As an example, he noted that when Flint had its problems, the Federal government and the State of Michigan turned to the state revolving funds to address the issue.

Chris Meister said that EFAB can serve EPA and its partners by popularizing these financing tools; for example, state revolving funds can be deployed to address climate change and avoid some of the outcomes discussed in Jeremy Martinich's presentation. EPA has an opportunity to align priorities, and EFAB has the potential to use the new model of drawing on subject matter experts to produce timely, short, authoritative recommendations to EPA.

Chris Meister handed the floor back to Jan Beecher and Ted Chapman.

Jan Beecher lauded EFAB's rich expertise and its potential to translate difficult financial concepts to broader audiences.

Kerry O'Neill agreed and added that EFAB will need to be in conversations with EPA to know where the group's expertise will be helpful.

Kerry O'Neill thanked the workgroup for its continued engagement.

Ed Chu said that determining what the group wanted to work on specifically will be helpful. He added that EPA may have information and data that would help. If the workgroup's topic is narrowed, the Board could help with recommendations.

Kerry O'Neill turned attention to the Pollution Prevention Workgroup.

## **Pollution Prevention Workgroup**

Ashley Allen Jones thanked the group for time and began to review the charge.

Ashley Allen Jones reviewed EPA's waste management hierarchy. She said the waste management hierarchy (see appendix 6, slide 1) is inversely related to how environmental protection is currently funded. She said we are good at cleaning up messes after we make them but are not good at preventing pollution from getting into the land, air, and water to begin with. She said that David Widawsky's team at EPA is looking at top sectors, such as food and beverage, automotive, aerospace, chemical, and metal manufacturing, that contribute to significant energy and toxic chemical use. When the workgroup looked at David Widawsky's initial presentation to EFAB, it was able to find and refine some barriers to success. Some barriers are the traditional financial barriers, such as fragmentation of middle markets, small business loans, the fact that pollution prevention is not a growth proposition, that the middle market doesn't have an appetite for debt, and so on. Ashley Allen Jones noted there is also a need for technical assistance to fill the gap between the problem and getting to the place where a solution can be financed.

Ashley Allen Jones said the workgroup boiled the barriers down to three strategic questions:

1. How would different finance structures and models work for small manufacturer pollution prevention (P2) projects?
2. How would a sector-based approach to manufacturers inform economies of scale in financing?
3. How can EPA best support expansion of financing and assistance programs?

Ashley Allen Jones said it may be helpful to have a series of workshops that looks at core questions and creates answers around financial structures, financing models, and extension programs that are already working well and that can help support program expansion and delivery.

Ashley Allen Jones said there is a lot to explore, but the workgroup is interested in defining a maximum of six public workshops to look at these different issues within a one-year time frame. The workgroup would come out of these workshops with specific recommendations that they would present to David Widawsky and his EPA team. Ashley Allen Jones said the workgroup might then develop a framework for high-value areas.

David Widawsky thanked the workgroup and the entire EFAB. He said they took a sector-based approach to the EPA P2 grant program, helping businesses to be more environmentally successful while also being economically successful. He noted that these are not at odds. Grant programs provide consulting services to businesses to help them succeed at pollution prevention activities.

David Widawsky said there is increasing interest in certification and standards around environmental accountability. Increasingly, value chains require it. Among the numerous challenges are that a lot of groups are small, they may be geographically dispersed, they may have little access to capital, and technical investments may be necessary to meet standards.

David Widawsky said that most of the grantees he works with are not finance specialists, and it is a challenge to help others learn from case studies in an opportune time frame. He said his office is looking at sharing information on innovative finance structures to a wider group of people without a high level of finance expertise. He expressed interest in how EPA would promote those practices to audiences who can use them.

Kerry O'Neill opened the floor for discussion.

Craig Holland asked if there has been any discussion on labeling standards (like the Energy Star program), and whether there are opportunities to provide direct grants and technical assistance to small businesses to help them through the labeling process to increase consumer demand for these products.

Alison Kinn Bennett replied that it has been a program goal to do more to provide technical assistance to small and medium businesses in meeting standards, certifications, and ecolabels. She said EPA's Environmentally Preferable Purchasing (EPP) program engages in standards development — representing the breadth of EPA expertise — and recommends standards and ecolabels for federal government procurements. The EPP program has developed a framework for assessing standards and labels that help identify not just what is appropriate and effective for government sustainable purchasing goals and mandates, but which are most likely to help a manufacturer sort through the green “noise” and align their products and processes to capture a broader market share.

David Widawsky said that EPA, through the Pollution Prevention Act, advises other federal agencies on incorporating sustainability into procurement practices, and serves as a force multiplier for state, local, and private business procurement to identify environmentally preferable products.

Kerry O'Neill asked if the charge is to help small businesses make the upgrades they need to mitigate pollution, and whether standards make it easier to attract investors at the local level. She asked if exploring standards is a theme that this workgroup considers.

David Widawsky said there are a variety of motives; financing at the local level is key.

Ted Henifin stated that there's a federal tie to SRF and other investments. Congress is focused on assigning manufacturers more responsibility for bearing the costs of cleanup; costs that currently fall largely on the public. So, it isn't just a business case for small businesses, but a huge public element here; for example, reducing costs on wastewater processing. Maybe a redirection of federal funding for technology to prevent versus. treat, thereby addressing the problem at the front end versus. back end.

David Widawsky mentioned examples of monetizing downstream benefits of source reductions to help fund upstream changes that obviate the need for the downstream cleanup.

Kerry O'Neill said that speaks to creative capital stacks in situations like this.

A person asked in the chat how the Chamber of Commerce could assist with the charge. Kerry O'Neill said the extension services may be an area.

Ted Chapman mentioned an example regarding post-consumer waste in Alaska, and a solution in which everyone along the value chain shared the responsibility for dealing with the waste [see Backhaul Alaska report: <https://www.epa.gov/waterfinancecenter/revenue-options-waste-backhaul-service-program-rural-alaska>.] Ed Chu emphasized the importance of that case and thought there could be lessons learned to explore. David Widawsky said it may depend on whether the business case depended on incentives.

George Kelly said that one of the ways EFAB could help is by looking at policy incentives and what best practices are out there. Financial structure can be confusing because different sectors are structured differently to deal with pollution. He stressed that analyses of policy incentives are important.

Ashley Allen Jones said to address that confusion, maybe the group should consider framing the charge as incentives and best practices, which might resonate more. George Kelly said this makes it clearer.

David Widawsky mentioned the heterogeneity that exists is one of the reasons the P2 Program pivoted, for now, to a sector-based approach to better develop economies of scale.

Kerry O'Neill asked if there was a motion to adopt the charge.

George Kelly moved to adopt the charge. Cynthia Koehler seconded the motion.

Ashley Allen Jones quickly mentioned that the workgroup would welcome additional support from other Board members with expertise in this area. Kerry O'Neill brought up the ability to leverage networks.

Kerry O'Neill asked for a show of hands. Because the online format made a hand count difficult, she asked to see those opposed. None opposed.

Jeff Diehl suggested a roll call vote during future virtual meetings.

Kerry O'Neill conducted a roll call vote and found unanimous support for adopting the charge. Ed mentioned the Board has quorum today in addition to a majority for voting and approval.

Jan Beecher shared an editorial comment about the term "best practice." She said there is a need to be careful about this term being seized to advance a different agenda. She suggested alternative phrasing such as "generally accepted," "promising," "sound," or "proven."

### **Stormwater Credit Trading Workgroup**

Kerry O'Neill introduced the Stormwater Credit Trading topic and workgroup and turned the floor over to EPA client, Heather Goss, to give an overview and update.

Heather Goss introduced herself and her colleague Rachel Urban, both from EPA's Office of Water. Heather Goss said she's had a few introductory conversations with EFAB about what would be most useful as an EFAB effort and dovetail with EPA work related to off-site stormwater management.

Heather Goss then gave some background on EPA's perspective on the topic. She began by informing listeners that EPA stormwater regulations require certain municipal separate storm sewer systems (MS4s) to address post-construction stormwater discharges if development or redevelopment disturbs an acre or more. Most states have developed numeric performance or design standards to control post-construction stormwater discharges. She said there are a couple types of numeric performance standards. The first is treatment standards, which specify an amount of pollution to be managed. The next is volume (or retention) standards, which look at a volume; for example, the volume of a certain size precipitation event to be managed. The National Pollutant Discharge Elimination System (NPDES) regulations provide flexibility to MS4s to choose how to comply with MS4 permits. So, for example, under certain conditions, developers can manage stormwater at a location that is different from the project location and still be in compliance. She explained, for example, that in densely developed areas, there may not be enough space or there may be utility conflicts or other constraints that limit the ability to fully manage stormwater on-site. In some cases, stormwater may be managed off-site. This mechanism is sometimes known as "off-site stormwater management," "stormwater credit trading," "credit trading," "off-site mitigation," or other terms.

Heather Goss said off-site stormwater management allows some communities to manage stormwater in areas not currently undergoing development. It can provide environmental and community benefits and flexibility within permit implementation to consider multi-benefit solutions. It complements other tools like water quality trading and integrated planning and provides opportunities to implement green infrastructure. In some cases, off-site management may be more effective, efficient, and cost effective than on-site stormwater management. But despite the potential benefits, she said the flexibility is not understood or used in all areas of the country. She said that EPA has been considering opportunities to provide information to stakeholders to increase awareness of off-site stormwater management as a tool for flexible permit compliance.

Heather Goss said that, over the past months, EPA has been connecting with stakeholders regarding this issue, so EFAB's interest in this topic is timely. Discussions with the workgroup are helping to narrow in on how EFAB can assist EPA on the topic. Some states and municipalities have been developing stormwater management systems with a diversity of structures, and some are facing challenges, whereas others are looking for models. Heather Goss said there may be an opportunity for EFAB to provide advice on information and outreach, particularly on how to develop on market-based models. For example, EFAB could explore options for structuring off-site stormwater management programs and the implications of the various structures. Alternatively, EFAB could provide a framework that assists jurisdictions in making informed decisions about how to structure programs. Or EFAB could create case studies on existing programs to look at key elements of success. She said another idea is for EFAB to look through an economic lens at ways to incorporate equity and environmental justice considerations, as well as resiliency considerations, into off-site stormwater management structures.

Heather Goss said that if EFAB takes a charge in this area, the ultimate product could take a variety of forms. EPA would likely recommend a consultation or meeting among economic experts and stakeholders, particularly off-site stormwater implementers. She said EPA looks forward to working with EFAB on this issue, and she turned the floor over to the workgroup.

Ted Henifin said that this was a charge EFAB generated back in February 2020, but the workgroup did not have an EPA client at that time. Now, he said, with Heather Goss and Rachel Urban, the workgroup is beginning to make progress. He said that the MS4 permit is being used in a variety of ways, and the challenge is getting information to the right people and building confidence that, if the market is built, it will be used.

Craig Holland agreed that there are many ways EFAB can approach this topic. In addition to looking at it from a policy perspective, EFAB could look at it from the perspective of suppliers, considering ways to incentivize businesses, communities, and developers to invest further in off-site mitigation strategies and understand the conditions they would need to invest further in these types of projects. He'd asked for feedback on what the best type of project would be that fits EFAB's mission and the interests of members.

George Kelly said that it is advisable to deal with the demand side, which, to Heather Goss' point, would include the educational component. In his experience, he said, trading programs can be more expensive than the alternative, which is the developer or community doing it themselves. It is important to assess the potential savings. For example, in San Diego, a developer could meet their stormwater obligations without doing the O&M by turning development over to the homeowner's association, which in turn takes on the O&M. Meanwhile, credit suppliers would have to do the restoration activity plus the O&M, which makes it more expensive; hence, no developer would turn to the credit supplier. George Kelly said we need to assess this carefully; we're not seeing enforcement of O&M at the stormwater level, which creates major barriers to the credit market.

Kerry O'Neill asked if there is an opportunity to educate (e.g., using expert practitioner panels) around the policy versus demand question. This could be a short charge as a way to explore with EPA that leads to a more substantive charge.

Craig Holland said he would be open to convening an expert panel to discuss this. One of the issues is that these markets tend to be very local with smaller actors, and case studies might not fit another market. Therefore, it might be difficult for EFAB to get at the type of information EPA is looking for to

inform broader recommendations relevant nationally. However, there are enough commonalities with other environmental markets (e.g., wetland mitigation) for useful perspective to be shared that could be beneficial to this topic.

Ashley Allen Jones wondered whether looking at a regional level might be the right path.

Craig Holland replied that it may work to look at multiple regions, but he would defer to Heather Goss and Rachel Holland on which regions would be the best to look at.

Kerry O'Neill said that these comments will help to inform where the workgroup goes next.

Ed Chu stated that, as a matter of process, he recommends further discussion among the workgroup members about what EPA is offering as a charge.

Craig Holland agreed and suggested the workgroup explore this in collaboration with the EPA client.

David Zimmer asked if the Board would also like to consider disadvantaged communities, where trading credits will likely be used. Credits could help turn around disadvantaged communities in addition to addressing stormwater issues.

Kerry O'Neill agreed. She asked for a show of hands on who would be interested in exploring this issue and workgroup. David Zimmer, George Kelly, Carl Thompson, Pamela Lemoine, Cynthia Koehler, Stacy Brown, Dennis Randolph, and Jeff Diehl raised their hands.

## **Public Comment**

Kerry O'Neill next opened the floor for public comment.

Ed Chu indicated that if the registered speakers were present, the group could move ahead now with hearing public comments. The sole registered speaker, Chuck Chaitovitz of the U.S. Chamber of Commerce, was present. He also submitted written testimony (see appendix 7).

Chuck Chaitovitz said that, regarding stormwater mitigation, the Chamber has long been supportive of off-site measures as a way for industrial dischargers and the MS4 community to meet their permit limits. He said he has been in conversation with Heather Goss about this for some time. In addition, he has been working with a coalition of stakeholders in this area, and he had submitted the coalition's principles to EFAB for consideration. Chuck Chaitovitz also raised the need for a compendium of best practices to highlight who has had success in stormwater mitigation. He said it could help states look for solutions and understand what is possible in both policy and financing.

Regarding environmental justice, Chuck Chaitovitz said that pre-development is an almost universal need in small and disadvantaged communities. He said developing a fund or approach to help communities address pre-development is important to get projects moving. He noted that he is involved with the Water Finance Exchange, which is testing some of these issues out across the country. There is also a small amount of funding available for lead line replacement. He also said there is a pilot project for income assistance in the water field, similar to what is available in energy markets. All of these are important components of infrastructure and services for disadvantaged communities.



Chuck Chaitovitz said the Chamber has long supported building smart, modern, resilient infrastructure. There is significant funding in the bipartisan infrastructure framework, and he advised looking for ways to involve private finance and mobilize private capital.

Chuck Chaitovitz's last point concerned the pre-treatment of wastewater and PFAS. He said the Chamber supports public and private funding to support the innovation needed to help wastewater utilities address this growing contaminate concern.

Ed Chu thanked Chuck Chaitovitz and turned the meeting over to Kerry O'Neill.

### **EFAB Chair's Corner**

Kerry O'Neill said that one of the big questions is EFAB's capacity to take on more, given that it is a volunteer board.

She said that areas that EFAB can continue to explore include climate, climate resilience, and impacts on environmental justice and disadvantaged communities.

She noted that Deputy Administrator McCabe raised opportunities such as partnering with NEJAC and others, as well as the issues of lead paint, solar energy, and partnering with other agencies. Kerry O'Neill said that hearing the Deputy Administrator ask EFAB what they would like to engage in challenges the Board to think about how to respond.

Kerry O'Neill said that, no matter the charge, she would like the Board to always ask how it impacts disadvantaged communities and environmental justice.

Kerry O'Neill also mentioned the opportunity EFAB has for leveraging expertise in shorter formats, such as the expert panel described above. This may lead to shorter cycle charges and allow EFAB to engage without stressing the group's capacity.

Kerry O'Neill invited comments from Ed Chu and others.

Ed Chu added that the challenges presented by having to work remotely (e.g., no in-person interaction) have been difficult for EFAB and, because these challenges are likely to continue, there is a need to figure out how to give EFAB members the best experience and discuss what may need to change. Ed Chu said that his challenge is to have effective and productive interactions so the chair's vision can be carried out. He said that the President's vaccine mandate may allow the next meeting to be in person, at least for some. Ed Chu also noted that several members will see the end of their terms next year.

Kerry O'Neill said that EFAB terms create urgency to draw on Board member expertise while the members are still serving.

Ed Chu mentioned the next solicitation for EFAB membership will be coming up soon and would welcome feedback from members on the types of work they're interested in and expertise they'd like to see on the Board.

Kerry O'Neill asked if there were any final comments.

Angela Bricmont said she enjoyed the social vulnerability report, which gave her many ideas regarding cost of capital and merging the two concepts. She asked if there are ways that members can get up to speed before meetings so that she can put some thought into issues before the meetings.

Ed Chu said that one consideration for the Board to explore is creating workgroups affiliated with broader program areas. The current format (project-based approach) is limiting and doesn't allow the entire Board to get deeply involved.

Kerry O'Neill agreed and invited participants to reach out to her or Ed Chu on how to be more effective.

Ed Chu mentioned the four projects the Board is currently involved with and the opportunity for additional project development, with the key being how engagement is conducted. There is plenty of work that aligns with everyone's interests; the dots just need to be connected.

Kerry O'Neill and Ed Chu have the goal and will continue to advocate for an in-person meeting the next time.

Ed Chu thanked special assistant Andrew Wynne, who has been critical for ensuring meetings and webinars go smoothly.

## **Adjourn**

Ed Chu thanked everyone and adjourned the meeting.

## Appendix 1. Federal Register Announcement



53656

Federal Register / Vol. 86, No. 185 / Tuesday, September 28, 2021 / Notices

Dated: September 10, 2021.

**Carolyn Hoskinson,***Director, Office of Resource Conservation and Recovery.*

[FR Doc. 2021-21020 Filed 9-27-21; 8:45 am]

BILLING CODE 6560-50-P

**ENVIRONMENTAL PROTECTION AGENCY**

[FRL-9065-01-OW]

**Notice of Virtual Public Meeting of the Environmental Financial Advisory Board via Webcast****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Notice of virtual public meeting.

**SUMMARY:** The United States Environmental Protection Agency (EPA) announces a virtual public meeting via webcast of the Environmental Financial Advisory Board (EFAB). The meeting will be shared in real-time via webcast and public comments may be provided in writing in advance or virtually via webcast. Please see **SUPPLEMENTARY INFORMATION** for further details. The purpose of the meeting will be for the EFAB to provide workgroup updates and work products for previously accepted and potential charges, receive updates on EPA activities relating to administration priorities and environmental finance, and consider possible future advisory topics.

**DATES:** The virtual public meeting will be held on October 13, 2021 from 12 p.m. to 4 p.m. Eastern Time.

**ADDRESSES:** Information to access the webcast will be provided upon registration in advance of the meeting.

**FOR FURTHER INFORMATION CONTACT:** Any member of the public who wants information about the meeting may contact Ed Chu, the EFAB Designated Federal Officer, via telephone/voicemail at (913) 551-7333 or email to [efab@epa.gov](mailto:efab@epa.gov). General information concerning the EFAB is available at <https://www.epa.gov/waterfinance/center/efab>.

**SUPPLEMENTARY INFORMATION:**

**Background:** The EFAB is an EPA advisory committee chartered under the Federal Advisory Committee Act (FACA), 5 U.S.C. App. 2, to provide advice and recommendations to EPA on innovative approaches to funding environmental programs, projects, and activities. Administrative support for the EFAB is provided by the Water Infrastructure and Resiliency Finance Center within EPA's Office of Water. Pursuant to FACA and EPA policy, notice is hereby given that the EFAB

will hold a virtual public meeting via webcast for the following purposes:

(1) Provide EFAB workgroup updates to the Board regarding work products related to the Opportunity Zones charge the Board accepted during its October 2020 meeting;

(2) Discuss potential future EFAB charges including Stormwater Credit Trading, Environmental Risk and Cost of Capital, Financing Small Manufacturer Pollution Prevention Projects, and others; and

(3) Receive briefings from invited EPA speakers on environmental finance topics.

**Registration for the Meeting:** To register for the meeting, please visit <https://www.epa.gov/waterfinance/center/efab#meeting>. Interested persons who wish to attend the meeting via webcast must register by October 5, 2021. Pre-registration is strongly encouraged.

**Availability of Meeting Materials:** Meeting materials, including the meeting agenda and briefing materials, will be available on EPA's website at <https://www.epa.gov/waterfinance/center/efab>.

**Procedures for Providing Public Input:** Public comment for consideration by EPA's federal advisory committees has a different purpose from public comment provided to EPA program offices. Therefore, the process for submitting comments to a federal advisory committee is different from the process used to submit comments to an EPA program office. Federal advisory committees provide independent advice to EPA. Members of the public may submit comments on matters being considered by the EFAB for consideration as the Board develops its advice and recommendations to EPA.

**Oral Statements:** In general, individuals or groups requesting an oral presentation at a virtual public meeting will be limited to three minutes each. Persons interested in providing oral statements at the October 2021 meeting virtually via webcast should register in advance and provide notification, as noted in the registration confirmation, by October 5, 2021 to be placed on the list of registered speakers.

**Written Statements:** Written statements for the October 2021 meeting should be received by October 5, 2021 so that the information can be made available to the EFAB for its consideration prior to the meeting. Written statements should be sent via email to [efab@epa.gov](mailto:efab@epa.gov). Members of the public should be aware that their personal contact information, if included in any written comments, may be posted to the EFAB website.

Copyrighted material will not be posted without explicit permission of the copyright holder.

**Accessibility:** For information on access or services for individuals with disabilities or to request accommodations for a disability, please register for the meeting and list any special requirements or accommodations needed on the registration form at least 10 business days prior to the meeting to allow as much time as possible to process your request.

Dated: September 22, 2021.

**Andrew D. Sawyers,***Director, Office of Wastewater Management, Office of Water.*

[FR Doc. 2021-20994 Filed 9-27-21; 8:45 am]

BILLING CODE 6560-50-P

**ENVIRONMENTAL PROTECTION AGENCY**

[EPA-HQ-OLEM-2018-0543; FRL-8889-01-OLEM]

**Proposed Information Collection Request; Comment Request; Hazardous Remediation Waste Management Requirements (HWIR) Contaminated Media, EPA ICR No. 1775.09, OMB Control No. 2050-0161****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Notice.

**SUMMARY:** The Environmental Protection Agency (EPA) is planning to submit an information collection request (ICR), "Hazardous Remediation Waste Management Requirements (HWIR) Contaminated Media" (Renewal), (EPA ICR No. 1775.09, OMB Control No. 2050-0161) to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act (PRA). Before doing so, the EPA is soliciting public comments on specific aspects of the proposed information collection as described in **SUPPLEMENTARY INFORMATION**. This is a proposed extension of the ICR, which is currently approved through April 30, 2022. An Agency may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number.

**DATES:** Comments must be submitted on or before November 29, 2021.

**ADDRESSES:** Submit your comments, referencing by Docket ID No. EPA-HQ-OLEM-2018-0543, to: (1) EPA online using [www.regulations.gov](http://www.regulations.gov) (our preferred method), by email to

## Appendix 2. EFAB Members

# U.S. ENVIRONMENTAL PROTECTION AGENCY ENVIRONMENTAL FINANCIAL ADVISORY BOARD OCTOBER 2021

**Kerry E. O'Neill, Chair**  
**Edward H. Chu, Designated Federal Officer**

### MEMBERS

NAME	AFFILIATION	REPRESENTED GROUP
Kerry E. O'Neill	Chief Executive Officer, Inclusive Prosperity Capital, Inc. Stamford, CT	Environmental / Non-governmental Organization
Ashley Allen Jones	Founder and Chief Executive Officer, i2 Capital Washington, D.C.	Business – Financial Services
Brent Anderson	Chief Executive Officer, RESIGHT Littleton, CO	Business – Industry
Janice Beecher	Director, Institute of Public Utilities, Michigan State University East Lansing, MI	Academic Expert (Special Gov't Employee)
Steven J. Bonafonte	Assistant District Counsel, The Metropolitan District of Hartford Hartford, CT	State / Local Government
Angela Montoya Bricmont	Chief Finance Officer, Denver Water Denver, CO	State / Local Government
Stacy D. Brown	President and Chief Executive Officer, Freberg Environmental, Inc. Denver, CO	Business – Financial Services
Theodore Chapman	Investment Banking Analyst, Hilltop Securities Inc. Dallas, TX	Business – Financial Services
Zachary Davidson	Director of Underwriting, Ecosystem Investment Partners Baltimore, MD	Business – Financial Services
Jeffrey R. Diehl	Chief Executive Officer, Rhode Island Infrastructure Bank Providence, RI	State / Local Government
Sonja B. Favors	Chief, Industrial Hazardous Waste Branch, Alabama Department of Environmental Management Montgomery, AL	State / Local Government
Jon B. Freedman	Senior Vice President for Global Government Affairs, SUEZ Water Technologies & Solutions Charlottesville, VA	Business – Industry
Phyllis R. Garcia	Treasurer, San Antonio Water System San Antonio, TX	State / Local Government
Edward Henifin	General Manager, Hampton Roads Sanitation District Virginia Beach, VA	State / Local Government

NAME	AFFILIATION	REPRESENTED GROUP
Craig Holland	Senior Director of Urban Investments, The Nature Conservancy Arlington, VA	Environmental / Non-governmental Organization
Craig A. Hrinkevich	Managing Director, Public Finance Team - New Jersey, Robert W. Baird & Company Inc., Red Bank, NJ	Business – Financial Services
John L. Jones	Member of the Board, New Mexico Rural Water Association Albuquerque, NM	State / Local Government
Margot M. Kane	Chief Investment Officer, Spring Point Partners LLC Philadelphia, PA	Business – Financial Services
George W. Kelly	Global Client Strategy Officer, Earth & Water Strategies Denver, CO	Business – Financial Services
Cynthia Koehler	Executive Director, WaterNow Alliance San Francisco, CA	Environmental / Non-governmental Organization
Colleen Kokas	Executive Vice President, Environmental Liability Transfer, Inc., Lahaska, PA	Business – Industry
Pamela Lemoine	Principal Consultant, Black & Veatch Management Consulting, LLC, Chesterfield, MO	Business – Financial Services
Eric Letsinger	Founder and Chief Executive Officer, Quantified Ventures, Chevy Chase, MD	Business – Financial Services
James McGoff	Director of Environmental Programs, Indiana Finance Authority, Indianapolis, IN	State / Local Government
Christopher Meister	Executive Director, Illinois Finance Authority Chicago, IL	State / Local Government
James (Tony) Parrott	Executive Director, Metropolitan Sewer District of Louisville, Louisville, KY	State / Local Government
MaryAnna H. Peavey	Grants and Loans Supervisor, Idaho Department of Environmental Quality Boise, ID	State / Local Government
Dennis A. Randolph	City Traffic Engineer, City of Kalamazoo Public Services Department Kalamazoo, MI	State / Local Government
Eric Rothstein	Principal, Galardi Rothstein Group Chicago, IL	Business – Financial Services
William Stannard	Chairman of the Board, RAFTELIS Kansas City, MO	Business – Financial Services
Carl Thompson	Vice President, Sales and Marketing, Infiltrator Water Technologies, Old Saybrook, CT	Business – Industry
David Zimmer	Executive Director, New Jersey Infrastructure Bank Lawrenceville, NJ	State / Local Government

## Appendix 3. Speaker Bios

### U.S. Environmental Protection Agency Environmental Financial Advisory Board Virtual Public Meeting – October 13, 2021

#### Janet McCabe

Janet McCabe was sworn in as the 16th Deputy Administrator of the United States Environmental Protection Agency on April 29, 2021. Deputy Administrator McCabe returns to EPA after spending seven years working as Acting Assistant Administrator and Principal Deputy to the Assistant Administrator in the Office of Air and Radiation under President Barack Obama.

Prior to rejoining EPA, Janet McCabe was a Professor of Practice at the Indiana University McKinney School of Law and Director of the IU Environmental Resilience Institute, where she started as Assistant Director for Policy and Implementation in 2017. Her work at Indiana University centered on establishing innovative, research-informed, and actionable solutions to reduce environmental risks and help protect the health of communities and families.

Over the course of her career, McCabe has spent time working for state environmental agencies in Massachusetts and her long-time adopted home state of Indiana, with a focus on implementation of the Clean Air Act and other air quality issues. Prior to joining EPA in November 2009, McCabe was Executive Director of Improving Kids' Environment, Inc., a children's environmental health advocacy organization based in Indianapolis.

McCabe knows firsthand through these experiences that programs to improve public health and protect our environment are strongest when they are informed by a diversity of perspectives, and rooted in science, transparency, and the law.

McCabe grew up in Washington, D.C. and graduated from Harvard College in 1980 and Harvard Law School in 1983. From 1983 to 1984 she clerked for Justice Neil L. Lynch of the Massachusetts Supreme Judicial Court. She and her husband have three children and two grandchildren.

#### Jeremy Martinich

Jeremy Martinich is the Acting Chief of the Climate Science and Impacts Branch within EPA's Office of Air and Radiation – Climate Change Division. His work focuses on the quantification and monetization of climate change impacts in the U.S.

## Appendix 4. Meeting Agenda

### U.S. Environmental Protection Agency Environmental Financial Advisory Board

Public Meeting  
Location: Virtual via Zoom



October 13, 2021  
12:00-4:00 pm Eastern Time

12:00 pm	<b>WELCOME, MEMBER ROLL CALL, AND REVIEW OF AGENDA</b> <ul style="list-style-type: none"> <li>Edward H. Chu, EFAB Designated Federal Officer</li> <li>Kerry O’Neill, EFAB Chair</li> </ul>
12:30 pm	<b>WELCOME AND Q&amp;A</b> <ul style="list-style-type: none"> <li>Janet McCabe, EPA Deputy Administrator</li> </ul>
1:00 pm	<b>OPPORTUNITY ZONES WORKGROUP</b> <ul style="list-style-type: none"> <li>Margot Kane and Bill Stannard, Workgroup Co-Chairs</li> <li>Michelle Madeley, EPA Office of Policy</li> </ul>
1:30 pm	<b>BREAK</b>
1:40 pm	<b>CLIMATE FINANCE AND ENVIRONMENTAL JUSTICE DISCUSSION</b> <ul style="list-style-type: none"> <li>Climate Change and Social Vulnerability Report – Jeremy Martinich, EPA Office of Air and Radiation</li> <li>Environmental Risk and Cost of Capital Workgroup – Jan Beecher, Ted Chapman, and Chris Meister, Workgroup Co-Chairs</li> </ul>
2:25 pm	<b>POLLUTION PREVENTION WORKGROUP</b> <ul style="list-style-type: none"> <li>Ashley Allen Jones, Workgroup Chair</li> <li>David Widawsky, EPA Office of Chemical Safety and Pollution Prevention</li> </ul>
2:55 pm	<b>BREAK</b>
3:00 pm	<b>STORMWATER CREDIT TRADING WORKGROUP</b> <ul style="list-style-type: none"> <li>Heather Goss and Rachel Urban, EPA Office of Water</li> <li>Ted Henifin and Craig Holland, Workgroup Co-Chairs</li> </ul>
3:15 pm	<b>EFAB CHAIR’S CORNER</b> <ul style="list-style-type: none"> <li>Kerry O’Neill, EFAB Chair</li> </ul>
3:30 pm	<b>DFO NEWS</b> <ul style="list-style-type: none"> <li>Edward H. Chu, EFAB Designated Federal Officer</li> </ul>
3:45 pm	<b>PUBLIC COMMENT</b> <ul style="list-style-type: none"> <li>Registered Speakers</li> </ul>
4:00 pm	<b>ADJOURN</b>

## Appendix 5. Martinich Presentation


# Climate Change and Social Vulnerability in the U.S.

*A Focus on Six Impacts*



[www.epa.gov/cira/social-vulnerability-report](http://www.epa.gov/cira/social-vulnerability-report)

1



## Climate change Impacts and Risk Analysis (CIRA) Project

- Objective: quantify and monetize climate impacts across sectors of the U.S., including how risks can be reduced through GHG mitigation and adaptation.
  - Approach uses a common modeling framework (consistent inputs and assumptions) to simulate impacts across sectors.
  - CIRA is coordinated by CCD, but involves researchers from other agencies (e.g., NOAA, CDC, USFS), consultants, and academics.
  - CIRA's methods and sectoral impact models are supported by a rich literature consisting of >50 journal articles.
  - CIRA is well-positioned to answer questions regarding the physical/ economic impacts of climate change, but historically has not focused on distributional effects.

2





## Climate change Impacts and Risk Analysis (CIRA) Project

EPA has released two reports summarizing each of the modeling phases of the CIRA project.

- *Climate Change in the United States: Benefits of Global Action*
  - [2015] Quantified impacts to 20 sectors



- *Multi-Model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment*
  - [2017] Quantified impacts to 24 sectors



3



## Motivation and Overview

- Vulnerable populations (e.g., age, income, race) face higher risks from the impacts of climate change.
  - They have less capacity to prepare for, respond to, and recover from climate-related impacts.
- There remains a paucity of literature on studies that quantify and monetize risks to vulnerable populations in climate assessments.
- This report quantifies the extent to which socially vulnerable U.S. populations may disproportionately experience climate change impacts.
  - This report summarizes findings from a number of coordinated, technical analyses.
  - Results are intended to inform the development of the Fifth National Climate Assessment.
  - The methods represent an advancement of the science, but there are important limitations.
    - We intend to build on this work to consider additional impacts and populations.

4



## Six Impact Categories



**AIR QUALITY AND HEALTH**  
New asthma diagnoses in children age 0 to 17 due to particulate air pollution, and premature deaths in adults ages 65 and older due to particulate air pollution.<sup>4</sup>



**EXTREME TEMPERATURE AND HEALTH**  
Deaths due to extreme temperatures.



**EXTREME TEMPERATURE AND LABOR**  
Labor hours lost by weather-exposed workers due to high-temperature days.



**COASTAL FLOODING AND TRAFFIC**  
Traffic delays due to high-tide flooding and extreme temperature and precipitation.<sup>5</sup>



**COASTAL FLOODING AND PROPERTY**  
Property inundation due to sea level rise, and exclusion from protective adaptation measures.




**INLAND FLOODING AND PROPERTY**  
Property damage or loss due to inland flooding.

- Selected based on known sensitivity, economic relevance, and available data/methods.
- Analyses designed to isolate the effects of climate change.


[www.epa.gov/cira/social-vulnerability-report](http://www.epa.gov/cira/social-vulnerability-report)

5

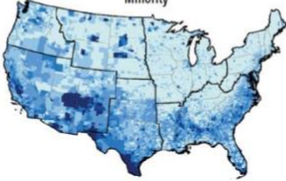


## Four Measures of Social Vulnerability


Low Income




Minority



No High School Diploma



65 and Older



- Defined using data and nomenclature from the U.S. Census Bureau's 2014-2018 American Community Survey.
- Analyses of this report estimate impacts at the Census tract or block group level for the contiguous U.S.
- Given uncertainties in projecting demographic trends through 2100, we estimate climate impacts assuming constant demographics.
- This report does not explore important connections between these measures.

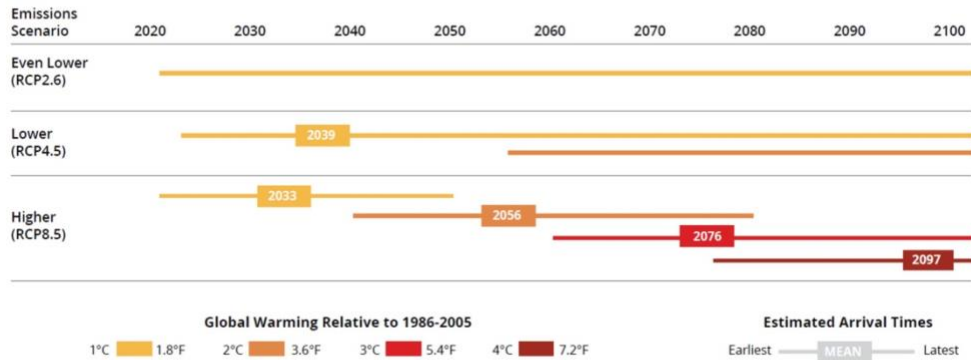


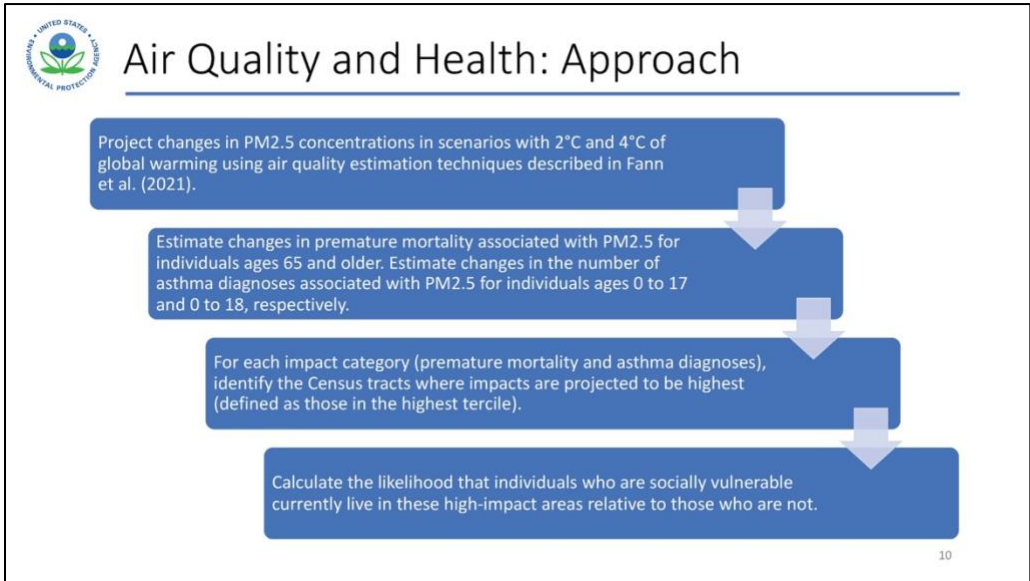
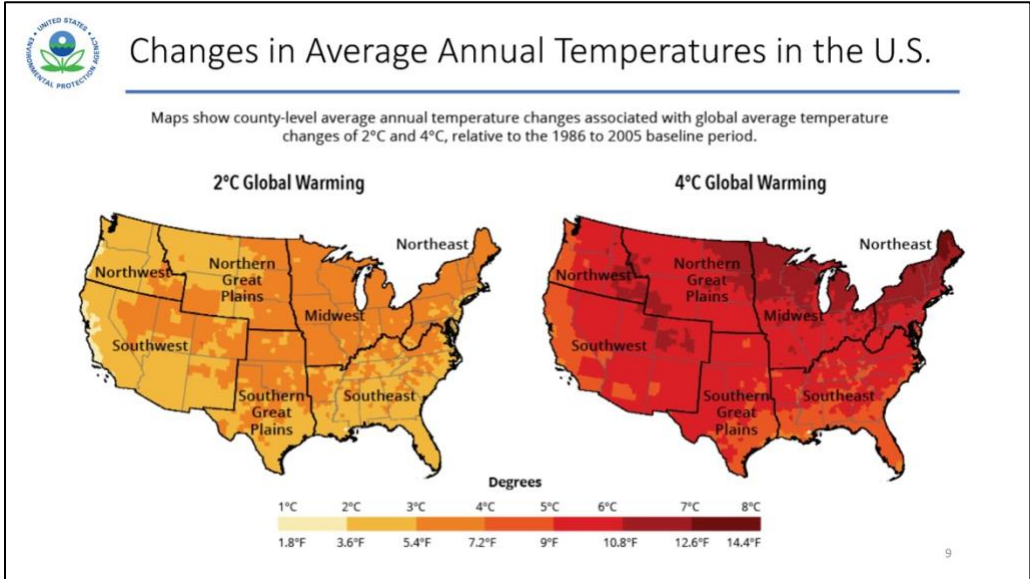
## Impacts by Degree Framework

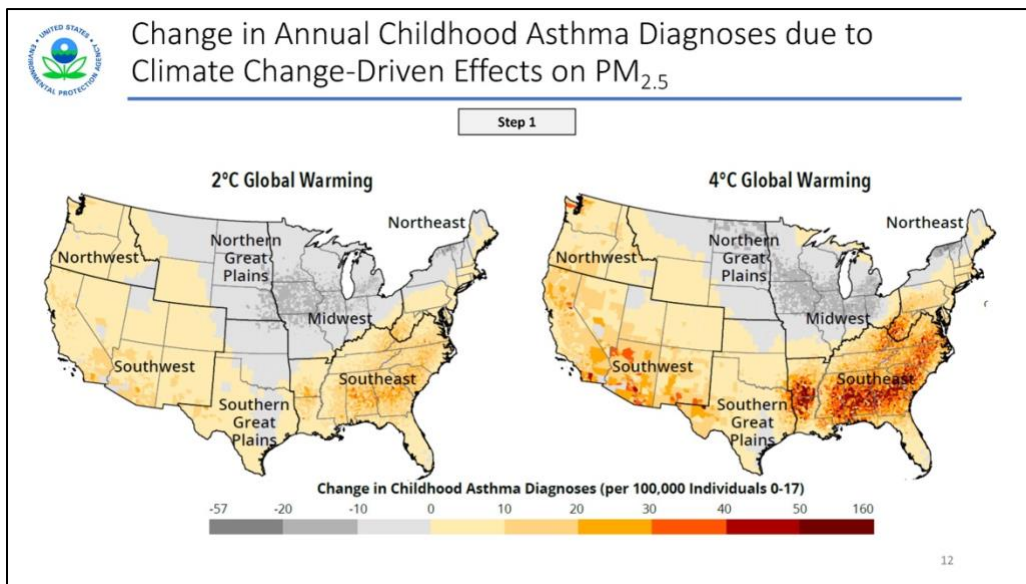
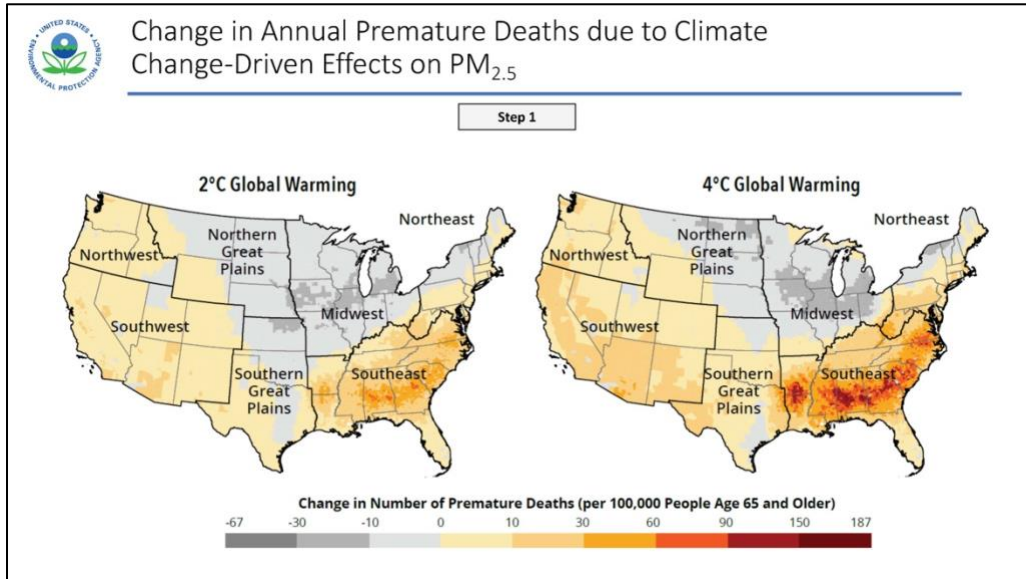
- This report uses an impacts by degree framework for ease of communication.
- Changes in impacts in the Air Quality and Health, Extreme Temperature and Health, Extreme Temperature and Labor, and Inland Flooding and Property chapters are summarized according to changes in global mean temperature.
  - For each sector, impacts are quantified under 2°C and 4°C warming relative to the 1986-2005 baseline.
- Changes in impacts in the Coastal Flooding and Traffic and Coastal Flooding and Property chapters are summarized according to changes in global mean sea level.
  - For each sector, impacts are quantified with 50 cm and 100 cm of global sea level rise relative to the year 2000.



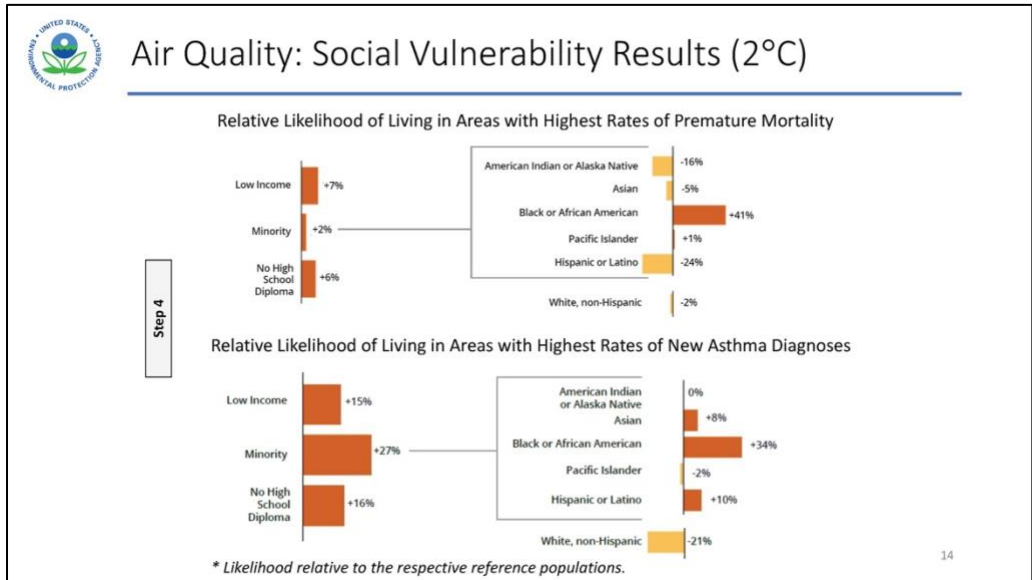
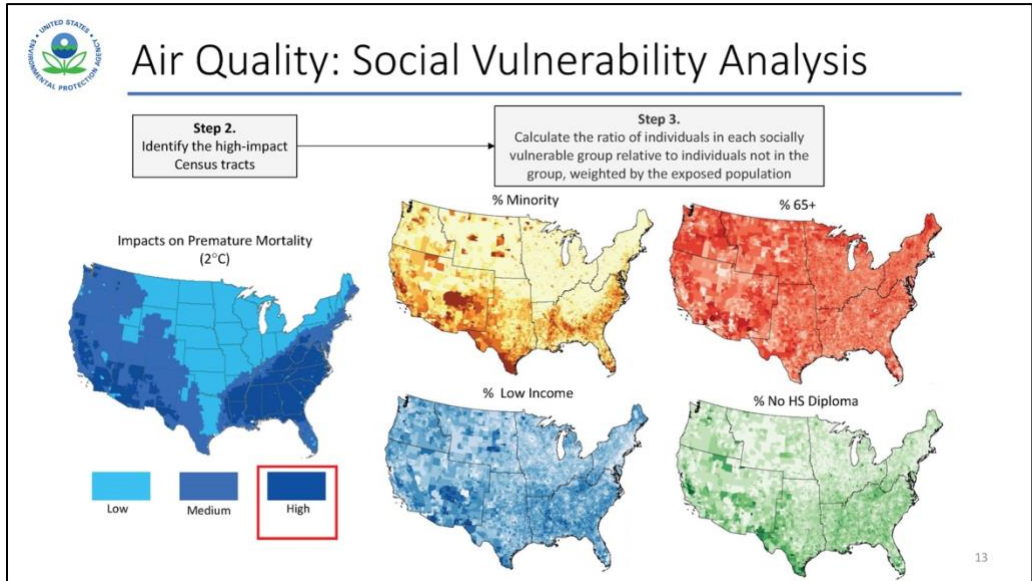
## Timing for Global Average Temperature Changes

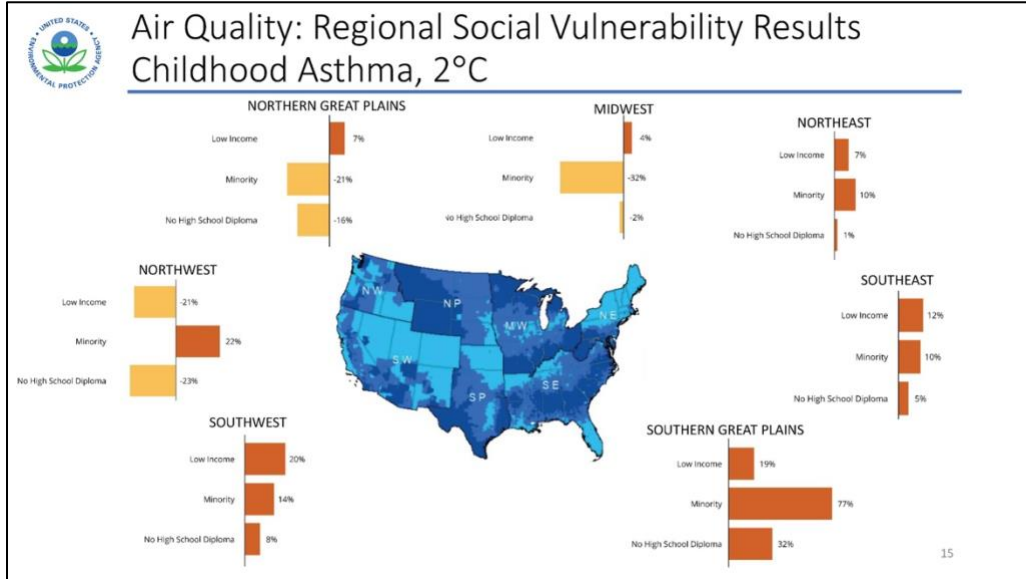




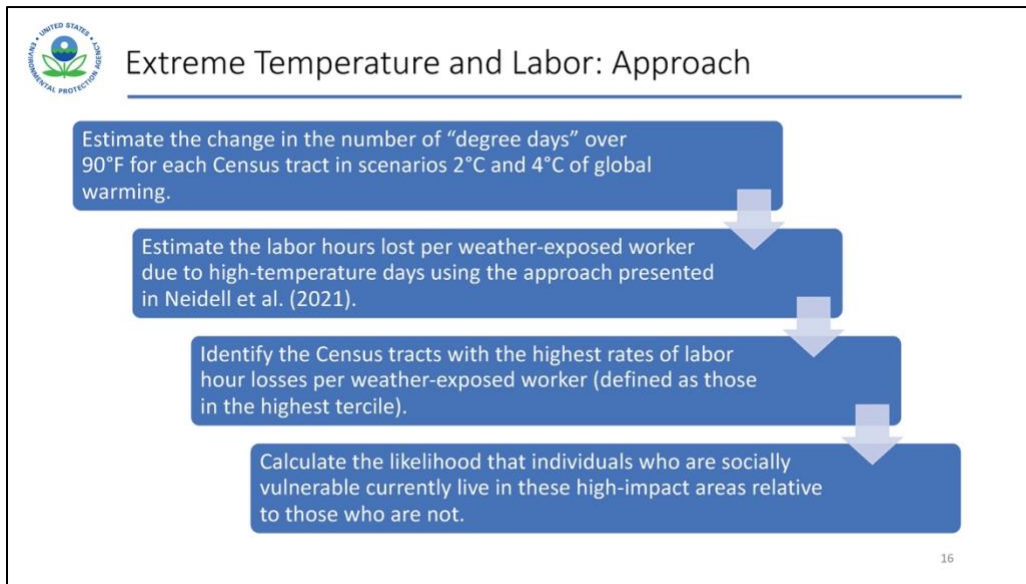




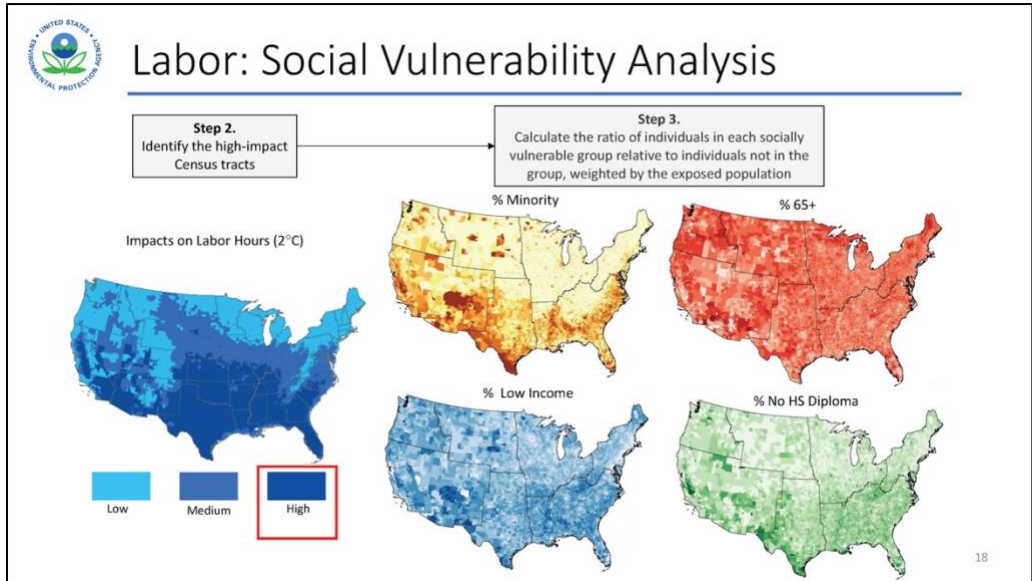
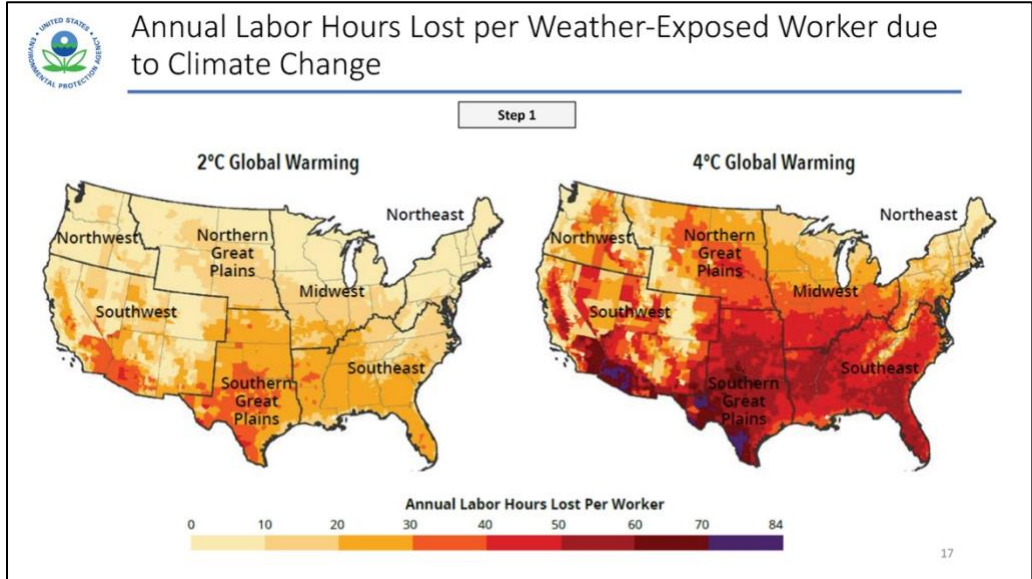




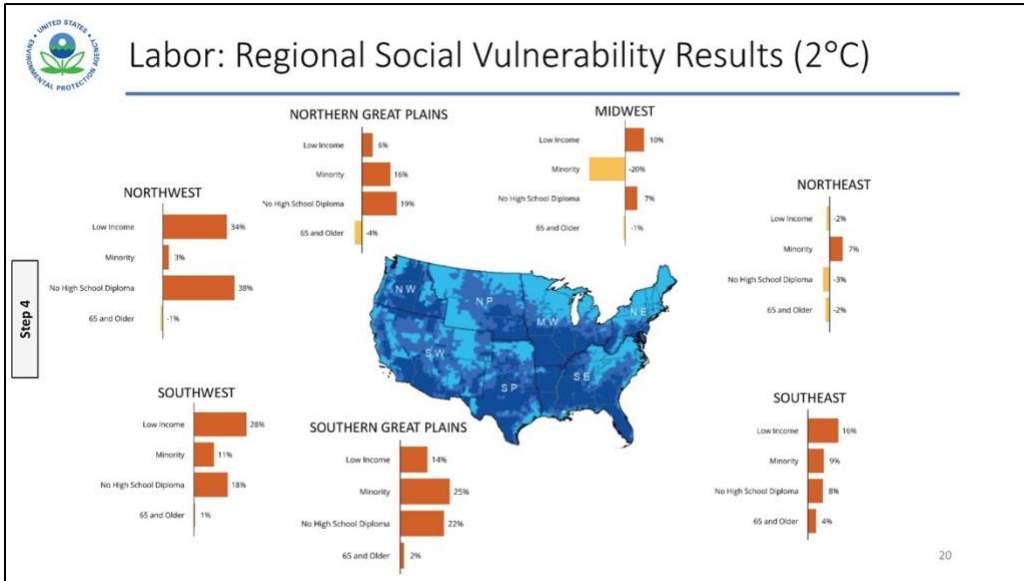
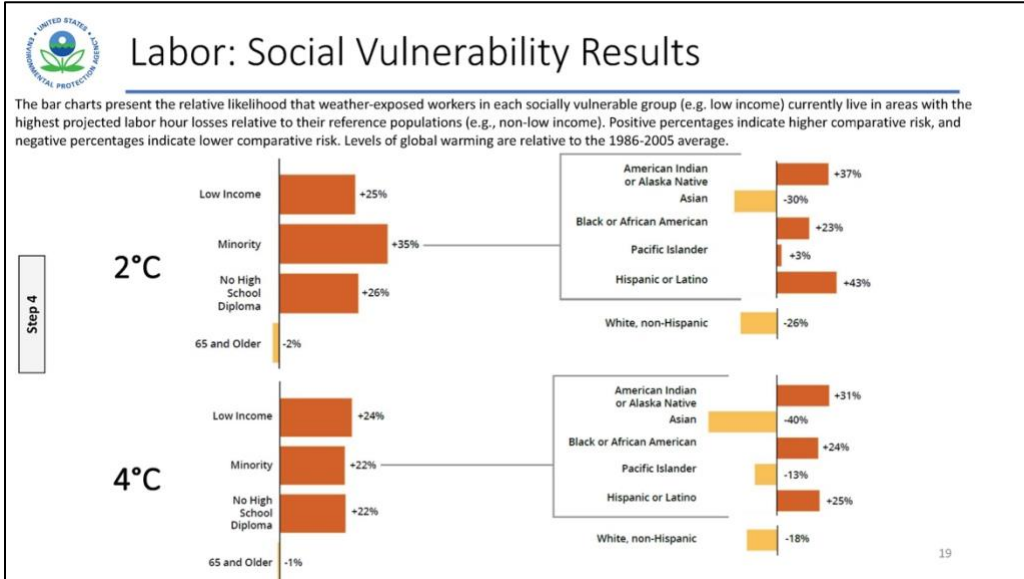
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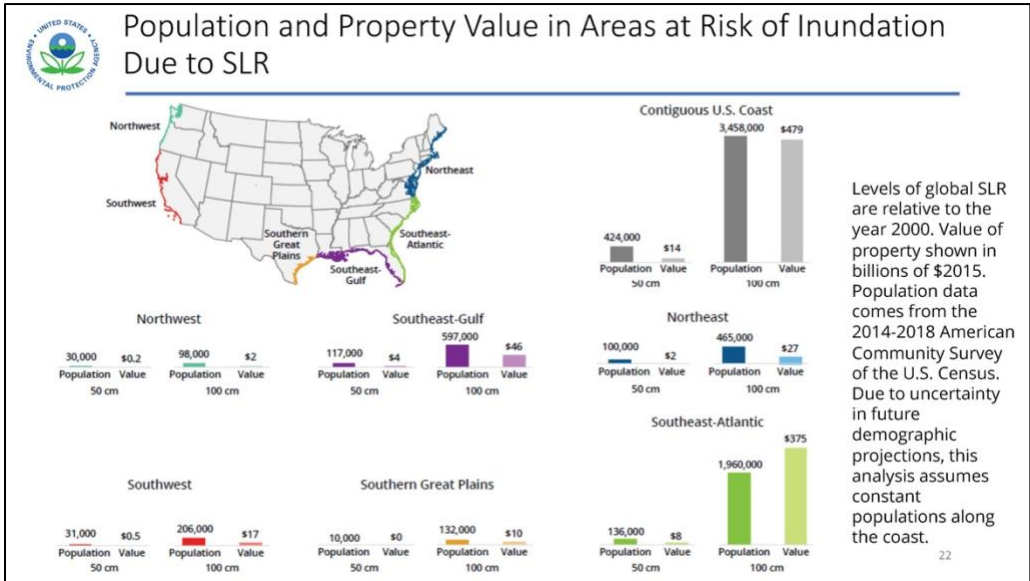
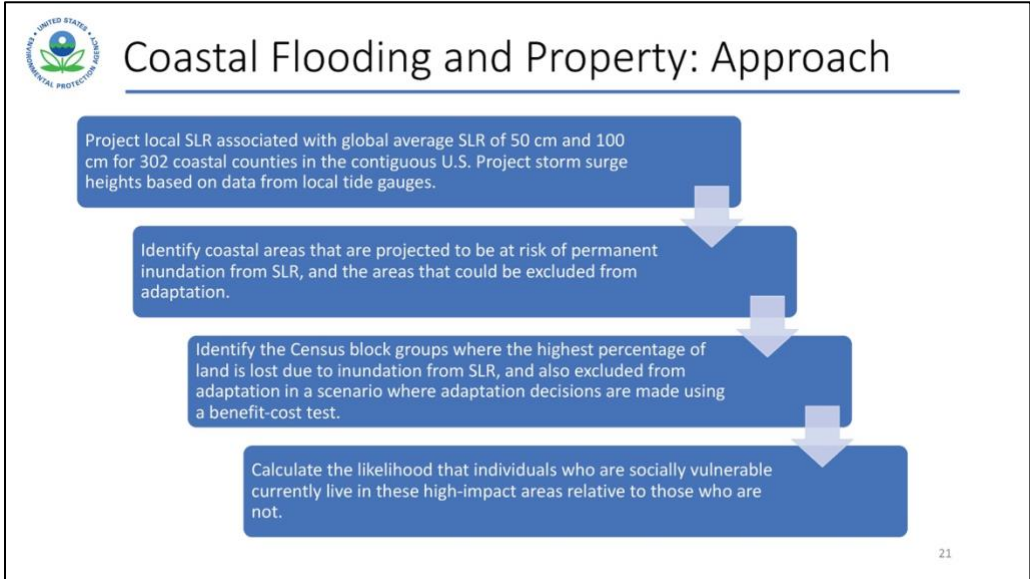


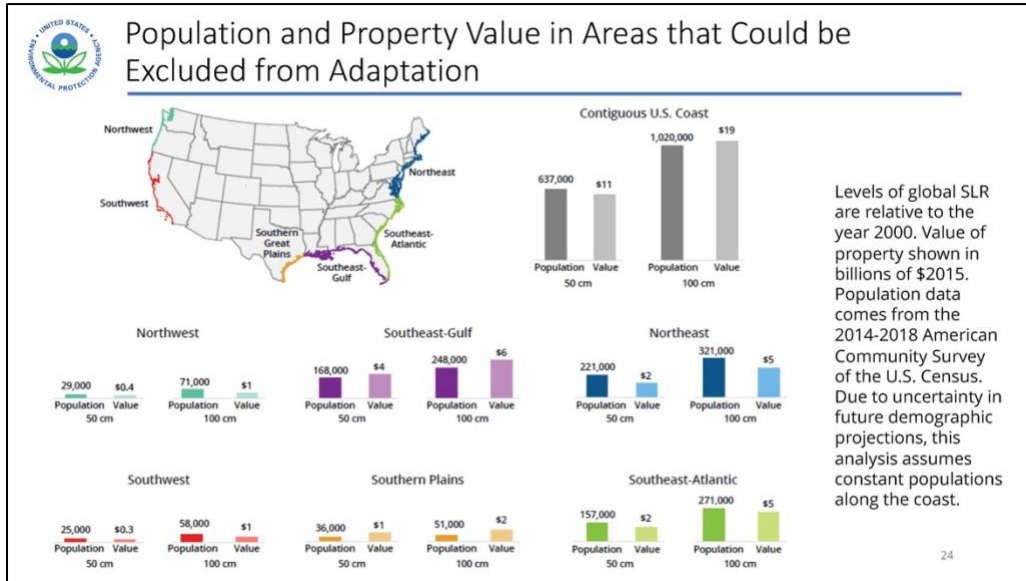
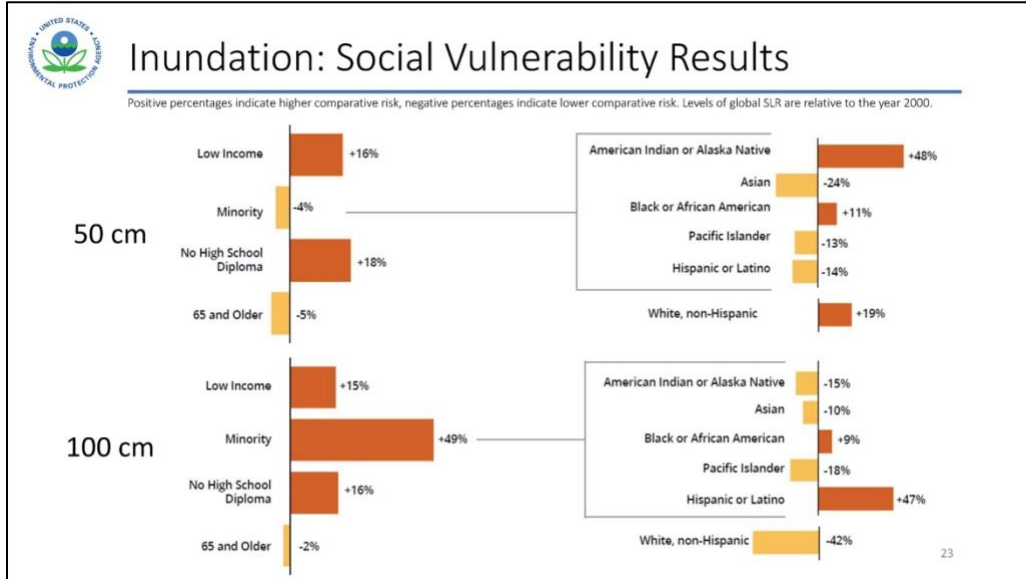
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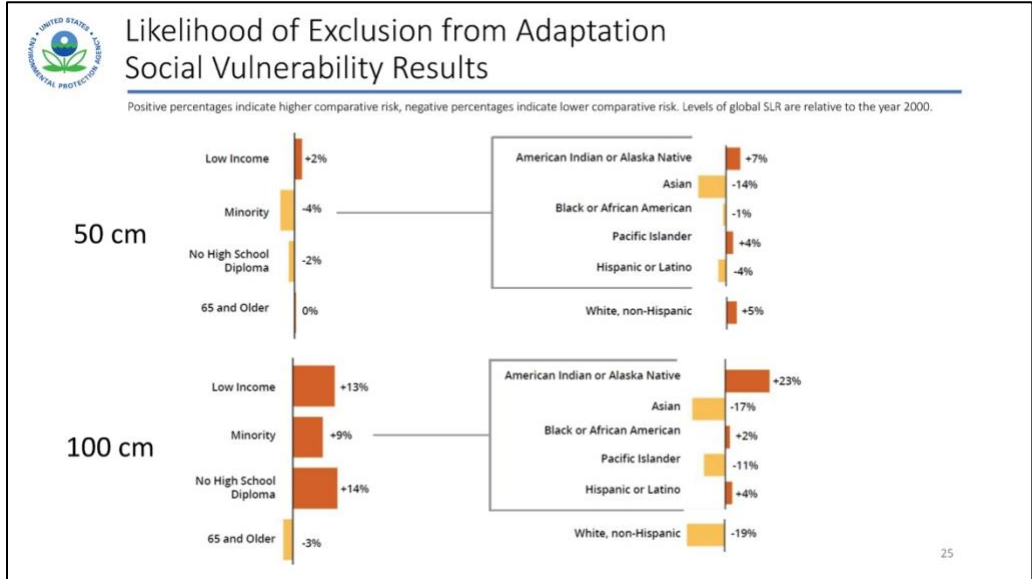




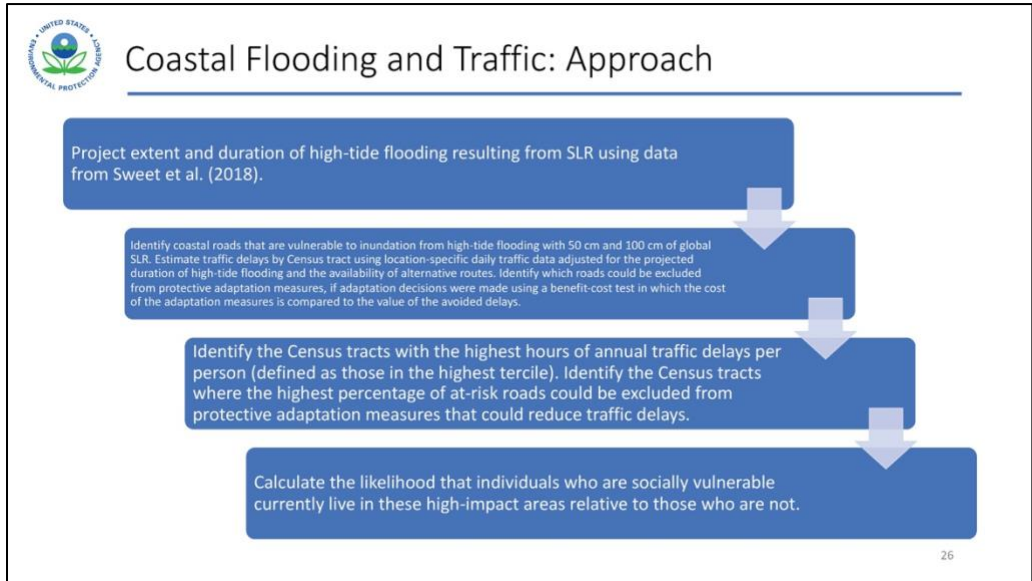




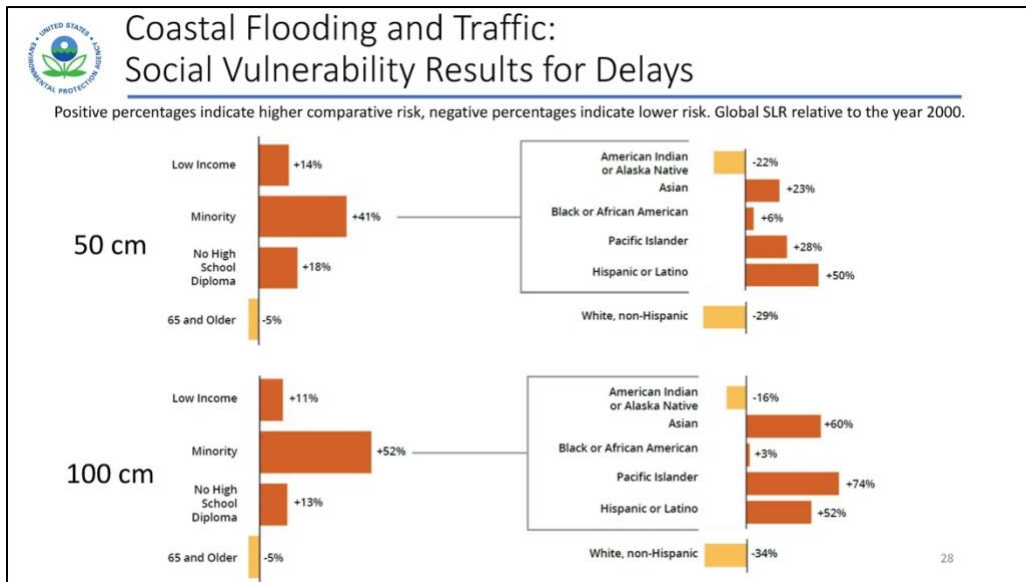
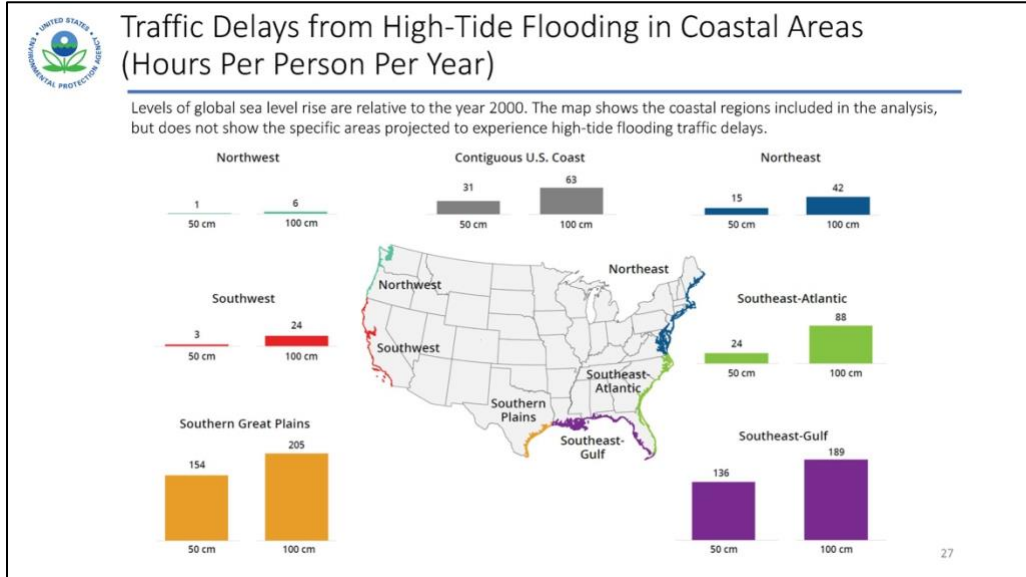


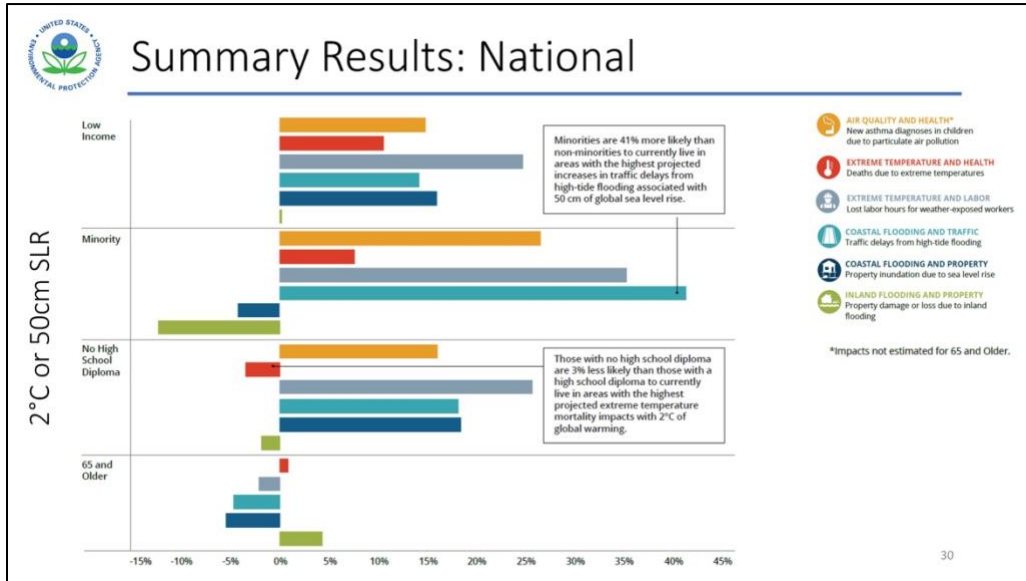
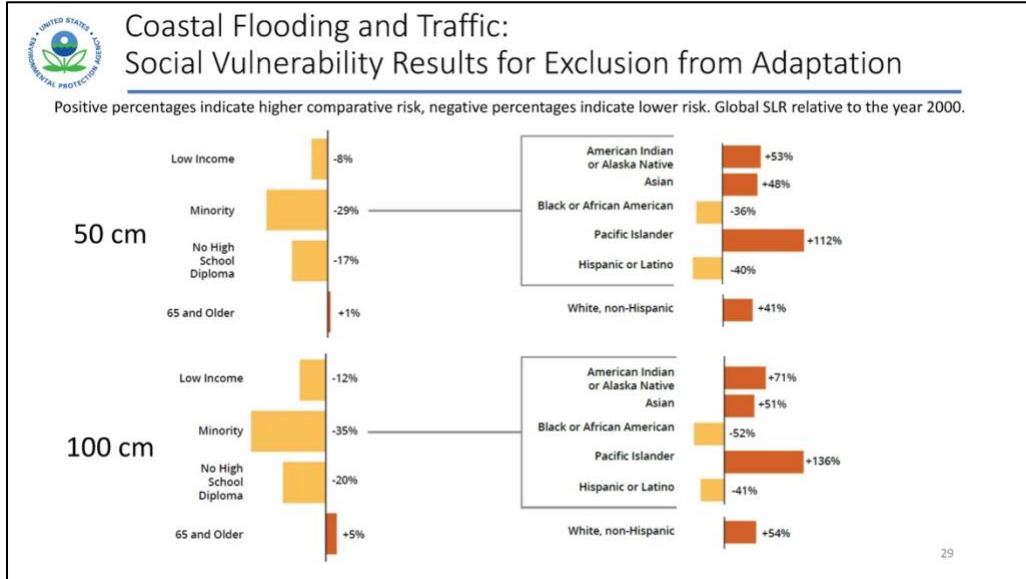


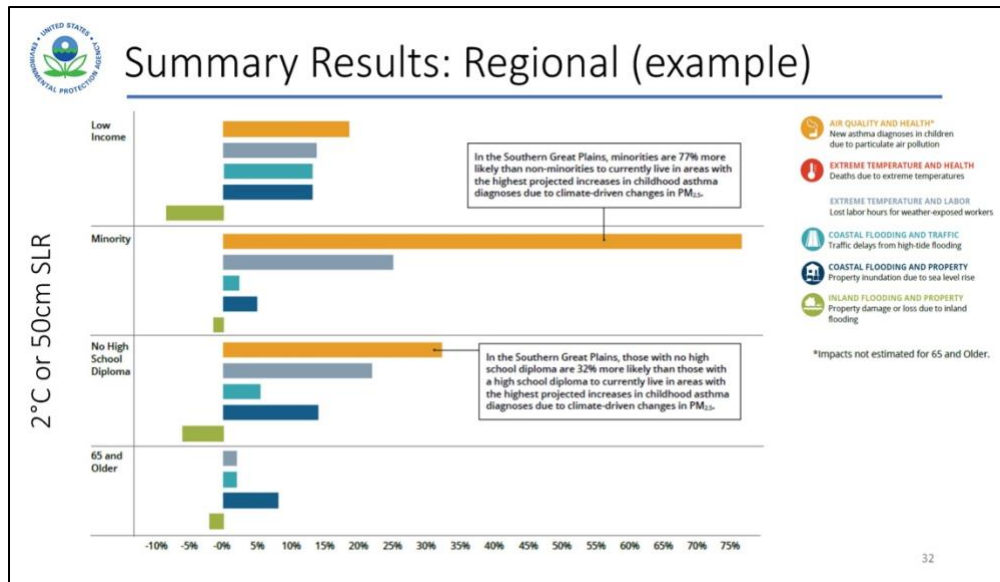
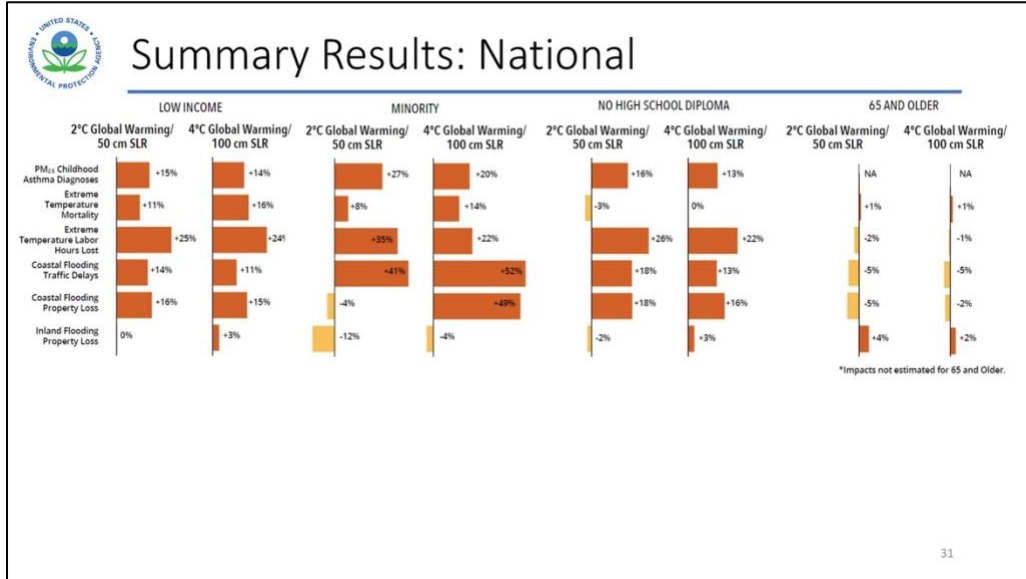
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## Appendix 6. Pollution Prevention Presentation

DRAFT PROPOSED CHARGE FOR EFAB DISCUSSION  
Financing Small Manufacturer Pollution Prevention Projects  
Proposed by: EPA Office of Pollution Prevention and Toxics

### Problem / Question Statement

Pollution prevention (P2) is any practice that reduces, eliminates, or prevents pollution at its source. Financially, it's often cheaper to prevent the creation of pollution than to clean it up afterwards or pay for control, treatment, and disposal of waste products. For businesses, all forms of waste represent inefficient expenditures. If a business can reduce or eliminate such expenditures, that immediately translates to the bottom-line by reducing operating, regulatory, and liability costs.

P2 projects (e.g., new equipment, contractor services) often require cash disbursements upfront, with potential savings (avoided costs) accruing over time. These projects must often compete for limited resources with other internal business priorities that are essential for revenue generation. Small businesses may not be used to borrowing money from external sources or they may not think that they are able to do so at affordable terms.

EPA has recently convened P2 technical assistance providers to discuss: if/how manufacturers are financing P2 projects, what challenges small businesses face in attracting lenders, what existing environmental financing approaches could be modeled/expanded for a broader array of pollution prevention projects; and what could EPA's role be in facilitating small business access to private sector financing. As a start, EPA has conducted background research on the types of financing and funding approaches available to manufacturers to implement P2 projects. (EPA will provide this research to the EFAB.) EPA is specifically interested in learning more about is the structures, models, and extension services that could be employed to successfully finance P2 projects. Possible questions could be:

- i. How would different financing structures and models work for small manufacturer P2 projects?
- ii. How would a sector-based approach to manufacturers inform economies of scale in financing?
- iii. How could EPA best support expansion of financing and assistance programs?

### EFAB Mission Fit

EFAB's mission is to explore ways to lower costs and increase investments in environmental protection. P2 reduces financial costs (waste management and cleanup) and environmental costs (health problems and environmental damage), while conserving and protecting natural resources. P2 strengthens economic growth through more efficient production, and reduces active management by businesses, households, and communities of post-industrial pollution.

### EPA Mission Fit

EPA's mission is to protect the environment through the enforcement of the nation's environmental regulations, scientific research, and public education. Often this means working with regulated communities to determine the best pathways to achieve compliance in a cost-effective manner.



## Type of EFAB Engagement

EFAB is positioned to assist EPA through providing focused guidance to EPA on **strategies for developing financing partnerships** and **EPA's defined roles** to help small business manufacturers finance P2 projects.

**Approach:** Leveraging the expertise of the EFAB and its networks, the EFAB proposes orchestrating a series of up to six (6) public workshops/webinars that explore in detail three critical pieces of a P2 program framework, that address key questions and ground-truth best practices.

- i. **Financial Structures:** *What financing structures will help reduce barriers to risk and create economies of scale for P2 financing?*
  - a. **Proposed Workshop(s):** Tax, insurance, bundling, etc.
- ii. **Models:** *What other financing models can we learn from and adapt for the P2 market?*
  - a. **Proposed Workshop(s):** CDFIs, green banks, development banks, innovation funds.
- iii. **Extension Programs:** *What technical assistance/extension programs could EPA leverage to support program expansion and delivery?*
  - a. **Proposed Workshop(s):** Associations, EPA Finance Centers, state, and university-based extension centers, etc.

**Charge Timeline:** November 2021 - October 2022, in line with expanded P2 funding under the pending Infrastructure Bill and cycle of new grantees for P2 program.

**Target EFAB Outcome:** Make recommendations to EPA - potentially expressed as a framework for engagement, to be presented to EPA in October 2022.

**Primary Audience:** EPA P2 program and extension programs (e.g., P2 assistance providers and other key stakeholders).

**Secondary Audiences:** Priority segments of US manufacturing sector (aerospace/defense, automotive, others), financial service sectors with capacity for innovation in hard-to-reach markets.

## EFAB P2 Workgroup

Kerry O'Neill – EFAB Chair, CEO Prosperity Capital

Ashley Allen Jones – Workgroup Chair, CEO Prosperity Capital

Stacy Brown – CEO, Freberg Environmental

Craig Hrinkevich – MD, RW Baird

Chris Meister – ED CHU, Illinois Finance Authority

Additional Members

[Kerry.Oneill@Inclusiveteam.org](mailto:Kerry.Oneill@Inclusiveteam.org)

[aallen@i2capitalcorp.com](mailto:aallen@i2capitalcorp.com)

[sbrown@feiinsurance.com](mailto:sbrown@feiinsurance.com)

[CHrinkevich@rwbaird.com](mailto:CHrinkevich@rwbaird.com)

[Cmeister@il-fa.com](mailto:Cmeister@il-fa.com)

### EPA Client

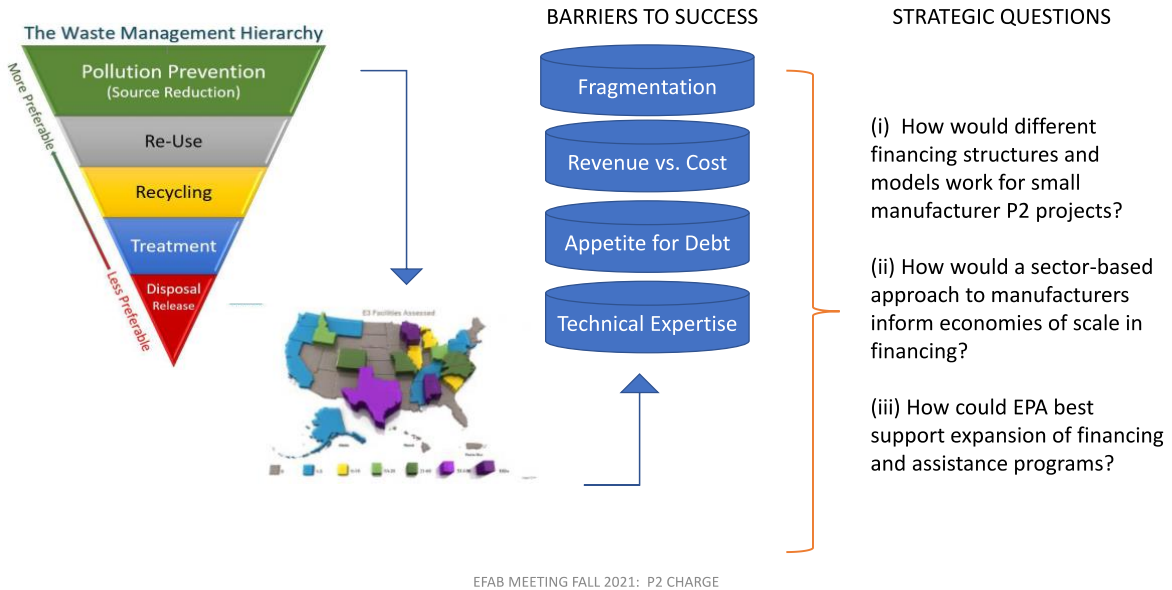
David Widawsky – Office of Pollution Prevention and Toxics

Alison Kinn – Office of Pollution Prevention and Toxics EPA P2 Team

[widawsky.david@epa.gov](mailto:widawsky.david@epa.gov)

[kinn.alison@epa.gov](mailto:kinn.alison@epa.gov)

### EFAB Pollution Prevention Charge Approach



### EFAB Pollution Prevention Charge Approach

#### FINANCIAL STRATEGIES & MODELS

**i. Financial Structures:** *What financing structures will help reduce barriers to risk and create economies of scale for P2 financing?*

**Workshops**

- Tax Structures
- Insurance Products
- Loan Bundling

**ii. Models:** *What other financing models can we learn from and adapt for the P2 market?*

**Workshops**

- CDFIs
- Green Banks
- Development Banks
- Innovation Funds

**iii. Extension Programs:** *What technical assistance/extension programs could EPA leverage to support program expansion and delivery?*

**Workshops**

- Associations
- EPA Finance Centers
- Extension Centers

## Appendix 7. Written Testimony, Chuck Chaitovitz, U.S. Chamber of Commerce

### CHAMBER OF COMMERCE OF THE UNITED STATES OF AMERICA

CHUCK CHAITOVITZ  
VICE PRESIDENT, ENVIRONMENTAL  
AFFAIRS AND SUSTAINABILITY

1615 H STREET, NW  
WASHINGTON, DC 20062  
(202) 463-5316

#### Statement of the U.S. Chamber of Commerce Before EPA's Environmental Finance Advisory Board October 13, 2021

I am Chuck Chaitovitz, Vice President on Environmental Affairs and Sustainability at the U.S. Chamber of Commerce. On behalf of the Chamber, I want to thank the U.S. Environmental Protection Agency and the Environmental Finance Advisory Board for hosting this important meeting. The Chamber is pleased to provide feedback on your proposed 2022 priorities. Today, I would like to highlight the imperative of promoting public-private partnerships and mobilizing private capital for businesses to lead the development of smart, modern, resilient infrastructure and address our shared environmental priorities.

#### Need

[A recent study](#) reported that aggregate capital spending on water and wastewater infrastructure across federal, state and local governments is approximately \$41 billion annually. This amount will yield an investment gap over the next 10 years of approximately \$82 billion per year to modernize and maintain water and wastewater systems nationwide. If nothing is done, this gap will increase to approximately \$153 billion by 2040.

Disruption in water services often results in temporary loss in productivity by water-dependent businesses.<sup>1</sup> The American Society of Civil Engineers estimates that, while the cumulative cost to households from degrading water/wastewater infrastructure will amount to \$59 billion between 2013 and 2020, the cost to the business community will be more than double that, at \$147 billion. Water also offers an opportunity to project American leadership and boost exports of U.S. solutions, products, and services abroad.

The need to use water more efficiently to supply a growing population and economy will only increase as water shortages and other supply-stress events become more frequent and/or severe in diverse regions across the United States. The [U.S. Government Accountability Office](#) predicts that water shortages in nondrought conditions will be experienced in 40 of the 50 states by 2024. The recent [Southwest Drought Forum](#) organized by NOAA and the [Meet the Press story](#) underscore this challenge of growing concern.

#### Initial Priorities

We encourage EPA to consider these priorities:

- [Funding and Financing](#) — Promote increased federal, state, and local investment in infrastructure modernization. Areas of focus should include green infrastructure, smart technologies, water

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<sup>1</sup> Federal Emergency Management Agency, "Benefit-Cost Analysis Re-engineering Standard Economic Values" (2011)

management, and research and development on topics important to the safe, healthy, reliable, and efficient operation of water systems from “treatment to tap.” Such investments should focus on expanding public-private partnerships; aligning public and private investments; and mobilizing private capital and an associated pipeline of projects to pilot innovative funding partnerships. Current issues under consideration by the EFAB to highlight are financing approaches for stormwater innovation, pretreatment technologies to meet wastewater effluent guidelines, and climate resilience. The \$55 billion included in the bipartisan infrastructure package is a solid down payment. There are also important provisions to raise the cap on private activity bonds. Possible suggestions:

- Look at ways to develop vehicles. For example, 100-year bonds that reflect asset life cycles or environmental impact bonds that are essentially packaged as equity and offer access to nontraditional investors.
  - Promote predevelopment funds to support project engineering and preparation.
  - Address public and policymaker resistance to private participation in projects.
  - Explore international examples in Australia and Chile to demonstrate practical experiences and practices in deploying private capital.
  - Engage with private investors to determine why water infrastructure is undervalued and underappreciated by investors.
  - Identify critical factors for success: trusted broker, network of credible institutions, player connections both nationally and locally, credibility and trust, and capital pie growth.
  - Showcase the comparison with the energy sector and cases of alternative financing models.
- Resilience — Facilitate investment in climate resilient infrastructure, including water and watershed management and flood control. Funding and policies should support predisaster mitigation and planning and engage leading resilience experts and stakeholders. The Chamber is encouraged by significant resilience funding across various infrastructure categories in the BIF, including \$1.5 billion in predisaster mitigation.
  - Small communities and small business needs — Catalyze investments and policy solutions specifically focused on the needs of the agricultural sector, disadvantaged communities, and small businesses. This includes improving access to rural water and sanitation and our support for low-income assistance.
  - Technology innovation — Increase and fully appropriate the authorizations for technology innovation programs and smart, digital technologies to make water infrastructure management more effective. EPA should reallocate funds to programs that will assist disadvantaged utilities in this effort. In addition, it should create an industrial water reuse tax credit, provide R&D for PFAS treatment technologies, and make point-of-use/point-of-entry (POU/POE) technologies eligible for environmental justice funding. The Chamber looks forward to working with you on the new technology innovation grant program.

The business community stands ready to collaborate with EPA and other stakeholders to elevate water and resilience as national priorities. Each are critical to economic growth and prosperity in communities across America.

Thank you for the opportunity to raise these issues.

Sincerely,

A handwritten signature in black ink, appearing to read "Chuck Chaitovitz". The signature is written in a cursive style with a large, sweeping initial "C".

Chuck Chaitovitz

## Appendix 8. Registrations Received for the October 2021 EFAB Meeting

First Name	Last Name	Organization
Brent	Anderson	RESIGHT
Michael	Angerson	Entech Engineering
Karla	Asberry	US EPA Region 7
Gerry	Bakker	US EPA Region 5
Lara	Beaven	Inside EPA
Lisa	Bechini	Northbridge
Janice	Beecher	Michigan State University
Brian	Bennon	Inter Tribal Council of Arizona, Inc.
Desmone	Black-Thompson	Mississippi State Department of Health
Steve	Bonafonte	The Metropolitan District of Hartford, Connecticut
Michelle	Boyd	US EPA
Angela	Bricmont	Denver Water
Tonya	Bronleewe	Environmental Finance Center, Wichita State University
Jennifer	Brown	CT Consultants
Erica	Brown	AMWA
Katie	Brownson	US Forest Service
Gary	Brune	New Jersey Future
David	Busch	Keystone Alliance Consulting, Inc.
April	Byrne	ORISE
Enriqueta	Caballero	Texas Water Development Board
Neil	Campbell	Florida Department of Environmental Protection
Joan	Card	Culp & Kelly, LLP
Chuck	Chaitovitz	U.S. Chamber of Commerce
Brian	Chalfant	Pennsylvania Department of Environmental Protection
Brian	Chalfant	PADEP
Ted	Chapman	Hilltop Securities
Michael	Chase	Florida Department of Environmental Protection
Addison	Chau	US EPA
Brian	Cheshire	Carboline
Edward	Chu	US EPA Region 7
Allison	Clark	FitchRatings
Lori	Collins	Collins Climate Consulting
Arthine	Cossey van Duynes	WaterFunder, LLC
Jennifer	Cotting	Environmental Finance Center, University of Maryland
Pamela	Cousins	ADEM
Sara	Damm	Michigan Department of environment, great lakes, and energy
Cameron	Davis	GEI Consultants
Debby	Dickson	Natural Resources Division, Arkansas Department of Agriculture
Jeff	Diehl	RI Infrastructure Bank
David	Doyle	US EPA Region 7
Robert	Dunlevy	US EPA Region 7
Kristen	Durance	Public
A.	Edwards	Office of Water
Evon	Ferdinand	phoenix
Jeremy	Ferguson	IDEM
Scott	Fincham	Local Gov't
Phyllis	Garcia	San Antonio Water System
Justin	Garey	USDA- Rural Development
Grant	Geiss	Indiana Department of Environmental Management
Matt	Genchur	White Twp, Indiana Co.

Heather	Goss	US EPA
Zachary	Green	Raftelis
Edward (Ted)	Henifin	HRSD
Heather	Himmelberger	Southwest EFC
Parastou	Hooshialsadat	Sonoma Water
Hannah	Humphrey	Missouri DNR
David	Hunter	City of Enid, OK
Vena	Jones	TDEC
John L	Jones	EFAB member
Amit	Kaldate	Suez
David	Kane	Portland Water District
George	Kelly	Quantified Ventures
Maureen	Kerner	OWP at Sac State R9 EFC
Alison	Kinn Bennett	US EPA
Ellen	Kitamura	Honolulu Board of Water Supply
Karen	Klocke	Washington State Dept of Health
Chris	Knight	Argus Media
Mary	Kronenberg	City of Palm Coast
Joanne	Landau	Kurtsam Realty Corp
Josh	Lauber	City of Wichita
Stephanie	Laughlin	Louisville MSD
Stephen	Lee	Bloomberg Environment
Pamela	Lemoine	Black & Veatch Management Consulting, LLC
Eric	Letsinger	Quantified Ventures
Michelle	Madeley	EPA Office of Community Revitalization
Katie	Mann	Dept of Agriculture- natural resources division
Lorena	Matos	LA Sanitation & Environment
Janet	McCabe	Environmental Protection Agency (EPA)
Michael	McFadden	ERG
Keith	McLaughlin	Co. Water Resources and Power Development Authority
Melanie	Medina	Public
Robert	Mellinger	Citigroup
Taylor	Meredith	EPW
Julie	Millett	Richard Watson & Associates, Inc. (RWA)
Rebecca	Miserendino	Lewis Burke Associates
Bernadette	Mora	Pinoleville Pomo Nation
Elsemarie	Mullins	EFC at UNC
Suman	Naishadham	The Associated Press
Jack	Neil	JNA Advisory
Michael	O'Keefe	City and County of Honolulu
Kerry	O'Neill	Inclusive Prosperity Capital
Jennifer	Ousley	US EPA
Jennifer	Palmiotto	National Rural Water Association
Seung	Park	City of Tampa Water Department
MaryAnna	Peavey	Idaho Department of Environmental Quality
Kristin	Pierre	ImPower
Jenny	Poree	S&P Global
Erik	Porse	OWP at Sacramento State
Sushama	Pradhan	Environmental Health Section, NC DHHS
Vikki	Prettyman	SERCAP, Inc.
Janet	Pritchard	Milwaukee Water Commons
Karina	Ramirez	City of Pompano Beach
Jocelyn	Ramirez	FEMA: Disability Integration

Dennis	Randolph	City of Kalamazoo
Bradley	Raszewski	EPA
Nancy	Richards	TWDB
Joseph	Ridge	CDM Smith
Tom	Roberts	Jumping Mullet llc
Teresa	Robson	FL Dept. of Environ Protect - SRF
Eric	Rothstein	Galardi Rothstein Group
Howard	Rubin	EPA
Kettie	Rupnik	PG Environmental
Aida	Santiago	Municipality of Yabucoa
Stephanie	Sanzone	Private Citizen
Paul	Sayan	WSP
Aisha	Sexton-Sims	US EPA
Jerome	Shabazz	Overbrook Environmental Education Center / JASTECH
Vishal	Shah	Arcadis
Karen	Shanafelt	ADEQ
Phyllis	Shaw	City of Hollywood
Hawkeye	Sheene	Sheene Consulting
Martha	Sheils	New England Environmental Finance Center
Karen	Simpson	US EPA
Wesley	Sluga	Ohio EPA
Amy	Smith	Geosyntec Consultants, Inc.
Ann	Straut	CT DEEP
Lisa	Street	USDA Forest Service
Betsey	Streuli	Oklahoma Department of Environmental Quality
John	Sullivan	Michigan Tech
Andy	Szatko	City of Omaha Stormwater Program
Joseph	Tadeo	Guam Waterworks Authority
Ellen	Tarquinio	US EPA
Charles	Thomas	Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA)
Austin	Thompson	NC State University
John	Vaughan	City of Richmond
Brett	Walton	Circle of Blue
Will	Ward	TDEC-DWR
Tim	Warren	Jones & Henry Engineers, Ltd.
David	Wegner	Woolpert Engineering/NAS-WSTB
Venus	Welch-White	EPA
Pantea	Westermann	VADEQ
David	White	SERCAP
David	Widawsky	US EPA
Sue	Wobken	Nebraska Dept of Environment & Energy
Andrew	Wynne	US EPA
Melissa	Young	Syracuse University EFC
Jim	Ziglar	Rebel
David	Zimmer	NJ Infrastructure Bank