

ENVIRONMENTAL FINANCIAL ADVISORY BOARD

Members

Kerry O'Neill, Chair
Ashley Allen Jones
Courtney L. Black
Steven J. Bonafonte
Angela Montoya Bricmont
Matthew T. Brown
Stacy Brown
Theodore Chapman
Albert Cho
Janet Clements
Lori Collins
Zachary Davidson
Jeffrey R. Diehl
Sonja B. Favors
Phyllis Garcia
Eric Hangen
Edward Henifin
Barry Hersh
Craig Holland
Craig A. Hrinkevich
Margot Kane
Thomas Karol
George W. Kelly
Gwendolyn Keyes Fleming
Cynthia Koehler
Colleen Kokas
Joanne V. Landau
Lawrence Lujan
MaryAnna H. Peavey
Dennis A. Randolph
Eric Rothstein
Sanjiv Sinha
William Stannard
Marilyn Waite
David L. Wegner
Gwen Yamamoto Lau
David Zimmer

Designated Federal Officer

Edward H. Chu

October 18, 2022

The Honorable Michael S. Regan
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Administrator Regan:

The Environmental Financial Advisory Board (EFAB) is pleased to submit this report, "Catalyzing Pollution Prevention Finance," developed by the EFAB Pollution Prevention Workgroup (P2 Workgroup). As you know, EFAB works to provide the EPA administrator and other leadership with guidance and expertise on a variety of environmental financing and investment topics, issues, and challenges. EFAB provides critical perspectives from EPA's diverse customers, partners, and stakeholders – with a particular focus on the financial community and its capacity to deliver effective financing to advance the nation's most pressing environmental financing issues. The P2 Workgroup embraced its work with a keen eye toward EPA's capacity to serve as a catalyst for source pollution prevention, the highest level of impact in the waste management hierarchy.

P2 Workgroup Approach

The P2 Workgroup approached its task with three concrete goals: (i) engage a diverse set of financial sector experts, customers, partners, and stakeholders in pollution prevention finance conversation focused on priority manufacturing sectors; (ii) move swiftly to draw meaningful conclusions related to challenges of and potential solutions to pollution prevention funding and finance activities; and (iii) provide recommendations with immediate actionable items to advance EPA's pollution prevention remit. A Series of three P2 Finance Forums held between March and August 2022, engaged more than two dozen experts across diverse segments of the finance field alongside manufacturing support organizations and specialists in technology, supply chain sustainability and business strategy roles to explore the topic and inform recommendations.

Recommendations

We have organized our recommendations into three categories of immediately actionable items that reflect current capacity and funding levels within the P2 program:

- (1) Focus P2 Grant Program. Focus a segment of P2 grants on innovative finance opportunities within a priority business segment, and use P2 grant program to support a cohort of regional P2 demonstration projects;
- (2) Expand Education & Training. Develop sector-based use cases and a series of "P2 Finance Webinars" that highlight success factors in P2 financings; and
- (3) Introduce Risk Reduction Tools. Develop underwriting standards for priority sectors, identify and facilitate priority technology certification efforts, and explore the active use of existing and new credit enhancements/guarantee programs.

The attached brief report entitled "Catalyzing Pollution Prevention Finance," and supplemental documents incorporated by reference, comprise the full scope of our work. We thank you for the opportunity to be of service to this important Office within EPA.



Kerry E. O'Neill
Chair
Environmental Financial Advisory Board



Ashley Allen Jones
Chair
EFAB P2 Working Group

Enclosure

cc: Edward H. Chu, Designated Federal Officer, Environmental Financial Advisory Board
David Widawsky, Director, Data Gathering and Analysis Division, Office of Pollution
Prevention and Toxics
Alison Kinn Bennett, Senior Advisor, Sustainability and Pollution Prevention Branch, Office of
Pollution Prevention and Toxics

**CATALYZING POLLUTION PREVENTION FINANCE
ENVIRONMENTAL FINANCIAL ADVISORY BOARD
OCTOBER 2022**

Co-Chairs

Kerry O'Neill, President, Inclusive Prosperity Capital, Hartford, CT
Ashley Allen Jones, Founder & CEO, i2 Capital, Washington, DC

EFAB Members

Stacy Brown, President & CEO, Freberg Environmental, Denver, CO
Craig Hrinkevich, Managing Director, Debt Capital Markets, Baird, Red Bank, NJ
Christopher Meister, Executive Director, Illinois Finance Authority, Chicago, IL

Invited Consultants

Tim Larson, President, Ross Strategic, Seattle, Washington
Martha Sheils, Director, New England Environmental Finance Center, Portland, ME
Laura Harwood, Vice President, Eastern Research Group, Arlington, VA
Cena Swisher, Senior Manager, Eastern Research Group, Arlington, VA

Finance Forum Experts

Frank Altman, CEO, Community Reinvestment Fund, Minneapolis, MN
Kelsie Bouchard, Portfolio Manager, Coastal Enterprises, Inc., Brunswick, ME
Martin Chilcott, CEO & Founder, Manufacture 2030, Oxford, UK
John Cox, Principal, John Cox Consulting, Lancaster, PA
Brad Fletcher, Vice President & Treasurer, Illinois Finance Authority, Chicago, IL
Jeremy Gilpin, Executive Vice President, Greater Commercial Lending, Reno, NV
Bert Hunter, Executive Vice President and Chief Investment Officer, CT Green Bank, Hartford, CT
Sarah Lee, Project Director, Advanced Manufacturing Sector Integration, Washington State Department of Commerce, Olympia, WA
Matt McKenna, Executive in Residence, Georgetown McDonough School of Business, Washington, DC
Aldric Seguin, Managing Partner, Global Sustainable Future, New York, NY
Catherine Sheehy, Head of Advisory Solutions, Environment & Furniture, UL Solutions, Chicago, IL

EPA Supporting Staff

Tara Johnson, Water Infrastructure and Resiliency Finance Center, Washington, DC
Alison Kinn Bennett, Senior Advisor, Sustainability and Pollution Prevention Branch, Office of Pollution Prevention and Toxics, Washington, DC
David Widawsky, Director, Data Gathering and Analysis Division, Office of Pollution Prevention and Toxics, Washington, DC
Andrew Wynne, Project Coordinator, Office of Pollution Prevention and Toxics, Kansas City, MO

Background

Pollution prevention (P2) is any practice that reduces, eliminates, or prevents pollution at its source. Financially, it is 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. Accordingly, many potentially attractive P2 projects go unfunded and unrealized.

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's Office of Pollution Prevention and Toxics was specifically interested in learning more about is the structures, models, and extension services that could be employed to successfully finance P2 projects.

P2 Finance Forum Key Takeaways¹

Forum 1: Finance Sector Insights

- Credit risk poses a material threat to underwriting P2 loans in the middle market manufacturing sector, given diversity of business size, profitability, and sophistication. Credit risk can include company level profit and loss factors, risks related to new/not-well-understood technologies, lack of clarity in cost savings related to P2 program implementations, and overall fragmentation of the middle market manufacturing sector, among other factors. *Any P2 finance program needs to directly address credit risk issues.*
- Existing, well-established tools exist that address credit risk at a scaled level, including loan guarantees (eg. USDA, SBA), tax advantaged lending (eg. New Market Tax Credit) and credit enhancements in lending pools (eg. first loss capital).
- The P2 sector has potential to introduce and expand innovative financing structures that have been utilized successfully in related sustainability sectors (eg. energy service companies, or ESCOs, and commercial property assessed clean energy, or C-PACE models).
- Technology certification programs have the potential to provide valuable support to underwriting of new technologies in priority sectors.

¹ See full P2 Finance Forum Recordings and written summaries: <https://www.epa.gov/waterfinancecenter/environmental-financial-advisory-board-efab-pollution-prevention-finance-forum>

- The Community Development Finance Institution (CDFI) and Green Bank finance sectors provide robust examples of mission-related or “co-benefit” lending activities that are highly relevant for P2 lending efforts.
- Collaborative funding models provide for a greater diversity of funding and capacities to underwrite businesses in hard-to-reach communities.

Forum 2: P2 Financing Tools and Models

- Standards and 3rd party certifications can mitigate risks for financial community through clarifying terms, scope, metrics, and measurements, and enabling benchmarking; credible entity standing behind organization to confirm technology strategy, for example UL3600 includes waste aversion validation at a site or across a supply chain to support “circularity of a company’s material flow.”
- C-PACE is used across 30 states -counties and municipalities impose standardized, voluntarily “requested special assessment liens” on behalf of property owners. Supports equipment that is permanently affixed to buildings, with financial/collateral ties to plant infrastructure.
- Green Banks provide financing to private property and business owners to increase energy efficiency of property often providing 15+year financing and lending support alongside commercial capital. Examples: SME energy efficiency portfolio funded through utility program @ 0% interest; Solar Power Purchase Agreement Program simplifies and reduces cost to deploy solar; loan loss reserve program for primary lenders (e.g. E-Loan provides second loss guarantee to lenders).

Forum 3: Distribution Strategies and Partnerships

- Business leaders must think about sustainability as a matter of continuous improvement: analyze the value stream, identify where waste lies in that value stream and work hard to find an intersection of waste and profitability.
- P2 finance efforts should seek opportunities to partner with organizations and business entities who may have different motivations and value protocols (e.g. excess land for energy generation).
- Business supply chains often present opportunities for support, for example when OEMs seek sustainability from within their supply chain).
- P2 efforts should seek state-level resources to prepare business to be “investor ready” and to understand the challenges to underwriting and what local lenders look for in loan transactions.
- Seek out relationships with CDFIs across the country that are concerned with “those people that are farthest away from the opportunity”; CDFIs are “capillaries of finance” that seek to access hard to reach markets thorough financial engineering (e.g. guarantees from philanthropy and government).
- Seek “innovative cluster” potential to expand sustainability in a geographic area in a sector; offer “wrap-around” services that target a specific challenge and solution.

Recommendations to EPA

P2 Grant Program Strategies

- i. Focus next round of P2 grants on grantees with expertise in relevant sectors for primary P2 finance opportunities and relevant capacities to advance P2 finance efforts (single industry or group of industries with similar P2 issues.)

- ii. Identify and support a cohort of regional P2 pilots that demonstrate robust partnerships for pre-development support (technical assistance) and innovative funding relationships -to serve as P2 “demonstration projects.”
- iii. Through (i) and (ii) above, support development of finance ecosystems that broaden market acceptance for financing P2 projects.

Education/Training Strategies

- i. Develop sector-based use cases for P2 financing (through grantees or consultants).
- ii. Develop a series of webinars on P2 success cases and factors contributing to success and reference P2 Finance Forum learnings.

Risk Reduction Mechanisms

- i. Launch technology certification program around priority interventions in one or two focus sectors.
- ii. Develop underwriting standards for P2 on specific waste streams within specific industries, in conjunction with trade groups and technical experts.
- iii. Explore use of existing and new credit enhancements/guarantee programs (e.g. EPA SRF, SBA, USDA, State-level programs, USDOE, etc.).

Appendix A

Pollution Prevention Finance Forum Summary Slide Presentation.

Additional Resources

<https://www.epa.gov/waterfinancecenter/environmental-financial-advisory-board-efab-pollution-prevention-finance-forum>

Pollution Prevention Finance Finance Forum Workshop 1 - Resource Packet
Pollution Prevention Finance Forum Workshop 1 - Presentation
Pollution Prevention Finance Forum Workshop 1 – Summary of Remarks
Pollution Prevention Live Webinar Recording, Workshop 1, March 9, 2022

Pollution Prevention Finance Finance Forum Workshop 2 - Resource Packet
Pollution Prevention Finance Forum Workshop 2 – Summary of Remarks
Pollution Prevention Live Webinar Recording, Workshop 2, May 10, 2022

Pollution Prevention Finance Finance Forum Workshop 3 - Resource Packet
Pollution Prevention Finance Forum Workshop 3 – Summary of Remarks
Pollution Prevention Live Webinar Recording, Workshop 3, August 23, 2022

Thank you to all who participated in the EPA/EFAB Pollution Prevention Finance Forum Series.



Environmental Financial Advisory Board

Engagement with the Office of Pollution Prevention & Toxics:
*Strategies to Expand Funding and Financing for OPT
Pollution Prevention Projects*

EFAB Briefing - 9.20.2022

Financing Small Manufacturer Pollution Prevention Projects

In Collaboration with: EPA Office of Pollution Prevention and Toxics
Office of Chemical Safety and Pollution Prevention - OCSP

Project Leadership & Working Group



Kerry O'Neill,
CEO, New Prosperity
Capital; Chair, EFAB



Ashley Allen Jones,
Founder & CEO, i2 Capital,
Chair, EFAB P2 Workgroup



Ed Chu, EFAB
Designated Federal
Officer; Deputy
Regional Administrator,
EPA Region 7



Tara Johnson, EFAB
Alternative Designated
Federal Officer; EPA
Water Finance Center



David Widawsky,
Ph.D. – Division
Director, EPA Office of
Chemical Safety and
Pollution Prevention

Pollution Prevention Workgroup Members

- **Kerry O'Neill**, CEO, New Prosperity Capital
- **Ashley Allen Jones**, Founder & CEO, i2 Capital
- **Stacy Brown**, President and CEO, Freberg Environmental
- **Craig Hrinkevich**, Managing Director, Baird
- **Chris Meister**, Executive Director, Illinois Finance Authority (EFAB Term Expired 7/2022)

EPA Project Workgroup Members

- **David Widawsky**, Director, EPA OCSP
- **Alison Kinn Bennett**, Senior Advisor, USEPA Office of Pollution Prevention and Toxics
- **Andrew Wynne**, Project Coordinator, USEPA Office of Pollution Prevention and Toxics
- **Tim Larson**, President, Ross Strategic
- **Martha Sheils**, Director, New England Environmental Finance Center
- **Laura Harwood**, Vice President, Eastern Research Group
- **Cena Swisher**, Senior Manager, Eastern Research Group

Financing Small Manufacturer Pollution Prevention Projects

In Collaboration with: EPA Office of Pollution Prevention and Toxics
Office of Chemical Safety and Pollution Prevention - OCSPP

Pollution Prevention Charge

Problem

- Gaps in funding for P2 projects for SMEs

Key Questions

- What challenges do SMEs face in attracting P2 lenders?
- What financing approaches that address P2 opportunities?
- What the role that EPA might play to facilitate access to private capital for P2 projects?
- Do models and extension programs exist that could be employed to expanding financing for P2 projects?

Approach

- Orchestrate a series of workshops with finance sector experts to explore key questions
- Develop a set of concrete recommendations for EPA's P2 Program that expand access to financing

Timeline

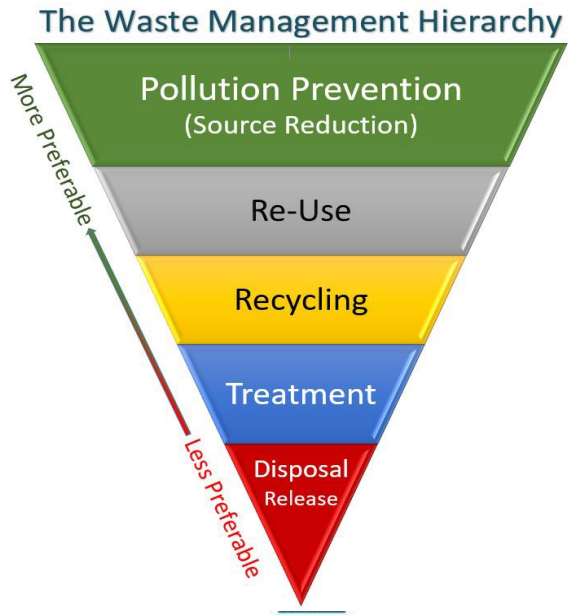
- November 2021 – October 2022

EFAB Charge: Financing Small Manufacturer Pollution Prevention Projects

In Collaboration with: EPA Office of Pollution Prevention and Toxics

Office of Chemical Safety and Pollution Prevention - OCSP

WASTE MANAGEMENT HEIRARCHY



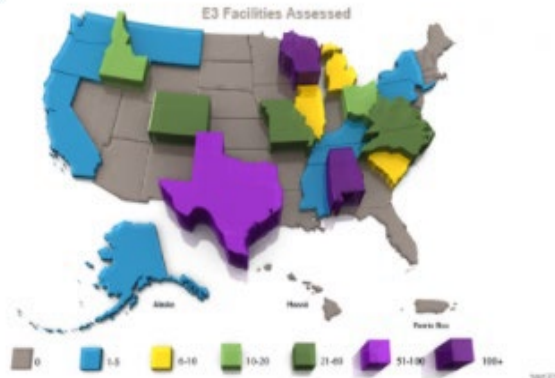
Food/Beverage,
Auto,
Aerospace,
Fabricated
metals,
Chemicals

EXPLORE: BARRIERS TO FINANCING



ADDRESS CHALLENGES/OPPORTUNITIES

- i. How could different financing structures and models increase financing?
- i. How would a sector-based approach to manufacturers inform economies of scale in financing?
- i. How could EPA best support expansion of financing and assistance programs?



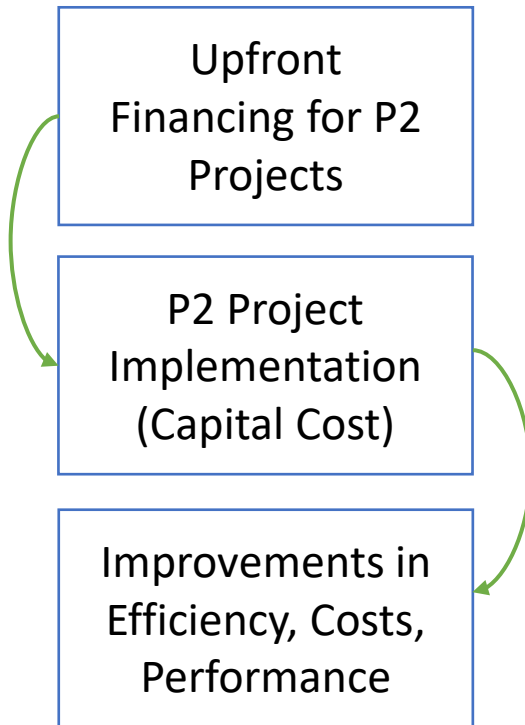
NetZero; Supply Chain Sustainability

Financing Small Manufacturer Pollution Prevention Projects

In Collaboration with: EPA Office of Pollution Prevention and Toxics

EPA Source Reduction Examples

Financing Model

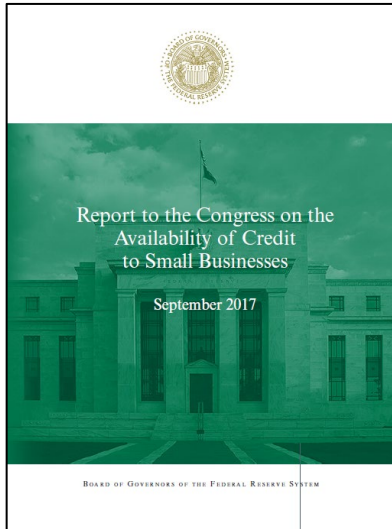


- CDFI - Craft3: loans to transition from dry cleaning to wet cleaning combined with State Equipment Replacement Voucher Program = elimination of hazardous chemicals
- State Program - Michigan Small Business P2: loan to transition conventional imaging to digital radiology in medical industry reduced hazardous liquid waste and solid waste
- Commercial Financing: loans to support installation of plural component surface coating in aerospace and automotive industries = reduced labor, product purchases, waste generation and disposal costs (est 1.5 year ROI)

EFAB Charge: Financing Small Manufacturer Pollution Prevention Projects

In Collaboration with: EPA Office of Pollution Prevention and Toxics

Office of Chemical Safety and Pollution Prevention - OCSP



- Scope of market
- Trends in finance for SMEs
- Major gaps in finance sector
- P2 Finance equation
 - Focus sectors reflect industries with high environmental footprints related to energy, water and toxic chemical releases
 - Identified/quantified impacts to air, water and biodiversity including broad natural resource/climate challenges and more specific human health issues
 - Well understood technology/process change with clear budget parameters
 - Identified increase in free cash or decrease in enterprise risk to justify expenditures and support underwriting

Financing Small Manufacturer Pollution Prevention Projects

In Collaboration with: EPA Office of Pollution Prevention and Toxics

P2 Definition & Approach

What is definition of "pollution prevention" for this project ?

- ✓ Any practice that reduces, eliminates, or prevents pollution at its source prior to recycling, treatment or disposal (*energy, water, chemicals, other inputs to manufacturing*).
- ✓ Reducing the amount of pollution produced = less waste to control, treat, or dispose of. Less pollution means fewer hazards posed to human health and the environment.
- ✓ Sustainable supply chains, products, and services are growing market opportunities.

Impacts to: Water, Air, Climate, Land = Long-Term Biodiversity + Human Health

EPA P2 Project Types

- Process Management
- Materials Substitution
- Manufacturing Modifications
- Resource Recovery

Current EPA P2 Programs

- P2 Technical Assistance Grants to National Emphasis Areas
- Highlight Best Practices
- Engage Businesses, Facilities, Organizations, Federal Partners

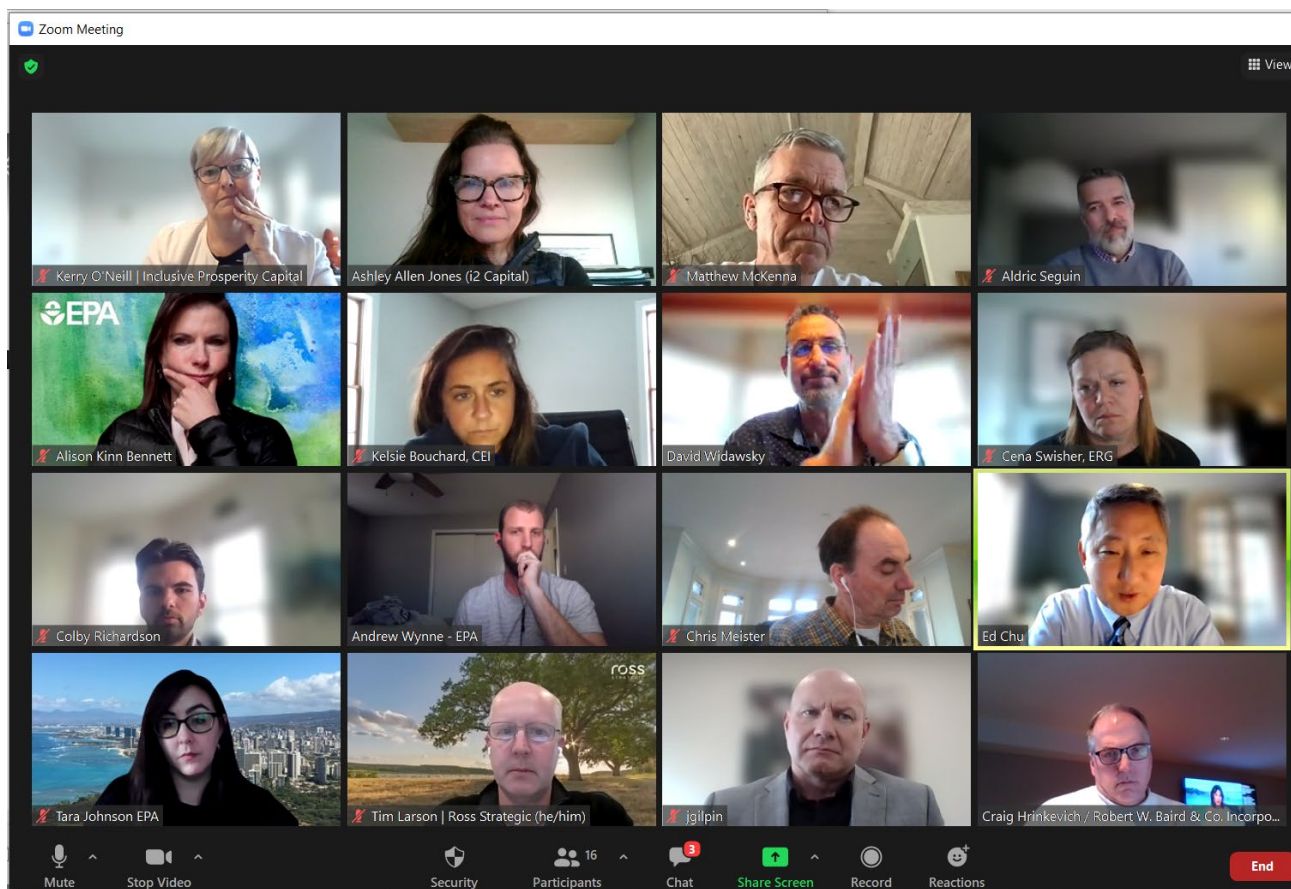
Environmental & Cost Savings Metrics

- Reductions in hazardous releases and hazardous inputs (pounds)
- Reductions in metric tons of carbon dioxide equivalent: MTCO_{2e}
- Reduced water consumption (gallons)
- **Cost savings** associated with reducing energy, water, disposal of hazardous waste, MTCO_{2e}

Financing Small Manufacturer Pollution Prevention Projects

In Collaboration with: EPA Office of Pollution Prevention and Toxics
Office of Chemical Safety and Pollution Prevention - OCSP

Three Finance Forums Convened



Goal: assess barriers to and opportunities for increased financing of SME sustainability efforts to support EPA P2 programmatic strategies and products

Pollution Prevention Finance Forum #1

Perspectives on Risks and Potential Financing Models & Tools



Matt McKenna, Executive in Residence
Georgetown McDonough
School of Business
Rural Opportunity Initiative



Jeremy Gilpin, Executive Vice President
Greater Commercial Lending



Aldric Seguin, Managing Partner
Global Sustainable Future



Kelsie Bouchard, Portfolio Manager
Coastal Enterprises, Inc.

- Major issue: credit risk - comprised of (i) company level P&L factors, (ii) technology risk, (iii) lack of clarity in cost savings and ROI on projects
- Sector level credit risk – comprised of (i) fragmentation, (ii) business growth characteristics, (iii) lack of transparency about nature and level of challenge (e.g. toxic waste disposal)
- Easiest mechanisms to reduce credit risk: loan guarantees, tax advantaged lending (examples USDA loan guarantees and Rural Business Investment Cos; SBA loan guarantees and SBA Small Business Investment Cos.) Allows private sector to operate with credit that would typically be outside its scope
- Potential to structure financing more effectively using “shared service” or “shared savings” models (ESCOs) or innovative fee-based models (CPACE, etc.)
- Potential to address technology risk through certification, information sharing, sector-based campaigns with established technologies.
- Select CDFIs work deeply within communities to address credit risk in underserved markets and priority economic sectors. Establish relationships with technical assistance organizations and technology experts and to help mitigate risk

Key takeaway: “EPA should focus on reducing the risk of the credit risk profile of the user”

Pollution Prevention Finance Forum #2

Deep Dive on Specific Tools and Approaches



Catherine Sheehy, Head of Advisory Solutions, Environment & Furniture, UL Consumer & Furniture



Brad Fletcher, Vice President & Treasurer, Illinois Finance Authority

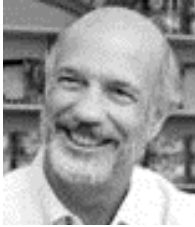


Bert Hunter, Executive Vice President and Chief Investment Officer, CT Green Bank

- Standards and 3rd party certifications can mitigate risks for financial community through clarifying terms, scope, metrics, and measurements, and enabling benchmarking; credible entity standing behind organization to confirm technology strategy.
- Circularity portfolio: UL3600 includes waste aversion validation at a site or across a supply chain to support “circularity of a companies material flow.”
- C-PACE (Commercial Property Assessed Clean Energy Program): used across 30 states - counties and municipalities impose standardized, voluntarily “requested special assessment liens” on behalf of property owners. Supports equipment that is permanently affixed to buildings, with financial/collateral ties to plant infrastructure.
- Green Banks: provide financing to private property and business owners to increase energy efficiency of property; 15-year financing. Lend alongside “commercial capital.”
- Examples: SME energy efficiency portfolio funded through utility program @ 0% interest; Solar Power Purchase Agreement Program simplifies and reduces cost to deploy solar; loan loss reserve program for primary lenders (e.g. E-Loan provides second loss guarantee to lenders).

Pollution Prevention Finance Forum #3

Corporate Strategy, Partnerships & Distribution Networks



John Cox, Fmr. CEO, Turkey Hill Dairy, John Cox Consulting



Martin Chilcott, CEO & Founder, Manufacture 2030



Sarah Lee, Governor's Advanced Manufacturing Sector Lead, Washington State Department of Commerce



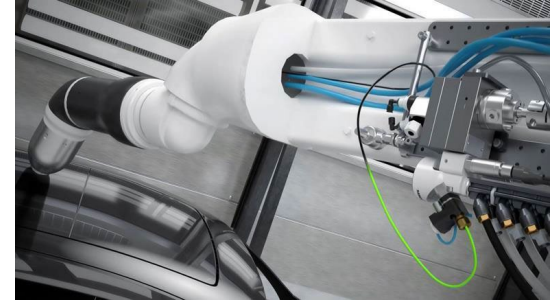
Frank Altman, CEO, Community Reinvestment Fund

- Think about sustainability as a matter of continuous improvement; analyze the value stream and where the waste is in that value stream and work hard to find an intersection of waste and profitability
- Look for opportunities to partner with people who value things that you don't necessarily value (e.g. excess land for energy generation)
- Consider seeking support from within the value chain (e.g. OEMs seeking sustainability from within their supply chain)
- Look for state-level resources to help support businesses in being "investor ready"; understand what local lenders need.
- Form strategic, targeted partnerships with businesses to attract private funding and philanthropy.
- Look at network of Community Development Financial Institutions (CDFIs) across the country that are concerned with "those people that are farthest away from the opportunity." CDFIs are "capillaries of finance" that seek to access hard to reach markets thorough financial engineering (e.g. guarantees from philanthropy and government).
- Look for opportunities to share the cost and complexities across a sector.
- Seek "innovative cluster" potential to expand sustainability in a geographic area in a sector; offer "wrap-around" services that target a specific challenge and solution.

EFAB Recommendations

I. P2 Grant Program

- Focus next round of P2 grants on grantees with expertise in relevant sectors for primary P2 finance opportunities and relevant capacities to advance P2 finance efforts [single industry or group of industries with similar P2 issues]
- Identify and support a cohort of regional P2 pilots that demonstrate robust partnerships for pre-development support (technical assistance) and innovative funding relationships - to serve as P2 “demonstration projects”



II. Education/Training

- Develop sector-based use cases for P2 financing (through grantees or consultants)
- Develop a series of webinars on P2 success cases and factors contributing to success (referencing workshop learnings)

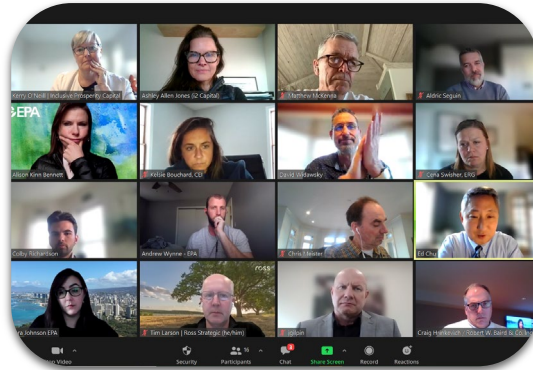


III. Risk Reduction Mechanisms

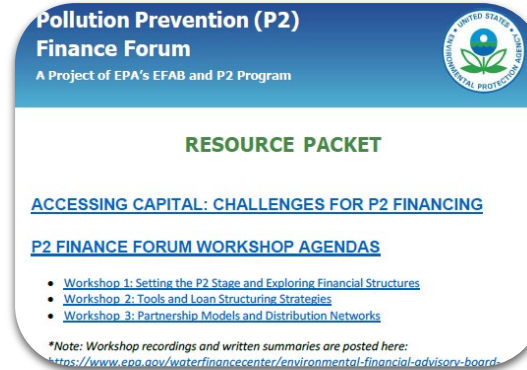
- Launch technology certification program around priority interventions in one or two focus sectors
- Develop underwriting standards for P2 on specific waste streams within specific industries, in conjunction with trade groups and technical experts
- Explore use of existing and new credit enhancements/guarantee programs (e.g. EPA SRF, SBA, USDA, State-level programs, USDOE, etc.)



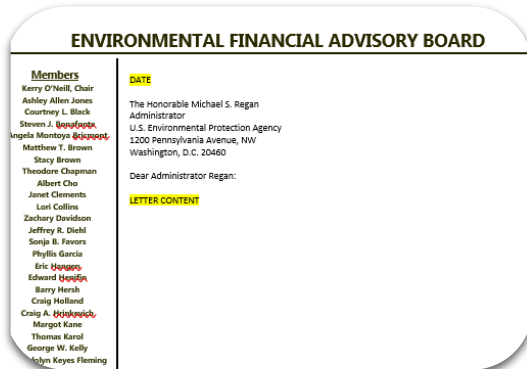
EFAB P2 Charge Deliverables



Pollution Prevention
Finance Forum
Webinar Recordings



Pollution Prevention
Finance Forum
Resource Package



Pollution Prevention Financing
Recommendations Letter
(5-7 Pages)



Pollution Prevention Financing
Conclusions &
Recommendations
(PowerPoint)