

POLLUTION PREVENTION
resource center



NASEO State Industrial Working Group Forum:

**Partnerships and Collaborations--
P2 in the Pacific Northwest**

February 21, 2024

ED GONZALEZ – EXECUTIVE DIRECTOR

KEN GRIMM – INDUSTRY OUTREACH MANAGER

National Pollution Prevention Roundtable

www.p2.org

- ▶ Established 1990

- ▶ Mission Statement

The National Pollution Prevention Roundtable (NPPR) is a national forum that promotes the development, implementation, and evaluation of efforts to avoid, eliminate, or reduce waste generated to air, land and water.

- ▶ 108 current members



Goals

Goal 1: Information Exchange – Advance pollution prevention by maintaining and improving opportunities for exchanging ideas and facilitating coordination of efforts.

Goal 2: Public Policy – Advance pollution prevention by influencing the development and implementation of policies, legislation and regulations.

Goal 3: Education – Promote education and awareness of pollution prevention concepts, programs, methods, accomplishments, and benefits.

Goal 4: External Partnerships – Foster constructive, mutually beneficial relationships with other organizations which have related missions.

Goal 5: Funding – Provide leadership and coordination that supports sustainable funding opportunities for pollution prevention.



WORKGROUPS

- ▶ Food and Beverage Manufacturing and Processing
- ▶ Leadership & Voluntary Programs
- ▶ Metal Finishing
- ▶ P2 Intern Collaborative
- ▶ Private Sector P2 Professionals
- ▶ Regulatory Improvement & Integration

- ▶ *Would you like to recommend a new workgroup?*



SERVICES

- ▶ P2U – Series of quarterly webinars to support networking and professional development for P2 practitioners
- ▶ Newsletter – Information on events, programs, and projects throughout the nation related to P2
- ▶ MVP2 Award – National awards given to those who are recognized as the very best in pollution prevention

Coming Soon!

National Pollution Prevention Roundtable
Conference

Annual Membership Fees

Industry/Consultant (Individual)	\$295.00
(3 members)	\$595.00
(5 members)	\$895.00
Non-Profit/Govt. Agency/Academic	
(Individual)	\$195.00
(3 members)	\$495.00
(25 members)	\$2,495.00

NPPR Contacts

Laura Henne – Chair

Pollution Prevention Program Manager

Bureau of Sustainability

New Jersey Department of Environmental Protection

Tel: 609-633-0631

E-mail: laura.henne@dep.nj.gov

Ed Gonzalez – Vice Chair

Executive Director

Pacific Northwest Pollution Prevention Resource Center
(PPRC)

Tel: 206-352-2050

E-mail: egonzalez@pprc.org



Pacific Northwest Pollution Prevention Resource Center

Established in 1991

VISION STATEMENT

The Pollution Prevention Resource Center (PPRC) aims to reduce or prevent the generation of pollution at its source through the dissemination of reliable, impartial, high-quality technical information, training, and services.

POLLUTION PREVENTION
resource center



Purpose

MISSION STATEMENT

- ▶ Through strategic partnerships and collaborations, PPRC provides direct education and technical assistance to businesses, governments (local, state, and tribal), and P2 technical assistance providers (TAPs).





PARTNERSHIPS (Since its Founding)

- ▶ WA Department of Ecology
- ▶ Idaho Department of Environmental Quality
- ▶ Oregon Department of Environmental Quality
- ▶ AK Forum
- ▶ MEPs and SBDCs
- ▶ 100s of local wastewater jurisdictions
- ▶ Consultants
- ▶ Tribes
- ▶ USDA
- ▶ EPA
- ▶ Dozens of municipalities, counties, and air districts

Projects

Current Staff - 19

- ▶ Spray Efficiency Trainings
- ▶ FOG and PFAS Abatement Trainings
- ▶ EcoBiz Certification Program
- ▶ EPA Safer Choice Programs
- ▶ Roundtables
- ▶ Auto Repair Safer Alternatives
- ▶ Aerospace Safer Alternatives
- ▶ Zerowaste/Pollution Prevention Trainings
- ▶ P2 Site Assessments
- ▶ Rapid Response Research

Project Examples

Ken Grimm

Industry Outreach
Manager

Pacific Northwest Pollution Prevention Resource Center (PPRC)

Practical solutions for environmental and economic vitality

- ▶ Founded in 1990
- ▶ Work locally regionally and nationally



Energy Workshops

Greater Seattle Area –
School Districts
Seattle U. Engineering

Greater Portland Area –
Hospitals
PGE EA Center

Frank	Eshpeter	Highline School District	17810 8th AV S. Bldg C	Burien	WA	98148-1788	Facilities Services Manager
Ray	Burton	Snohomish County PUD					Executive Account Manager
John	Bingham	Marjorie School District					Maintenance Supervisor
K.P.	Ploughman	Grapeview School Dist.	54				
DuAnne	Steben	Edmonds School District					
Paulette	Ostrem	Edmonds School District					
Jim	Beveridge	South Kitsap School District					
Jeff	Hill	South Kitsap School District					
Edwin	Lopez	Central Kitsap School District					Maintenance Supervisor
Sara	Miller	Central Kitsap School District					
Brian	Hunt	Central Kitsap School District					
Michele	George	Evergreen College					Facilities Director
Rich	Davis	Evergreen College					Facilities Engineer
Rick	Doehle	Naches School District					Superintendent
Steve	Lyons	Everett Community College					Head Electrician
Mike	Joyner	Sequim School District					Superintendent
Wayne	Sealock	Kennewick School District					
Ken	Smith	Kennewick School District					
Carl	Larson	Snoqualmie Valley School District					
Ron	Ellis	Snoqualmie Valley School District					
Keith	Shelly	Meridian School District					
Jim	Ashworth	Idaho Power					
Tom	Laufmann	Aberdeen School District					Business Manager
Ron	Cinert	Aberdeen School District					Facilities Director
Jake	Walker	Lake Stevens School District					
Gareth	Green	Seattle University					Economics Professor
Chip	Romain	Seattle University					Environmental Safety Technician
Bob	Fenn	Seattle University					Director of Facilities Operations
Lee	Miley	Seattle University					Assistant Director of Facilities Operations
Craig	Chabum	Seattle University					Director of Grounds
Rich	Brown	Cheney School District					HVAC Technician
Frank	Giffin	Seattle School District					
Michael	Johnson	Antioch University					Facility Manager
Larry	Price	Kent School District					
Gus	Nyquist	Highline Community College					Maintenance Lead
Janine	Ducharme	Vashon School District					
Gates	Johnson	Vashon School District					
Tom	Webb	Stanwood Camano School District					Maintenance Supervisor
Dave	Brubaker	Seattle University					Director of Ecological Studies
George	Bryant	Vancouver School District					Facilities Manager
Debra	Howard	East Valley School District					

Energy Optimization for Hospitals

Registration: 7:30 to 8:00 am
Workshop: 8:00 am to 12:00 pm

A half-day workshop with practical, current information on optimizing energy use to improve your bottom line.

Take home tools and references to help you implement leading edge ideas into your projects immediately.

Featured Topics

EPA Energy Cost Savings Programs for Energy Star® Partners

Dr. Robert Fallis - Energy Star® Program Coordinator - USEPA Region 10 Office of Innovation

Sustainable Measures in Hospitals

Michelle Helou - Green Building Specialist - Green Building Services

Incentives for Energy Efficiencies in Oregon Medical Facilities

Mark Kendall - Energy Systems Engineer - Oregon Office of Energy

Energy Efficiency Projects in Hospitals

Michelle Missfeldt - Efficiency Services Group

Network Energy Manager - Surveyor

Paul Linger - Regional Sales Manager - EZ Conserve, Inc.

Going Green for Large Power Users

Thor Hinckley - PGE Renewable Energy Program

Did you know that energy is 8-11% of a hospital's overall operating expense?

Hospitals

- use over \$5 billion a year in electricity alone

- use twice as much energy per sq.ft. compared to office buildings

- have the potential to save 25-30% on their electric bills

Who Can Benefit?

Facilities Managers
Hospital Administrators
Hospital Design Professionals

Location

PGE Earth Advantage™ National Center
16280 SW Upper Boones Ferry Road - Portland, OR 97224

Registration

Space is limited so please pre-register!

Online registration: <http://www.earthadvantage.com/NationalCenter/training.asp>

Register by phone: 503.603.1706

Registration Fee: \$15.00 - breakfast included

Payment can be made by check (payable to Portland General Electric), VISA or Mastercard

For more information please contact:

Seattle: Ken Grimm - kgrimm@pprc.org - 206.352.2050

Portland: Kathleen Harper - kathleen_harper@pgn.com - 503.603.1707

Sponsored By



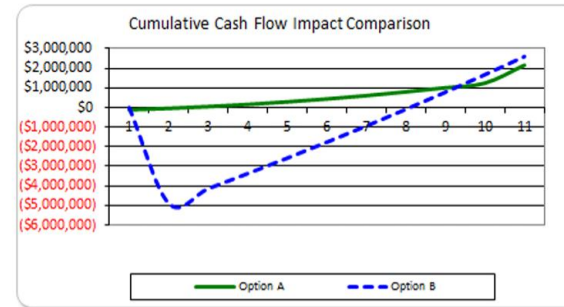
BETTERBRICKS

Green Building
Services

Cash Flow Opportunity Calculator

ENERGY STAR® Cash Flow Opportunity Calculator HELP SAMPLE VALUES COST OF DELAY and CASH FLOW ANALYSIS

Funds available from projected savings	5,191,200	\$
Simple payback	7	years
	3	month(s)
Interest rate	5.00	%
Financing term	10	years
Year(s) postponed	1	years
Project cost increase due to postponement	3.00	%
Estimated energy cost change in year 2	2.00	%
Annual change in energy costs after year 2	2.50	%
Estimated energy savings in year 1	75.00	%



These cash flow calculations are on a pretax basis.
For purposes of this calculation, all cash flows are being discounted at the interest rate indicated in cell G7 - financing paid monthly in arrears.

Net Present Value of Option A
(Fast Track Financing)

\$1,403,314

\$881,218

Net Present Value of Option B
(Waiting for Cash)

Fast Track Financing generates \$522,097 or 59% more cash than waiting!

Year	Option A (Fast Track Financing)				Option B (Waiting for Cash)			
	Savings	Project Cost including financing	Annual Cash Flow	Cumulative Cash Flow	Savings	Project Cost	Annual Cash Flow	Cumulative Cash Flow
1	\$540,000	(\$660,729)	(\$120,729)	(\$120,729)	\$0	\$0	\$0	\$0
2	\$734,400	(\$660,729)	\$73,671	(\$47,058)	\$550,800	(\$5,449,936)	(\$4,899,136)	(\$4,899,136)
3	\$752,760	(\$660,729)	\$92,031	\$44,974	\$752,760	\$0	\$752,760	(\$4,146,376)
4	\$771,579	(\$660,729)	\$110,850	\$155,824	\$771,579	\$0	\$771,579	(\$3,374,797)
5	\$790,868	(\$660,729)	\$130,140	\$285,964	\$790,868	\$0	\$790,868	(\$2,583,929)
6	\$810,640	(\$660,729)	\$149,911	\$435,875	\$810,640	\$0	\$810,640	(\$1,773,288)
7	\$830,906	(\$660,729)	\$170,177	\$606,053	\$830,906	\$0	\$830,906	(\$942,382)
8	\$851,679	(\$660,729)	\$190,950	\$797,003	\$851,679	\$0	\$851,679	(\$90,703)
9	\$872,971	(\$660,729)	\$212,242	\$1,009,245	\$872,971	\$0	\$872,971	\$782,268
10	\$894,795	(\$660,729)	\$234,066	\$1,243,311	\$894,795	\$0	\$894,795	\$1,677,063
11	\$917,165	\$0	\$917,165	\$2,160,476	\$917,165	\$0	\$917,165	\$2,594,228

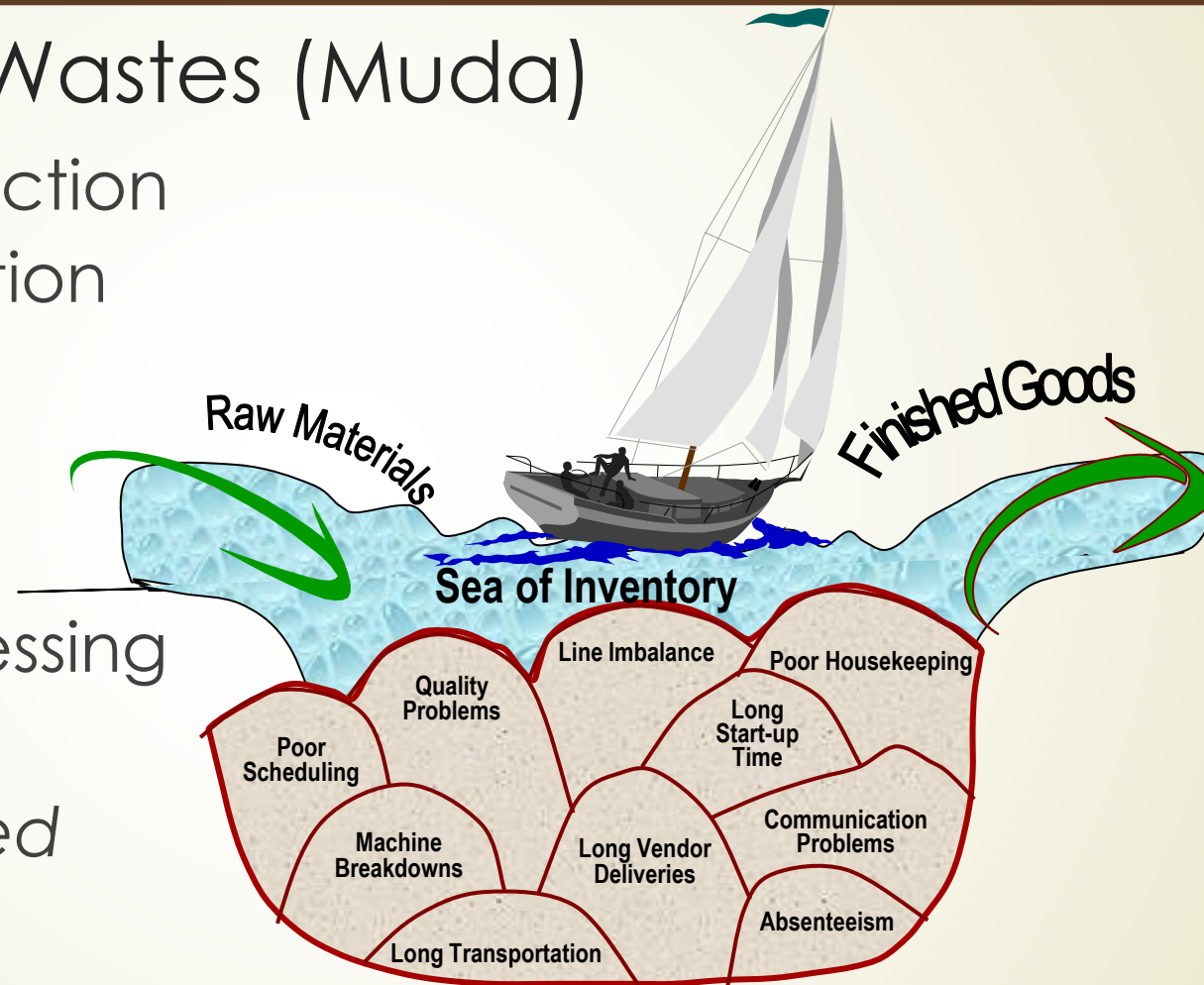
Byproduct Synergy Northwest

Source Company	Receiving Company	Synergy	Status	Amount of Material Diverted Annually	Annual \$ Value of Synergy
Genie	Nucor	Steel shot	Complete	192 tons used rather than treated as waste	\$16,800 from avoided disposal
Genie	(n/a)	Pallet recycle	Complete	8.9 tons recycled rather than land-filled	\$9,500 from avoided disposal
Canyon Creek	(n/a)	Acetone distillation	Already in place	19,910 gallons (65.7 tons) not purchased or disposed of	\$180,000
Canyon Creek	Coning and Sons	Wood scrap used as kiln fuel	Already in place	2275 tons	\$180,000 (avoided disposal)
Canyon Creek	Pacific Topsoil	Sander dust used in soil products	Already in place	1121 tons	\$0 (dust would be burned in kiln)

Lean and Green

Seven Wastes (Muda)

- ▶ Overproduction
- ▶ Transportation
- ▶ Waiting
- ▶ Inventory
- ▶ Motion
- ▶ Over Processing
- ▶ Defects
- ▶ *Underutilized employees*



Lean and Green

Lean Eliminates Production “Wastes”
But Not Always Environmental Wastes

Lean’s “Deadly Wastes”

1. Defects
2. Overproduction
3. Waiting
4. Non-value added (over-) processing
5. Transportation
6. Inventory
7. Motion

Where are the environmental wastes?

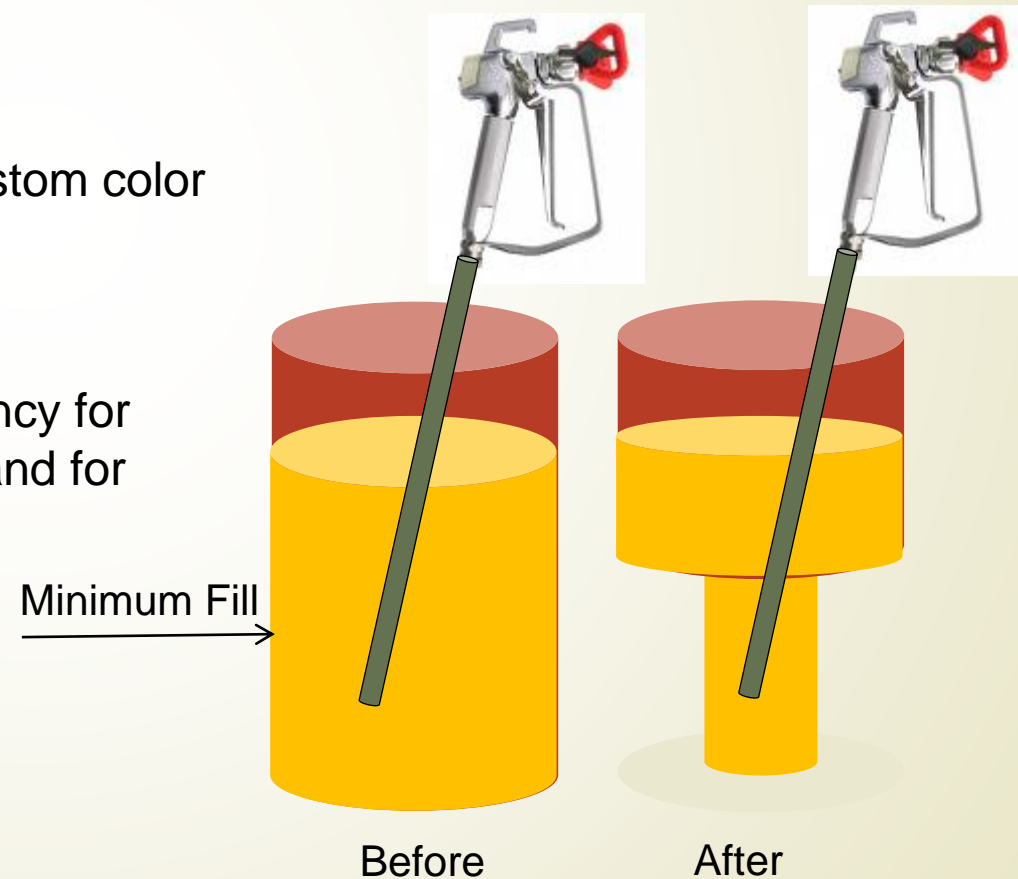
Excess material use
Toxic / hazardous material use
Scrap & non-product output
Hazardous wastes
Pollution (emissions/effluents)
Energy and water consumption



Lean and Green - Woodfold

Louver Paint Line Improvements

- Reduced overproduction of custom color paints by 48 gallons/year.
- Increased paint transfer efficiency for lacquer from 15.9% to 19.7% and for primer from 39.6% to 42.4%.



Lean and Green - Woodfold

Reductions	Source of Savings	Annual Cost Saving	Type of Saving
Labor / Inc. capacity	New filter system	\$ 3,800	> 160 hrs
Material	New paint container design	\$ 1,440	48 gal/yr
	Transfer Efficiency	\$ 34,530	102 gal primer /980 gal lacquer
Emissions	Transfer Efficiency	Not quantified	968 lb VOC/ 82 lb HAPS
Disposal	PVC scrap to recycler	\$ 670	6 tons PVC
	Filters	\$ 953	50% <i>reduction</i>
Water	New flush/purge	\$ 40	2600 gal
Energy	Less evaporation	\$ 3,300	120,000 kwh
Total		\$45,000	

Lean and Green – Canyon Creek

- 3 new crosscut saws
- Cutting time per day (before)
 - 368 sheets/day @ 120 sec/sheets = 12 hours 15 min
- Cutting time per day (after)
 - 219 cuts @ 21 sec/cut = 1 hour 17 minutes
- Reduction in time: 90% = \$31,000
- Reduction in sheets required: \$194,000/year
- Reduction in waste removal: 580,000 lbs/year and \$58,000/year
- Layout improvements saved: Over 650 foot-miles of foot travel per year!

Lean and Green – Canyon Creek

Reductions	Woodchuckers Team		Toxics Team	
	Annual Cost Savings	Time, Material, & Environmental Savings	Annual Cost Savings	Time, Material, & Environmental Savings
Raw Material	\$110,000	~1,820 wood sheets		
Hazardous Substance and Use			\$128,450	68,720 pounds
Air Emissions				55,130 pounds (net reduction in VOCs)
Hazardous Waste			\$37,100	84,400 pounds
Energy			\$24,000	20,680 therms
Solid Waste	\$58,000	508,000 pounds		
Rejects			\$208,000	10,400 parts
Labor			\$624,000 ¹	39,000 hours ¹
Cost Savings Sub-Total	\$168,000		\$1,021,550	
Total Cost Savings:	\$1,189,550 per year			

¹ This is a conservative estimate. The additional labor hours were used to fill open positions.

Unwanted Medicine Return Program

- Facilitated two-year Medicine Return Pilot Project in WA
- Multi-agency/stakeholder effort
- Resulted in proper disposal of over 15,000 pounds of unused household pharmaceuticals



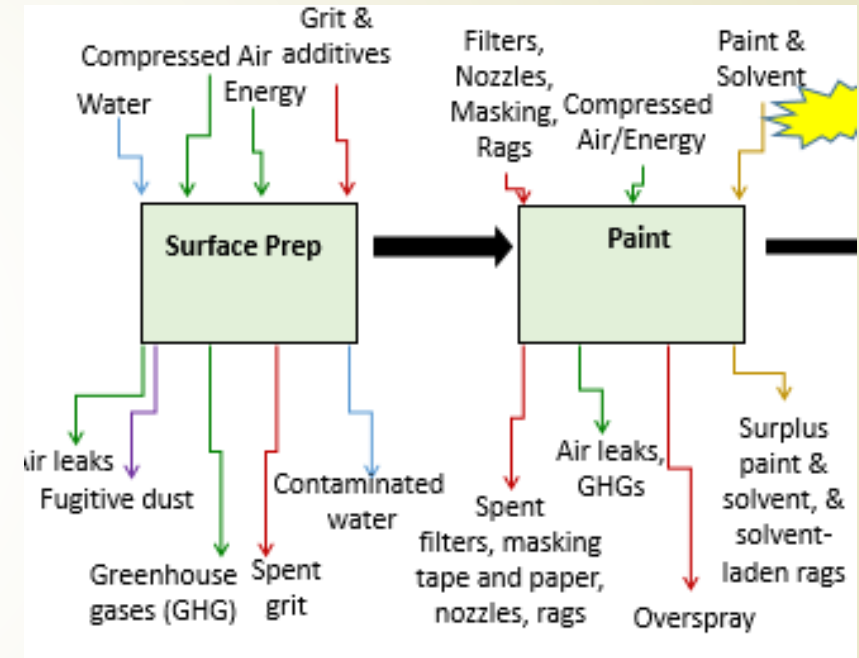
Unwanted Medicine Return Program

At peak: 130 lbs. of unwanted household medicines fills **1 cage every 3 days** (Group Health)



Pollution Prevention / E3

- ▶ P2 Assessments & Implementation
 - ▶ P2 Checklists
 - ▶ Process mapping with inputs / outputs
 - ▶ Environmental cost accounting
 - ▶ Chemical inventory (safer alternatives screening)
 - ▶ Recommendations
 - ▶ Implementation assistance
- ▶ E3 – Environment, Energy, Economy
 - ▶ Use similar methods as above, but partner with state technical assistance, lean practitioners, Industrial Assessment Centers (IAC), and small business development experts
 - ▶ Provides added benefits of lean, energy, and economic development



Craft Brewing P2

MOST RECENT:

- a) Bend - brewery workshop and tour, Sept. 8 & 9 – Worthy Brewing
- b) Bellingham workshop and tour, Sept. 28 – Boundary Bay Brewery

OTHER EFFORTS:

- Support of IDEQ E3 Excellence Project— Three breweries in Idaho
- Past brewery assessments: Alaska, Oregon, and Washington (Hopworks, Redhook, Fort George)
- Craft Brew Topic Hub
- Sustainable Craft Brew Listserv



Shipyard Roundtable

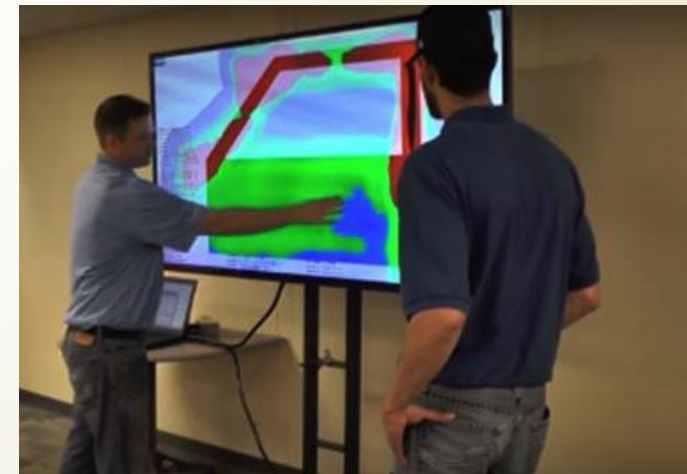
- ▶ Industry Compliance Issues
- ▶ Several Companies Fined
- ▶ Largest Proposed an SEP
- ▶ Funded PPRC
- ▶ Series of Roundtables
- ▶ Continuing Service



<https://pugetsoundshipbuildersassociation.org/>

Spray Efficiency Training

- VR system owned by Oregon DEQ and Ecology, training provided by PPRC.
- Allows painters to try different efficiency techniques, provides immediate feedback on film thickness, transfer efficiency, spray techniques and paint cost.
- Painters learn from their own results and from those of their peers.
- Avoids the use of paints and chemicals, reducing the environmental footprint of painter training.



Spray Efficiency Training





Spray Efficiency Training

- ▶ Trainings annually since 2003
- ▶ Long-term partners: Idaho SBEAP, IDEQ, ODEQ, WaDOE, USEPA, AK Green Star
- ▶ Aerospace, Industrial, Automotive, Shipyard, Wood Product Mfg
- ▶ Bilingual (Spanish/English) training now available
- ▶ Started hands-on training in booth
- ▶ Progressed to 2D Virtual hands-on training in 2010
- ▶ Moved to 3D Virtual hands-on training in 2021
- ▶ To Date: Savings of **\$16,195,000** to businesses
- ▶ To Date: Reductions of **584,000 lbs. hazardous material** and **329,000 lbs VOCs**



Questions?

- ▶ Executive Director Ed Gonzalez
egonzalez@pprc.org
- ▶ Industry Outreach Manager
kgrimm@pprc.org
- ▶ <https://www.pprc.org>
- ▶ <https://www.westernstatesalliance.org>
- ▶ <https://www.ecobiz.org>
- ▶ Phone: 206-352-2050