



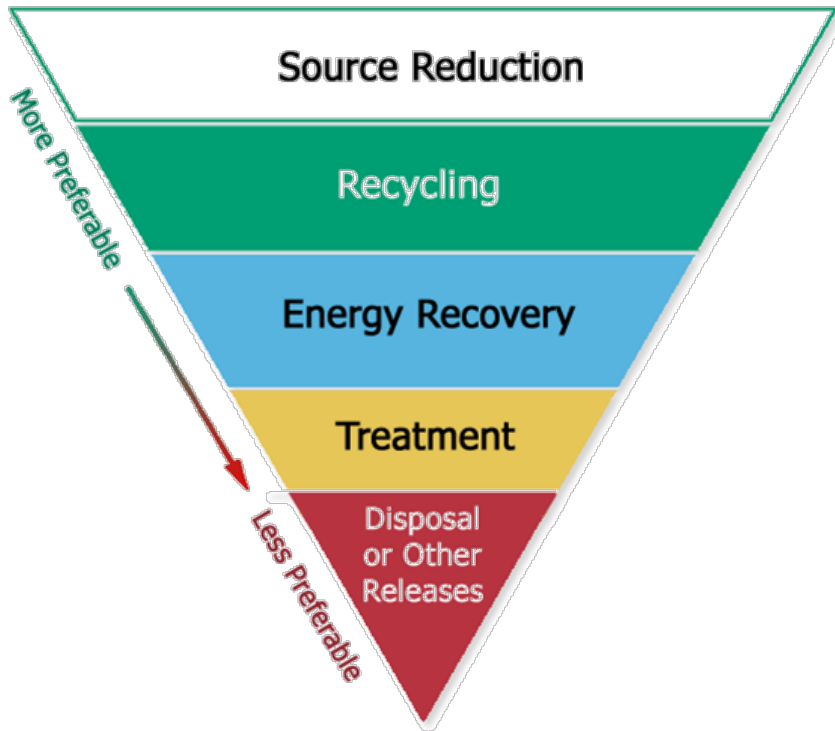
Using the TRI Pollution Prevention (P2) Tool to Compare Facilities and Identify Sustainable Practices

Daniel Teitelbaum

May 2014

TRI P2 Basics

Waste Management Hierarchy



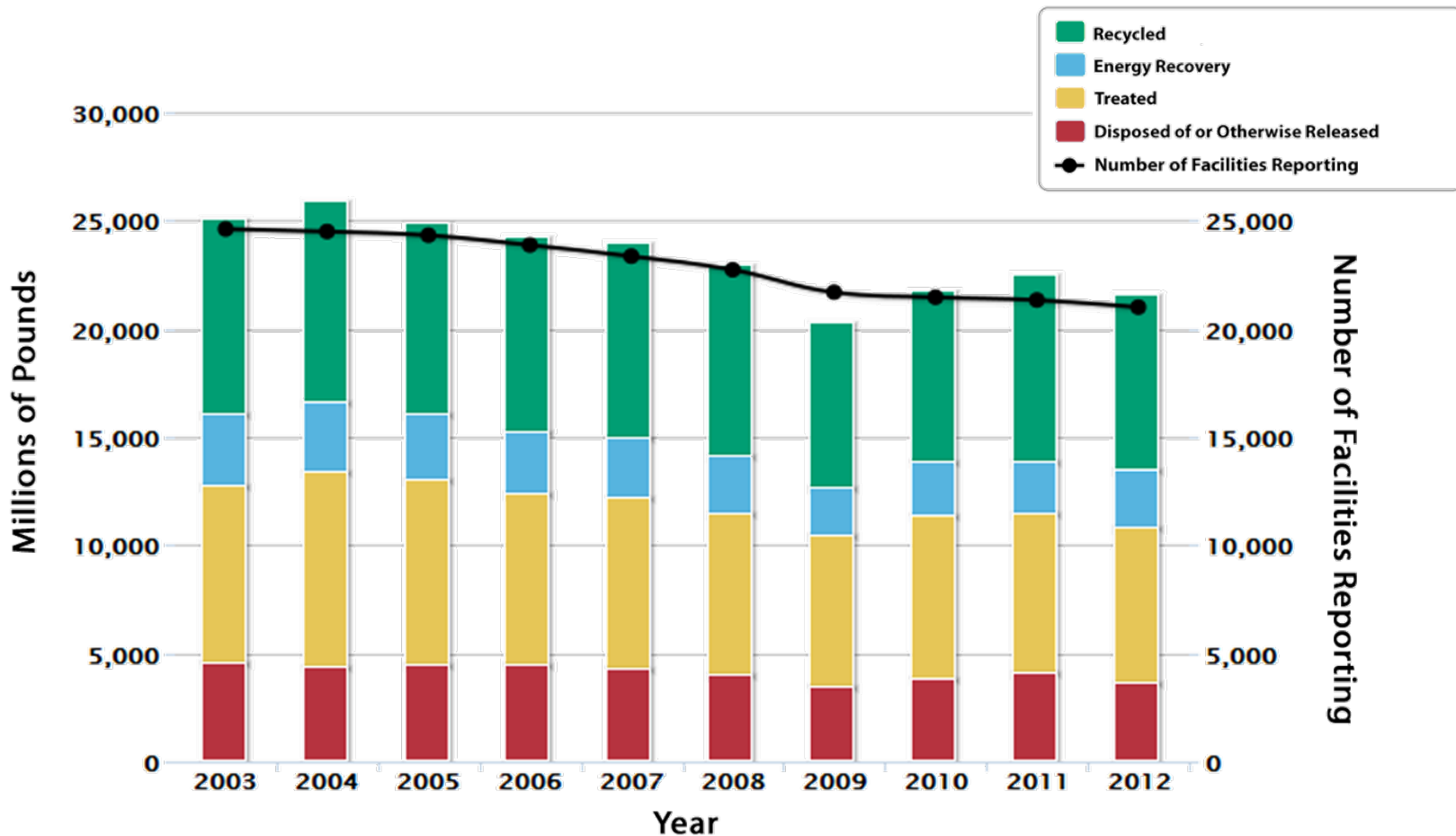
P2 Info Reported to TRI

- Source reduction activities (codes)
- Optional P2 information (free-text)
- Waste management quantities:
 - **Recycling**
 - **Energy Recovery**
 - **Treatment**
 - **Disposal and Other Releases**



P2 Progress Since 2003

Production-Related Waste Managed, 2003-2012

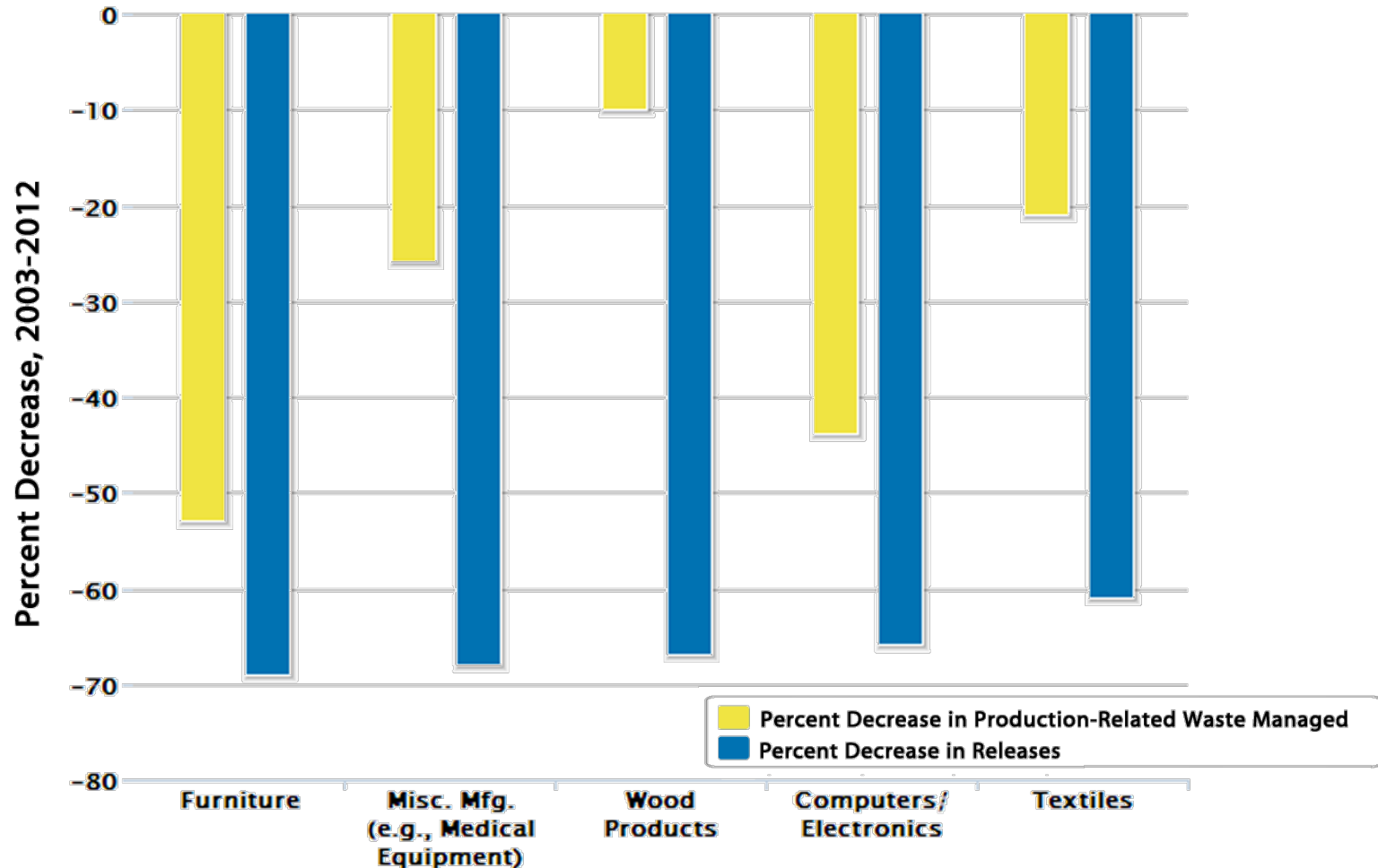


All figures shown are from the [2012 TRI National Analysis](#)



Sectors with Significant P2 Progress

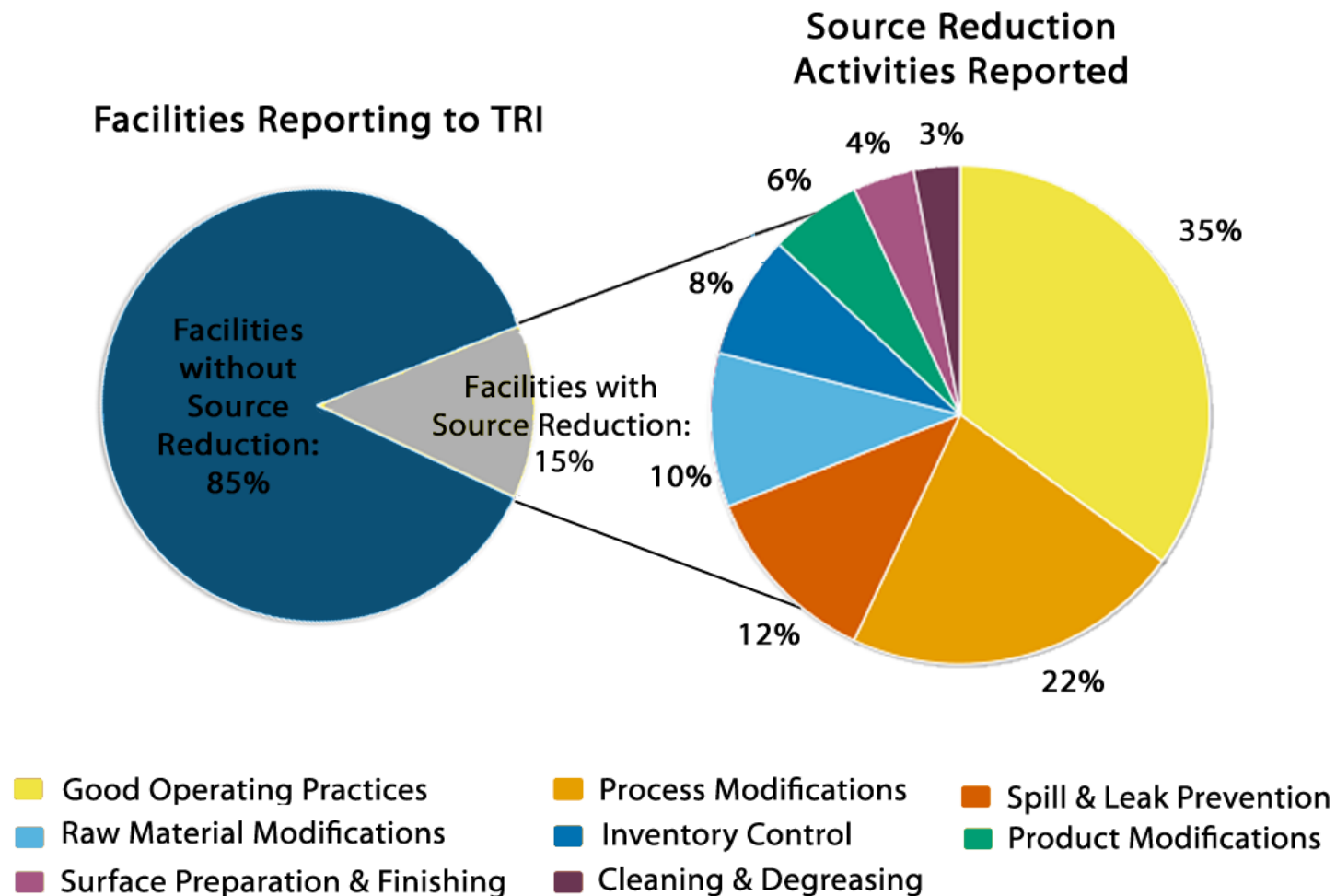
Percent Change in Production-Related Waste Managed & Releases for Industries with Largest Decreases in Releases, 2003-2012





Are P2 Activities Contributing?

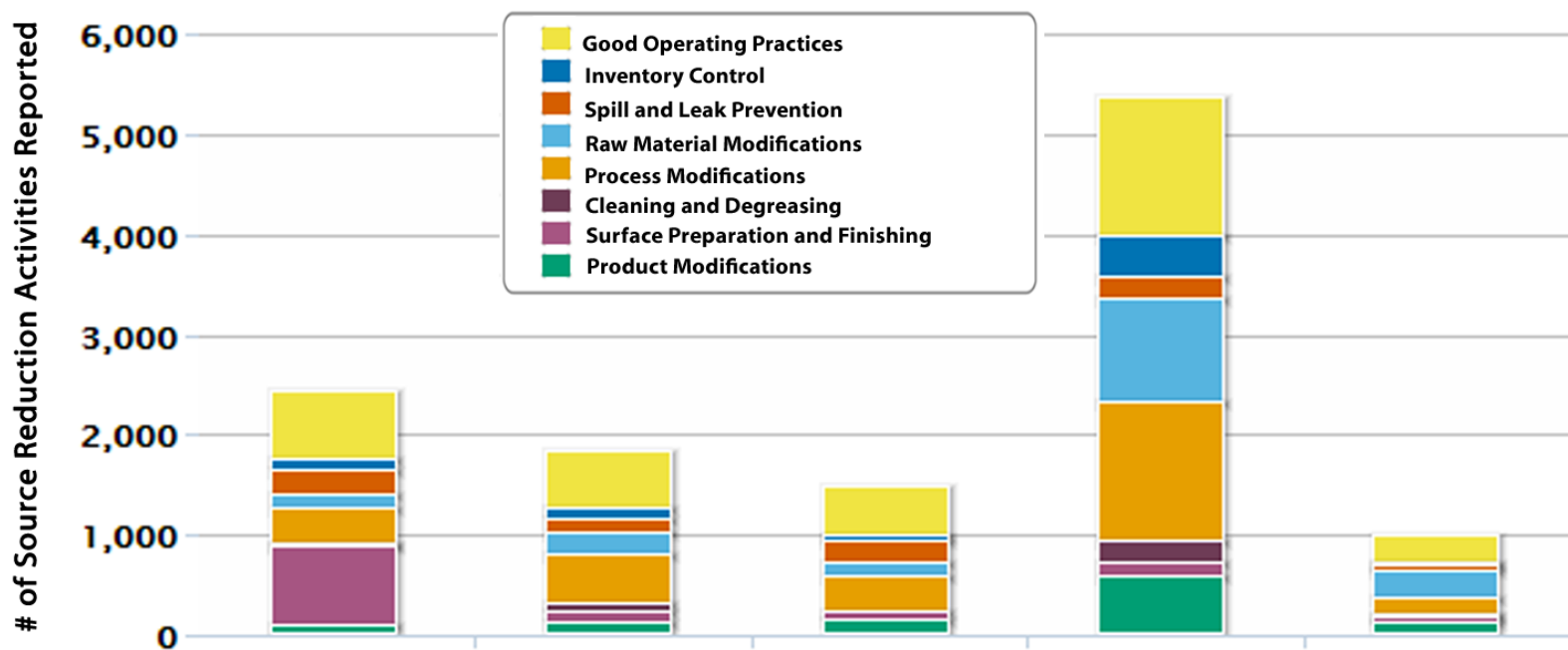
Newly Implemented Source Reduction Practices, 2012





P2 for Top Decreasing Sectors

Number of Newly Implemented Source Reduction Practices for Industries with Largest Percent Decrease in Releases, 2003-2012

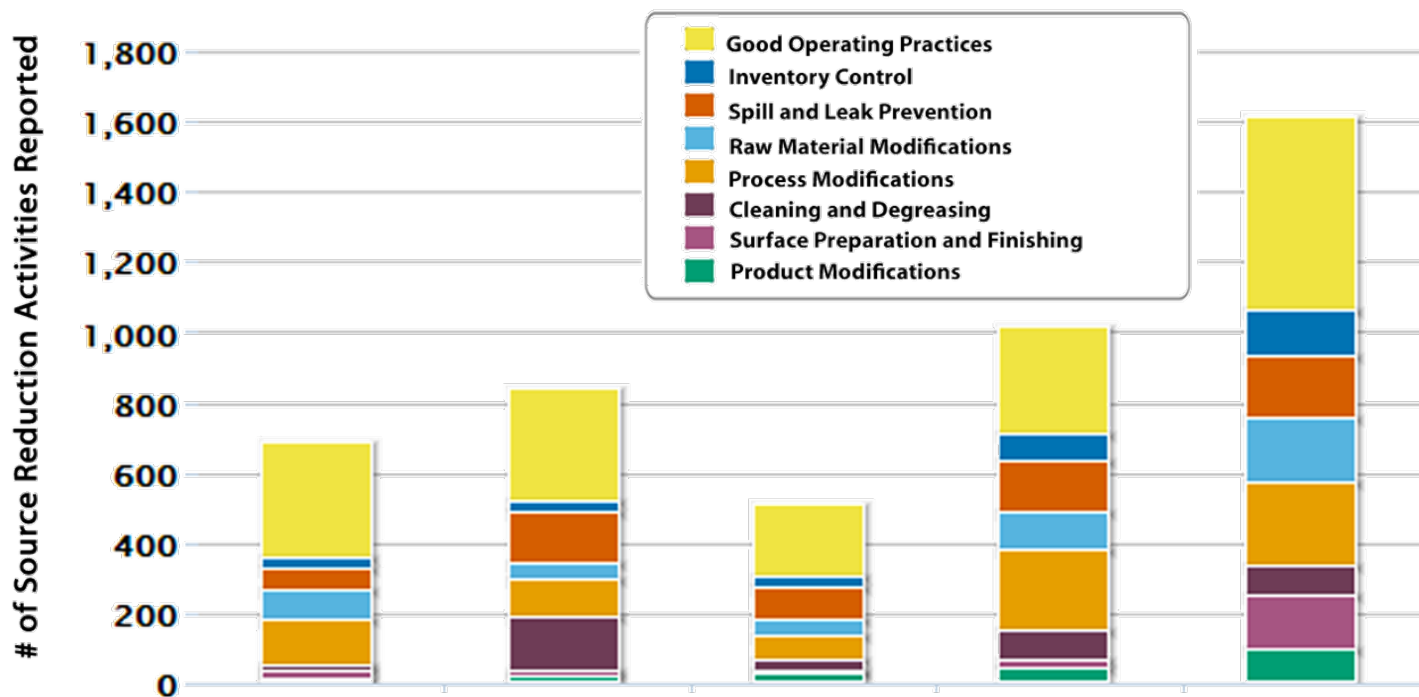


Industry	Furniture	Misc. Mfg. (e.g., Medical Equipment)	Wood Products	Computers/Electronics	Textiles
% Decrease in Releases '03-'12	-69%	-68%	-67%	-66%	-61%



P2 for Top Decreasing Chemicals

Number of Newly Implemented Source Reduction Practices for Chemicals with Largest Percent Decrease in Releases, 2003-2012



Chemical	Hydrochloric Acid	Trichloroethylene	Tetrachloroethylene	Dichloro methane	Methyl Isobutyl Ketone
% Decrease in Releases '03-'12	-80%	-69%	-68%	-62%	-60%



Examples of Optional P2 Info

- **Raw Material Modifications**

- A [motor vehicle seating and trim facility](#) is largely eliminating the use of a high xylene content material, except for minor use in service parts manufacturing. Two key technology changes that enabled this change are the use of flame and plasma surface treatments and better formulations of water-based painting technologies.

- **Spill and Leak Prevention**

- An [organic chemical manufacturer](#) implemented a new policy to reduce spills due to hose failure. This policy requires the electronic identification and annual testing of all hoses that are used to transfer chemicals.

- **Surface Preparation and Finishing**

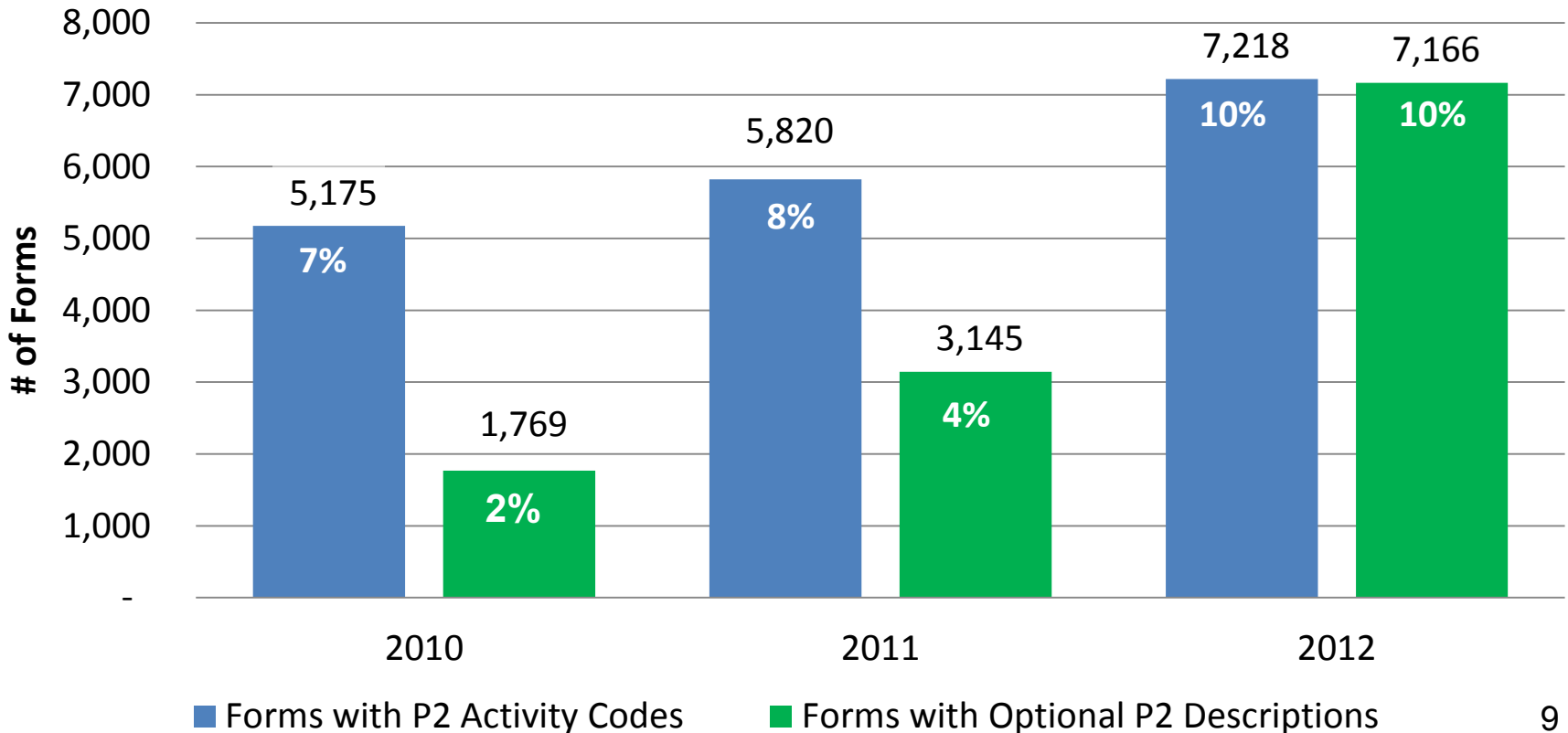
- The engineering team at a [coated and laminated paper manufacturing facility](#) has identified a new adhesive coating technique that drastically reduces the need for their main diluent solvent.



P2 Reporting Trends

- Facilities have reported more P2 information since EPA increased emphasis on this part of the TRI reporting form

P2 Reporting Summary, 2010-12





Metrics for Assessing Facilities' P2 Performance

- How much chemical waste is being generated?
- How much is being released to the environment as opposed to being managed with preferred methods?
- Were source reduction (P2) activities implemented?
- Are chemical quantities going up or down? How much have they changed per unit of output?
- How much greenhouse gas (GHG) pollution is being emitted?



What Can the TRI P2 Tool Do?

- Display summary of P2 information for a facility
- Provide P2 details for a single chemical at a facility
- List P2 activities applicable to a particular industry
- Compare P2 progress among facilities in an industry
- Overlay TRI data with GHG emissions to provide a more holistic P2 picture



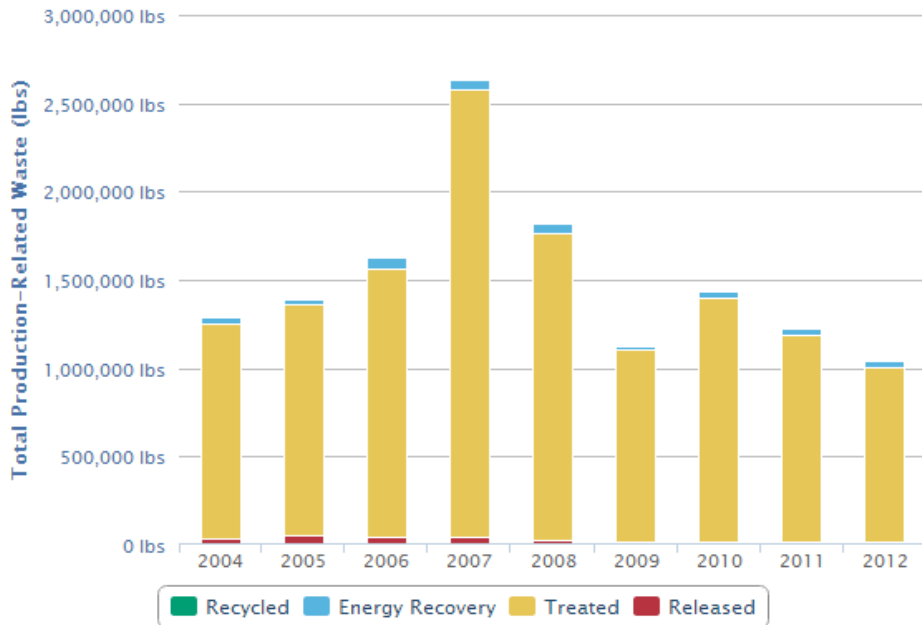
New Facility-Level P2 Report

- Tool provides holistic view of P2, waste management, and trends

Production Related Waste Management for Selected Facility

For more on the Waste Management Hierarchy, see the Pollution Prevention [Overview](#) page

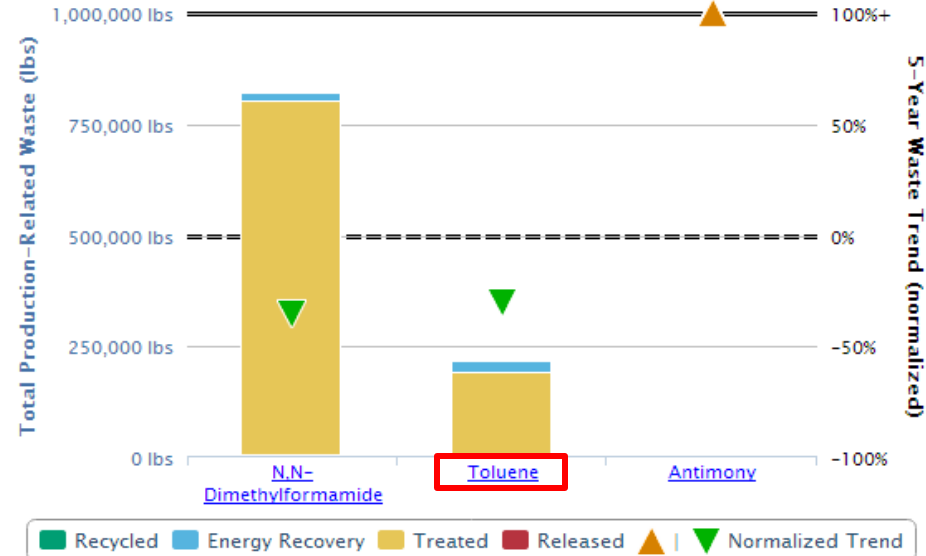
Management of TRI Chemicals
at Facility BRADFORD INDUSTRIES INC



- Chart Options:**
- Display waste quantities only
 - Display waste quantities as a percentage of total waste

Waste Management by Chemical – Select Year: 2012

Management of TRI Chemicals
at Facility BRADFORD INDUSTRIES INC



- Chart Options:**
- Display waste quantities only
 - Display waste quantities as a percentage of total waste
 - Display 5-Year Waste Trend
 - Display 5-Year Waste Trend Normalized



P2 Details for an Individual Chemical

- P2 can be tracked at chemical level and compared to rest of industry

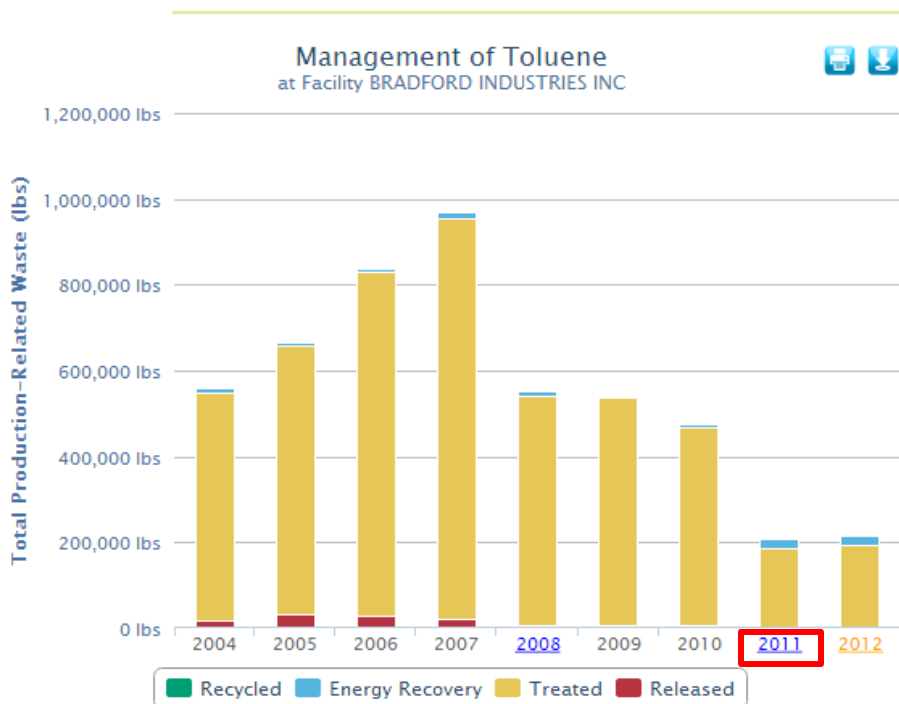


Chart Options:

- Display waste quantities only
- Display production index
- Normalize waste quantities relative to production
- Display waste quantities as a percentage of total waste

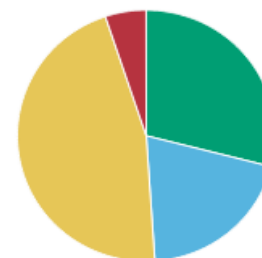
Waste Management Comparison – Select Year: 2012

BRADFORD INDUSTRIES INC



Total for Toluene: 215,080 lbs

All other NAICS 313/314 – Textiles 140 other TRI reporters, 34 reporting Toluene



Total for Toluene: 10 million lbs

Find [more P2 activities](#) for this industry and chemical
Display [facility comparison report](#) for this industry and chemical



P2 Descriptions for a Given Year

- Specifics details about P2 practices are useful to community/industry

Waste Management Comparison – Select Year: 2012 ▾

[< Return to Graph](#)

Section 8.10: Newly Implemented Source Reduction Activity

W42: Substituted raw materials

Section 8.11: Optional Pollution Prevention Information

W42: Toluene usage has been replaced with PVC vinyl, DMF and water base formulations where applicable

T04: Team includes Purchasing, Technical, Environmental, Sales and Upper Management to bring into the facility coated fabrics requiring less toxics.

Toluene usage in RY 2011 reduced by 57% from RY 2010 due to change in product line. This trend will continue [Source Reduction]

Chart Options:

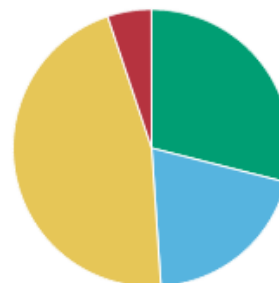
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P2 Activity List for an Industry/Chemical

- Looking across industry provides full range of available P2 practices

List of Facilities in TRI submitting Pollution Prevention Information for Selected Criteria:

Industry: NAICS 313/314 - Textiles
Chemical: Toluene
Year: between 2005 and 2011

Additional Filters:

Exclude facilities that reported activity codes but no text descriptions

Value for Year-to-Year Comparison:

Total Release [displayed currently]

[RSEI Program Home](#)



Copy CSV Excel PDF Print

Show 10 entries Showing 1 to 10 of 19 entries Search:

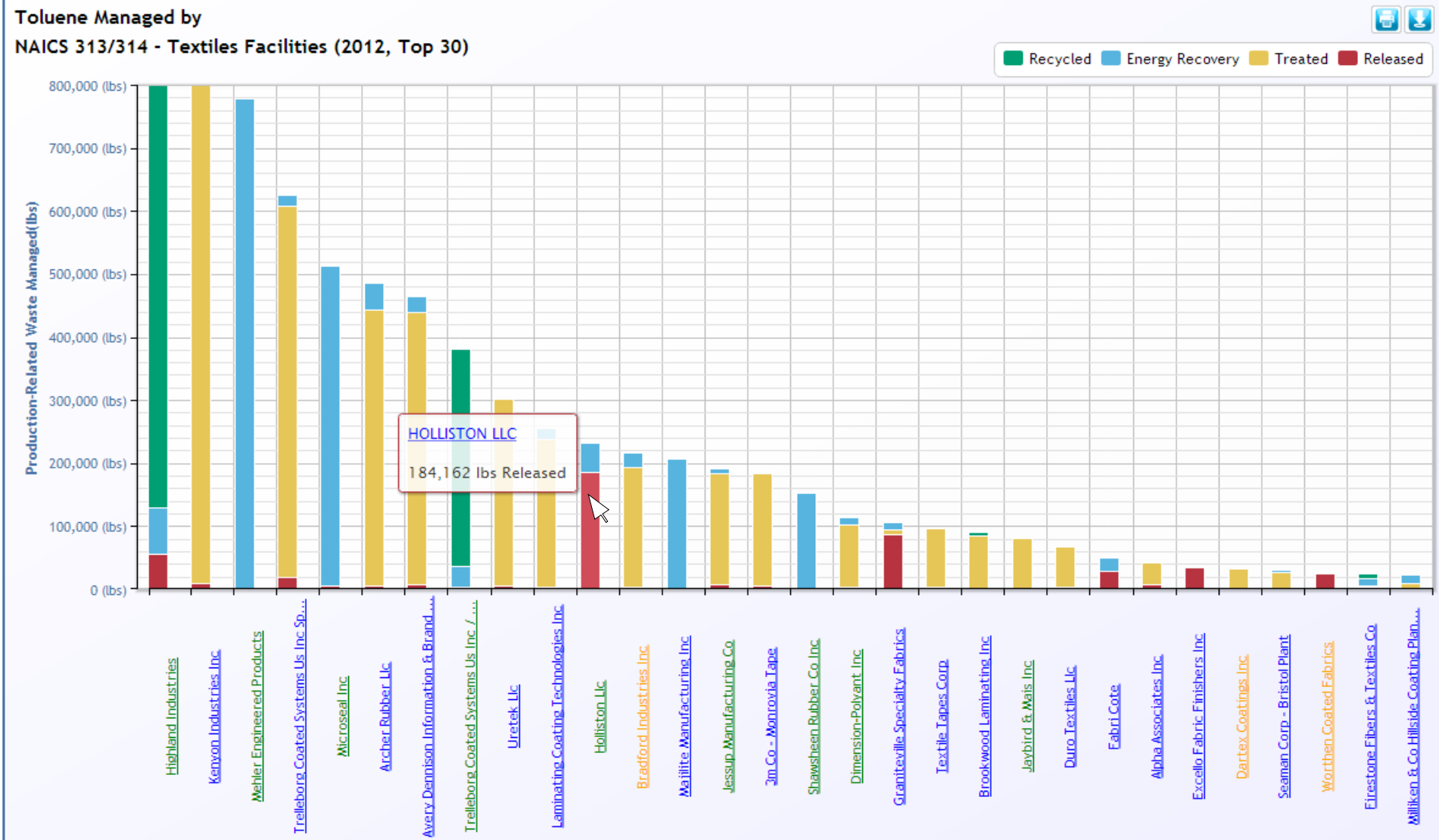
FACILITY NAME	ADDRESS	YEAR	PRIOR YEAR RELEASE *	CURRENT YEAR RELEASE *	PERCENT CHANGE	POLLUTION PREVENTION INFORMATION (ACTIVITY CODES)(TEXT)
WARWICK MILLS INC P2 Details	301 TURNPIKE RD, NEW IPSWICH, NH 03071	2008	55,048.00	1,240.00	-97.75%	<i>W58: Other process modifications</i> Continued use of thermal oxydation process using fire tube boilers for heat recovery.
COOLEY INC P2 Details	50 ESTEN AVE, PAWTUCKET, RI 02860	2007	13,797.00	5,517.00	-60.01%	Emissions decreased considerably in cy07 for a couple of main reasons. In cy2007, cooley, inc. Had a significant decrease in usage/Demand of higher voc/Hap coatings. Water based coatings are being used much more frequently. In cy2007, cooley, inc. Changed from 95.2% control efficiency and 100% capture efficiency recuperative thermal oxidizer to a 98% control efficiency regenerative thermal oxidizer (Rto) and 100% capture efficiency.
SEAMAN CORP - BRISTOL PLANT P2 Details	225 N INDUSTRIAL DR, BRISTOL, TN 37620	2011	2,492.00	1,169.00	-53.09%	<i>W42: Substituted raw materials</i> Method(s) to Identify P2 Activities: <i>T04 [Participative Team Management]</i> - Developed non-toluene containing versions of this formulation for certain product applications
JAYBIRD & MAIS INC P2 Details	360 MERRIMACK ST, LAWRENCE, MA 01843	2011	196.00	95.00	-51.53%	<i>W73: Substituted coating materials used</i> Method(s) to Identify P2 Activities: <i>T10 [Vendor Assistance]</i> - Vendor reformulated adhesives
AVERY DENNISON RBIS LENOIR P2 Details	950 GERMAN ST, LENOIR, NC 28645	2011	2,218.00	1,089.00	-50.9%	<i>W58: Other process modifications</i> Sales volumes decreased greatly in the solvent based production as more customers moved to water based inks.
JESSUP MANUFACTURING CO	1701 ROCKLAND RD, LAKE BLUFF,	2009	5,206.00	3,006.00	-42.26%	Near the end of 2008, we purchased and installed a new regenerative thermal oxidizer to capture and incinerate a larger percentage of our VOM emissions and reduce our natrual gas usage. Our FESOP permit was also revised and reissued at this time.



New P2 Facility Comparison Report

Production-Related Waste Managed Axis Range (lbs): 0 - 767,750

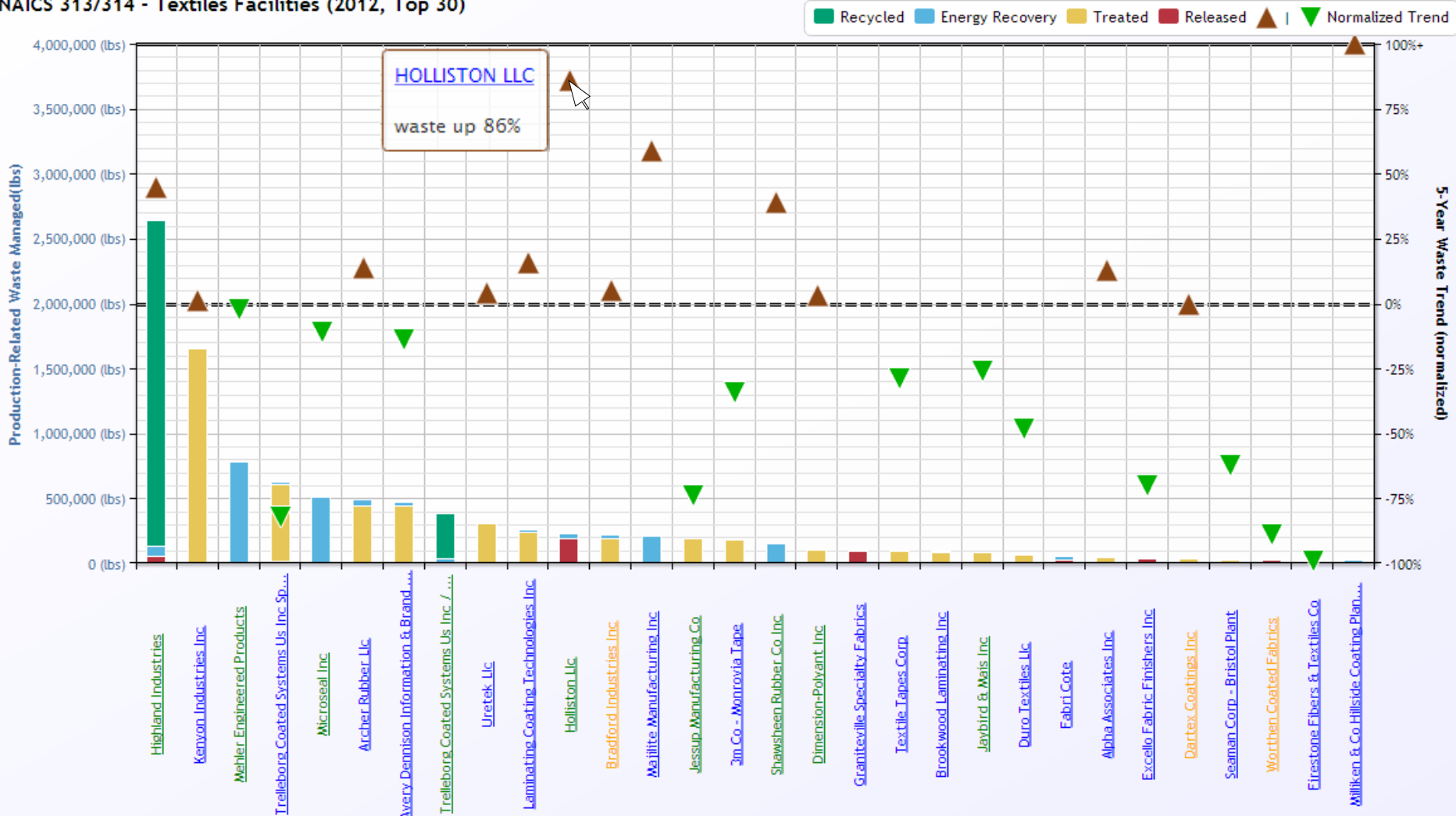
Use the slider bar to adjust the Y-axis:



Click on [facility name](#) to view P2 Details for the selected chemical and year. **Green links** indicate the facility reported P2 activities for the selected chemical and year; **orange links** indicate

New P2 Trend Metric

Toluene Managed by
NAICS 313/314 - Textiles Facilities (2012, Top 30)



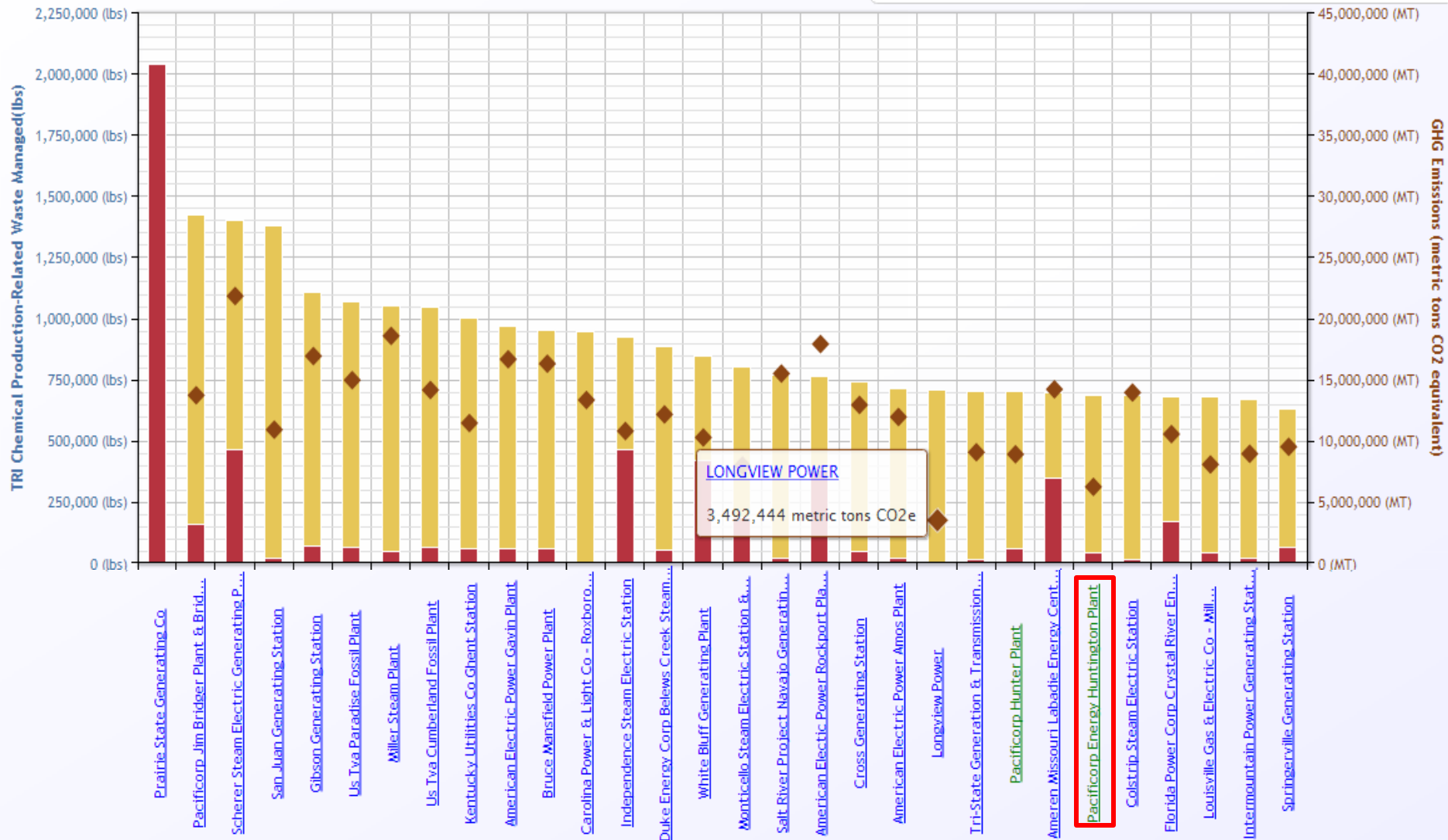


Incorporation of GHG Data

GHG Emissions and Hydrogen Fluoride Managed by
NAICS 2211 - Electric Utilities Facilities (2012, Top 30)



Recycled Energy Recovery Treated Released GHG Emissions



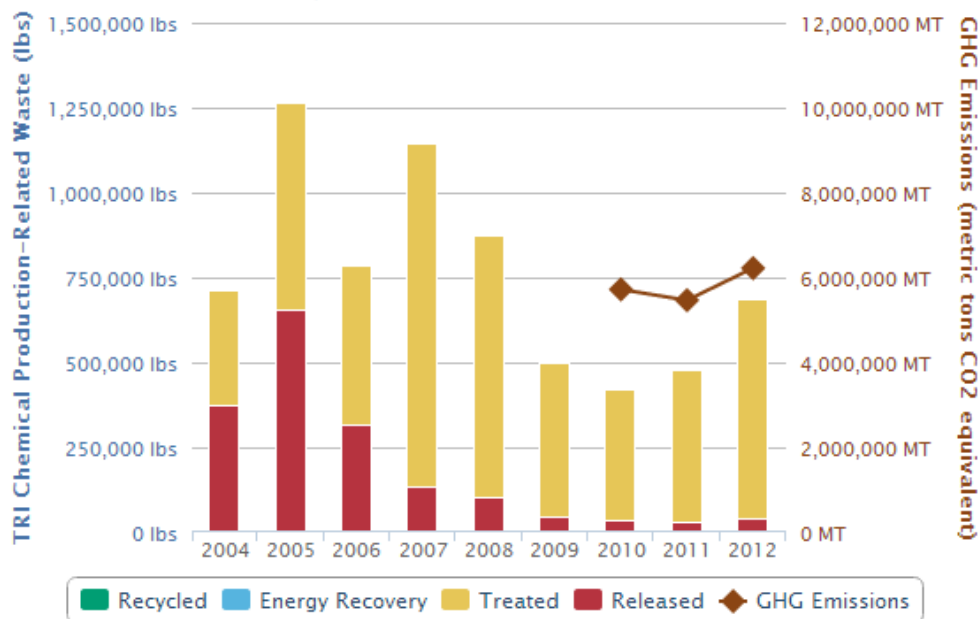


Comparing TRI & GHG Trends

Production Related Waste Management for Selected Chemical

For more on the Waste Management Hierarchy, see the [Pollution Prevention Overview](#) page

Hydrogen Fluoride Mgmt and GHGRP Emissions Data
at Facility PACIFICORP ENERGY HUNTINGTON PLANT



This graph combines TRI data with GHG emissions reported to the [Greenhouse Gas Reporting Program \(GHGRP\)](#). While greenhouse gas data is not reported to TRI, GHGs are the primary driver of climate change which poses numerous threats to human health and welfare. View all [publicly available GHGRP data for this facility](#).

Chart Options:

- Display waste quantities only
- Display [production index](#)
- [Normalize waste quantities relative to production](#)
- Display waste quantities as a percentage of total waste
- Display GHG Emissions Reported to [GHGRP](#)

Waste Management Comparison – Select Year: 2012

PACIFICORP ENERGY HUNTINGTON PLANT



Total for Hydrogen Fluoride: 685,256 lbs




All other Fossil Fuel Electric Power Generation 531 other TRI reporters, 305 reporting Hydrogen Fluoride



Total for Hydrogen Fluoride: 78 million lbs

Find [more P2 activities](#) for this industry and chemical
Display [facility comparison report](#) for this industry and chemical

Accessing TRI's P2 Data

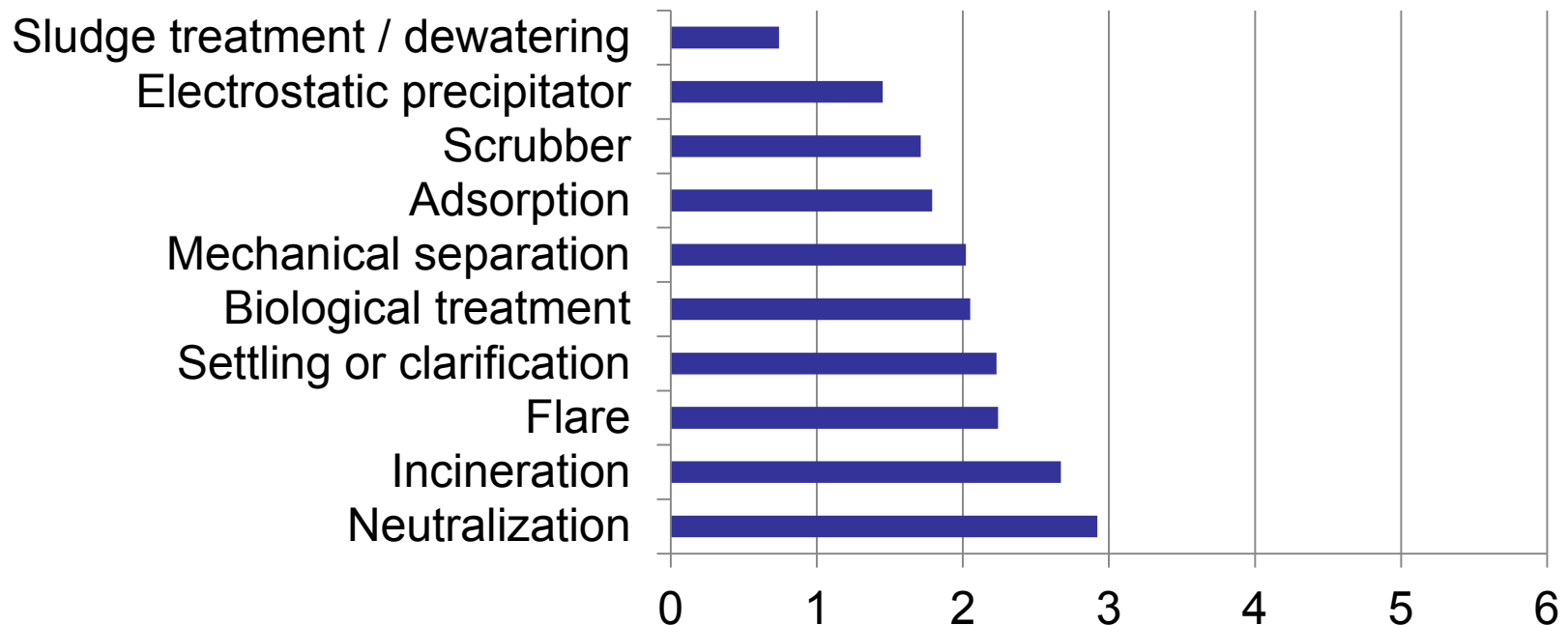
Data Resource	What You Can Use it For
	<ul style="list-style-type: none"> • Read about overall trends in P2 and waste management • Download P2 stats and lists of P2 activities for 2012
	<ul style="list-style-type: none"> • Find P2 activities for particular industries, chemicals, or states • Compare facilities within an industry using TRI & GHG metrics
	<ul style="list-style-type: none"> • Identify TRI facilities in your area of interest • View P2 and waste management trends for particular facilities
	<ul style="list-style-type: none"> • Design sophisticated queries involving P2 and other TRI data • Find downward trends in releases and see which companies and P2 activities contributed
	<ul style="list-style-type: none"> • Find P2 information for TRI facilities in your neighborhood using your mobile device



Potential Future Tool Enhancements

- Provide P2 & comparison reports at parent co. level
- Provide details on treatment methods and efficiencies

Average Efficiency Rating for Reported Treatment Methods, 2005-11





Pollution Prevention Reporting Tipsheet



TRI Pollution Prevention Reporting Tipsheet



Give yourself some credit!

Report your pollution prevention (P2) achievements through EPA's Toxics Release Inventory (TRI) Program. Section 8.11 of your annual TRI report invites you to describe your P2 activities, as well as recycling, energy recovery or treatment activities related to the chemicals at your facility. Take this opportunity to highlight your company's commitment to reducing the release of toxic chemicals in your neighborhood.

Tell us your story

Don't forget the details! Detailed descriptions help communities better understand your pollution prevention activities. You may want to consider the topics/questions listed below when preparing to complete the optional P2 section of your TRI report (Form R, Section 8.11).



- Which **chemical(s)** did you target for P2 activities?
- What **type(s) of P2 activities or technologies** did you adopt and why?
- Which **processes and products** were affected?
- Did you employ any **safer chemical** alternatives?
- What are the **environmental benefits** (e.g., realized or expected results)?
- Did your company attain **other benefits** (e.g., cost savings, improved product quality, energy savings)?
- Did an outside organization **provide assistance**?
- Do you have any updates on P2 activities implemented in **prior years**?
- Are there any **webpages** with more information?

Feel free to use this space for notes or to share information internally.

Do not submit this sheet to EPA.



To find out if your facility is required to submit a TRI report, go to www.epa.gov/tri

Pollution Prevention Achievements



See what others are doing*

EPA promotes P2 efforts by sharing your stories on our website (www.epa.gov/tri/p2) and featuring examples in other publications, including EPA's annual TRI National Analysis (www.epa.gov/tri). Share your success and demonstrate your environmental stewardship!

BAE Systems reduced its xylene and zinc releases in its Southeast Shipyard Alabama facility by implementing new pollution prevention and waste minimization procedures and policies for its surface coating activities. The facility established a materials management program that tracks the usage and disposal of all hazardous and nonhazardous substances. All coatings are inventoried quarterly and properly labeled for tracking which allows for monitoring shelf life and minimizes over-stocking. Purchasing is now centralized and done in a manner that identifies possible nonhazardous alternatives and orders the smallest quantities possible to avoid waste. The facility is also now training all of its employees on the proper handling of hazardous and nonhazardous wastes to prevent mixing.



Xerox implemented a solvent recovery system for its methyl isobutyl ketone wastes in its Webster, New York manufacturing facility. Prior to diverting the waste to the recovery system, it was shipped offsite and combusted for energy. The reclaimed solvents are used for cleaning certain process equipment and in support of research and development projects. In 2011, the facility recovered 45 percent of its methyl isobutyl ketone waste and plans to increase this amount to as much as 70 percent in the future. The recovered solvent saves the facility nearly \$20 per gallon when compared to the cost of virgin solvent. The measure reduced the amount of virgin solvent purchased by the facility and the amount it spent on solvents by about 50 percent.



"TRI offers a unique opportunity to showcase your commitment to go above and beyond compliance by deploying the powerful tools of green chemistry, green engineering and other green practices. By completing the optional P2 section on your TRI reports, you will help all of us—industry, EPA, and the public—work together to implement sustainable development."



— Dr. Robert Peoples
Former Director of the American Chemical Society's Green Chemistry Institute;
Executive Director, Carpet America Recovery Effort,
and President, Environmental Impact Group, Inc.

*This content is for informational purposes only. The EPA does not endorse any company, product or service.



To find out more about P2 opportunities, go to www.epa.gov/p2



For More Information

- Daniel Teitelbaum, TRI P2 Staff Lead
 - Teitelbaum.daniel@epa.gov
- EPA Website
 - www.epa.gov/tri/p2 (TRI P2 webpage)
 - www.epa.gov/p2 (EPA's P2 Program)
 - www.epa.gov/tri (TRI homepage)