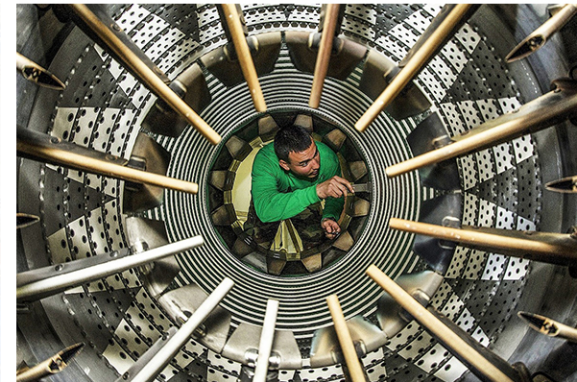


# Financing Small Manufacturer Pollution Prevention Projects

**EPA Environmental Financial Advisory Board  
P2 Finance Forum Workshop #1  
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# What is pollution prevention (P2)?

# What is pollution prevention?

- ✓ Pollution prevention (P2), also known as source reduction, is any practice that reduces, eliminates, or prevents pollution at its source prior to recycling, treatment or disposal.
- ✓ Reducing the amount of pollution produced means 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.

# EPA's Pollution Prevention Program

- Technical assistance (via grants) to advance P2 in National Emphasis Areas:
  - Food/Beverage, Auto, Aerospace, Fabricated metals, Chemicals
- Highlight best practices— spotlights, case studies
- Drive sustainable change through voluntary programs that engage businesses, facilities, organizations, and federal partners.

# In manufacturing, P2 can take many forms:

- **Process Management:** including efficient operation of machinery, monitoring of raw material flows, segregating waste;
- **Materials substitution:** Using non-toxic or less toxic chemicals as cleaners, degreasers and other chemicals used in manufacturing or maintenance activities;
- **Manufacturing modifications:** water and energy conservation practices, cutting the number of processes or switching from chemical to mechanical, introducing closed-loop processing;
- **Resource recovery:** Reusing materials rather than disposing of them as waste

# Why might P2 require financing?

P2 improvements in small and medium sized manufacturers or other small businesses may require upfront costs to:

- **Purchase new equipment** and/or **convert to a new technology** that has both economic and environmental benefits
- **Implement other process improvements** that have capital costs associated with them (e.g., rearranging production lines to improve efficiencies and reduce waste)

In these cases, businesses must find resources upfront to fund the improvements which will “pay back” over the coming months and years with reduced costs and/or expanded revenues.

# Overcoming Barriers to Finance

- Businesses

- Establishing the business case for P2 projects, with cash disbursements upfront generating potential savings or revenue over time.
- Overcoming an “if it’s not broken, don’t fix it” posture when prioritizing limited capital resources within a business, when revenue growth may be primary goal.
- Accessing stacked finance for small businesses that may not be familiar with those solutions, or have concerns that financing will not be available at affordable terms.

- Lenders

- Characterizing/quantifying risks for small/medium firms
- Loan scale/size vs. fixed cost of finance

# Examples of Common P2 Projects that Could Benefit from Financing Support



# Example 1: Metal cutting system upgrade



**Sector:** Metal manufacturing and fabrication

**P2 Project:** Conversion to laser, plasma, water-jet, or electrodischarge machining (EDM) metal cutting systems

**Project Cost:** ~\$100-400K (may be up to \$1M+ for laser cutting)

**P2 Benefits:** Eliminate need for chemical cutting fluids and resulting hazardous waste; reduced metal scrap; reduced water use and wastewater discharge

**Business Benefits:** Enhanced cutting precision and quality; reduced clean up time; reduced waste disposal costs

**Market Opportunity:** As of 2017, there were 49,104 small and medium sized fabricated metal product manufacturing businesses in the US

## Example 2: Metal finishing bath & rinse system upgrades



**Sector:** Metal manufacturing and fabrication (including metal plating)

**P2 Project:** Add spray rinses, air blades, and drip tanks to metal plating and finishing process lines to reduce dragout and loss of bath chemicals

**Project Cost:** ~\$25-200K (MI loan example of \$55K for upgrading tank system on two zinc plating lines)

**P2 Benefits:** Plating baths often involve substantial use of hazardous chemicals containing heavy metals; P2 improvements can reduce chemical use, toxic air emissions, and hazardous waste and wastewater generation

**Business Benefits:** Lower chemical costs; improved product quality; better work environment

**Market Opportunity:** In 2012, the U.S. Economic Census reported this sector includes 60,204 establishments

# Example 3: Install efficient wort heater and boiler system



**Sector:** Breweries (beverage manufacturing and processing)

**P2 Project:** Conversion to high efficiency recirculating wort heater and boiler system

**Project Cost:** ~\$50-800K

**P2 Benefits:** Reduced energy use and air pollution and CO2 emissions (by as much as 70%)

**Business Benefits:** Lower energy costs; improved business reputation

**Market Opportunity:** In 2019, there were 8,386 breweries in the U.S.

# Examples of Common P2 Projects from Michigan P2 Loan Program

# Example 1: Conversion to Digital Image Processing



**Sector:** Medical and dental offices with radiology services

**P2 Project:** Conversion from x-ray film to digital radiology imaging and developer system

**Average Loan Amount:** ~\$82K (range from \$15-400K based on MI loan program experience)

**Average Interest Rate:** ~3.5% (2.25-5% in MI loan program)

**Average Loan Term:** ~10 years

**P2 Benefits:** Eliminates the need for chemical solutions, including fixers, developers, activators, and stabilizers

**Business Benefits:** Reduced chemical costs; more efficient and less costly image sharing

**Market Opportunity:** In 2021, IBISWorld estimated that there are 196,999 dental office establishments in the U.S.

# Example 2: Dry Cleaning Conversion to Wet Cleaning



**Sector:** Dry cleaning businesses

**P2 Project:** Conversion to wet cleaning systems which use water and non-hazardous detergents to replace conventional chemical solvent-based dry cleaning systems

**Average Loan Amount:** ~\$36K (range from \$9-75K based on MI loan program experience)

**Average Interest Rate:** ~3.84% (range from 3.25-4.5% in MI loan program)

**Average Loan Term:** ~10 years

**P2 Benefits:** Eliminate perc solvent use; reduced waste and water use

**Business Benefits:** Eliminate solvent costs; improved workplace health and safety; eliminate regulatory requirements and liability

**Market Opportunity:** In 2020, there were ~30,400 dry cleaning facilities in the U.S.