

# Accelerating Profitable Sustainability



Innovative Companies

Prosperous Communities

Thriving EcoSystems

# Outline:

- *Intro – About NBIS*
- *By-Product Synergy NW Project Overview*
- *By-Product Synergy Program Models*
- *Strategies for success and growth*
- *Examples*
- *Shortcomings - Barriers – Evolution*
- *Materials Roundtables*
- *Materials Innovation Exchange*
- *Questions & Discussion*

# About NBIS



- NBIS is the Northwest non-profit dedicated to enabling professionals and businesses in driving profitable sustainability.

## Mission

Deliver expertise, education, and partnership opportunities to help businesses and professionals advance their organizations in

- Environmentally
- Socially
- Economically



*Triple bottom line*

sustainable ways.

# Welcome to NBIS



**NBIS creates opportunities for business leaders to share knowledge and achievements...**



**Learn best practices and practical implementation strategies...**



**Contribute to local and global sustainability!**





# NBIS Regional Leadership Initiatives



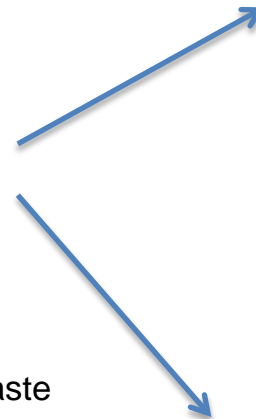
Founded in 2003

Sustainability leadership, strategic development, and best practices for Northwest companies and organizations.



Founded in 2007

BPS NW helps companies turn waste into revenue. The project addresses materials and resource flow regionally.



Launched in 2012

A regional marketplace and a global resource for innovation in materials management and waste reduction.



New

Materials Roundtable program launched in 2012

# By-Product Synergy NW

By-Product  
**synergy**  
Northwest

*TURNING WASTE into PROFIT*

Pioneering innovation, economic development and waste reduction strategies for the Puget Sound region.

# Members



**Founded in 2007**

Pioneering innovation, economic development and waste reduction strategies for the region.

## Members & Participants:

*Canyon Creek Cabinet Company*

*Cascade Designs*

*Cascadia Consulting*

*Cedar Grove Composting*

*City of Tacoma*

*Cosmo Specialty Fibers*

*Correctional Industries*

*Emerald Services*

*Impact Washington*

*Ingenium*

*Jorgensen Forge*

*K2 Sports*

*LaFarge*

*King County Solid Waste McKinstry*

*Mt. Baker Bio*

*Nucor Steel*

*NW Pollution Prevention*

*Resource Center*

*Port of Seattle, SeaTac*

*Precor*

*Rhizome Design*

*Ridolfi, Inc.*

*Romac*

*S.D. Deacon*

*Seattle Public Utilities*

*Trex*

*Washington State University*

# Public & Private Support



- *Grants*
  - Washington State Department of Ecology
  - Seattle Public Utilities
- *Sponsors (sponsors to date)*
  - Seattle Public Utilities
  - Association of Washington Business
  - Rhizome Design
- *Endorsements*
  - Puget Sound Regional Council
  - King County
  - City of Seattle
  - Seattle King County Economic Development Council
  - Skagit County Board of Commissioners



# A Process for Success



By-Product Synergy is a creative process that works through collaboration between companies to

- *Foster **cross-industry communication***
- ***Break down barriers** between government and industry*
- *Engage **small and large companies***
- *Create **business benefit** while **reducing environmental impacts***

# Value for Members



- **Savings** – *reduced waste disposal costs; reductions in new materials purchased; better price for waste materials*
- **Best Practices** – *energy and water reduction strategies; solutions from other companies*
- **Access to technical expertise** – *materials and substitution advice; testing and research expertise*
- **Opportunities to dialogue with regulators**

# By-Product Synergy Models



## By-Product Synergy Program Models

- Membership/facilitated with online exchange: **NBIS/BPS NW**
- Membership/facilitated with online data management: **USBCSD supported programs in Chicago, Houston, and elsewhere.**
- Membership – affiliated with university and center for resilience – **Ohio BPS Network**
- Pay as you go – mixer events with online exchange: **Kansas City**
- Grant or civic funded; free to participants; Mixer exchange events **ResourceFull Use, Portland** *(now using NBIS Materials Innovation Exchange for online activity and event support.)*
- **Commercial Exchange sites.**

# Membership



Rates:

By-Product Synergy NW Membership Rates		
Category	Revenue	Rate
Large Company	\$75 million +	\$5,000
Mid-sized Company	\$5 million - \$75 million	\$2,250
Small Company	Under \$5 million	\$1,000
Advisory Company		\$600

## Membership Includes

- *Member meetings.*
- *Participation in working groups and Roundtables.*
- *Access to experts and new business opportunities.*
- *Leadership and mentoring opportunities; showcase achievements.*
- *NBIS member benefits included.*

# By-Product Synergy NW

- *NBIS Model: Membership/Facilitated*
  - Value of this model:
    - *Commitment of companies*
    - *A focused and facilitated approach that enables ongoing working groups*
    - *Combines serendipity with mapping and synergy identification and development*
    - *Collaboration with Department of Ecology and materials experts*
    - *Sharing of best practices*
    - *Public-Private partnership that can weather economic ups and downs.*



# Regional Activities & Outreach



By-Product Synergy NW has hosted four community synergy events in **Seattle** and one in **Northwest Washington**.

**More are being planned** for Washington state communities and regions this year.

These stimulate regional materials exchanges and initiatives and widen the mix of companies participating in the BPS NW Network.

The new **Roundtable model** brings more companies to the table to find innovative closed-loop solutions and business opportunities for targeted materials.



# Types of Opportunities

- **Internal Reuse:** identify by-product synergy opportunities within your own organization by encouraging inter-division communication and collaboration.
- **Multi-Party Aggregation:** create a financially viable source of materials by aggregating from multiple companies.
- **Cyclical Partnerships:** bicycle tires to messenger bags; biodiesel production to glycerin for commercialization, scrap wood and metal made into smaller parts.

# Opportunities:

- ***Alternative Sourcing:***
  - Substitution of less toxic or impactful material
  - Reprocessing (Canyon Creek Cabinets purchased a still to reprocess acetone, reducing cost of both purchase and disposal).
- ***Closing the loops: Consider-- what comes in; where does it go; how can we do it differently?***

# Examples

- **Refractory Brick** – aggregating from foundries to go to LaFarge for cement.
- **Plastic Film**: aggregating from small producers – geographic and industry affinity – to go to Trex or to GrGreen for roofing shingles.
- **Skis to Furniture** – K2 Sports and private manufacturer
- **Treadmill Belts** – Precor to ??? Garden pathways, back pack and duffle bag protectors, no-skid stair strips.
- **Mattress Disassembly** – Correctional Industries: job training, revenue, and materials reclamation: steel, cotton, foam, wood.
- **Acetone Redistilling** – Canyon Creek Cabinet Company: hazardous waste reduction & savings.
- **Steel Shot Blast** – Nucor Steel, Genie Industries: feedstock supply; diversion of waste from landfill.
- **Rags Repurpose** – Canyon Creek Cabinet, Exotic Metals : diversion of waste from landfill, cost savings, extending the use-life of local resources.
- **Battery recycle for steel** - regulation restriction lifted
- **Chemicals reprocessing** for new market (by-product of tire pyrolysis being upgraded to diesel fuel.)
- **Caustics** from refinery going to pulp mill; **laboratory chemicals** give-aways.

# Challenges

- *Processing gaps*
- *Quality & consistency of materials*
- *Volume*
- *Market for side products?*
- *Transport*
- *Production – who can use the material? Do industries already exist?*
- *Project Funding*



# Evolution: Materials Roundtables



## ***Current Roundtables***

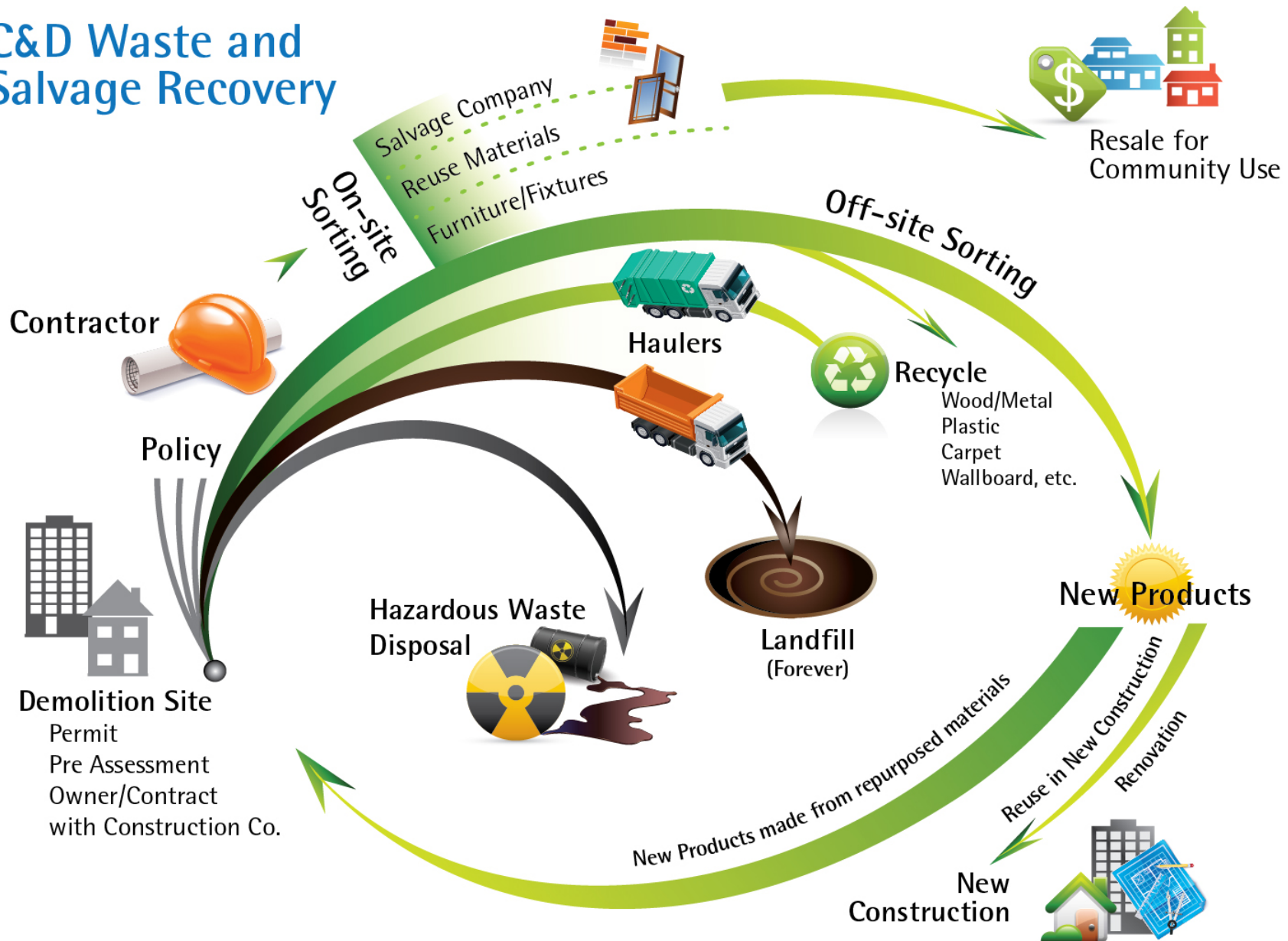
- *Refractory Brick Roundtable*
- *Plastic Sheeting Roundtable*
- *Chemicals (new)*
- *Construction & Demolition Debris and Salvage (system flow)*
- *Glass – would like to start*

# Materials Roundtables – A New Model for Regional closed Loops

## Regional Roundtable Model -- a three-part process to create a closed loop system.

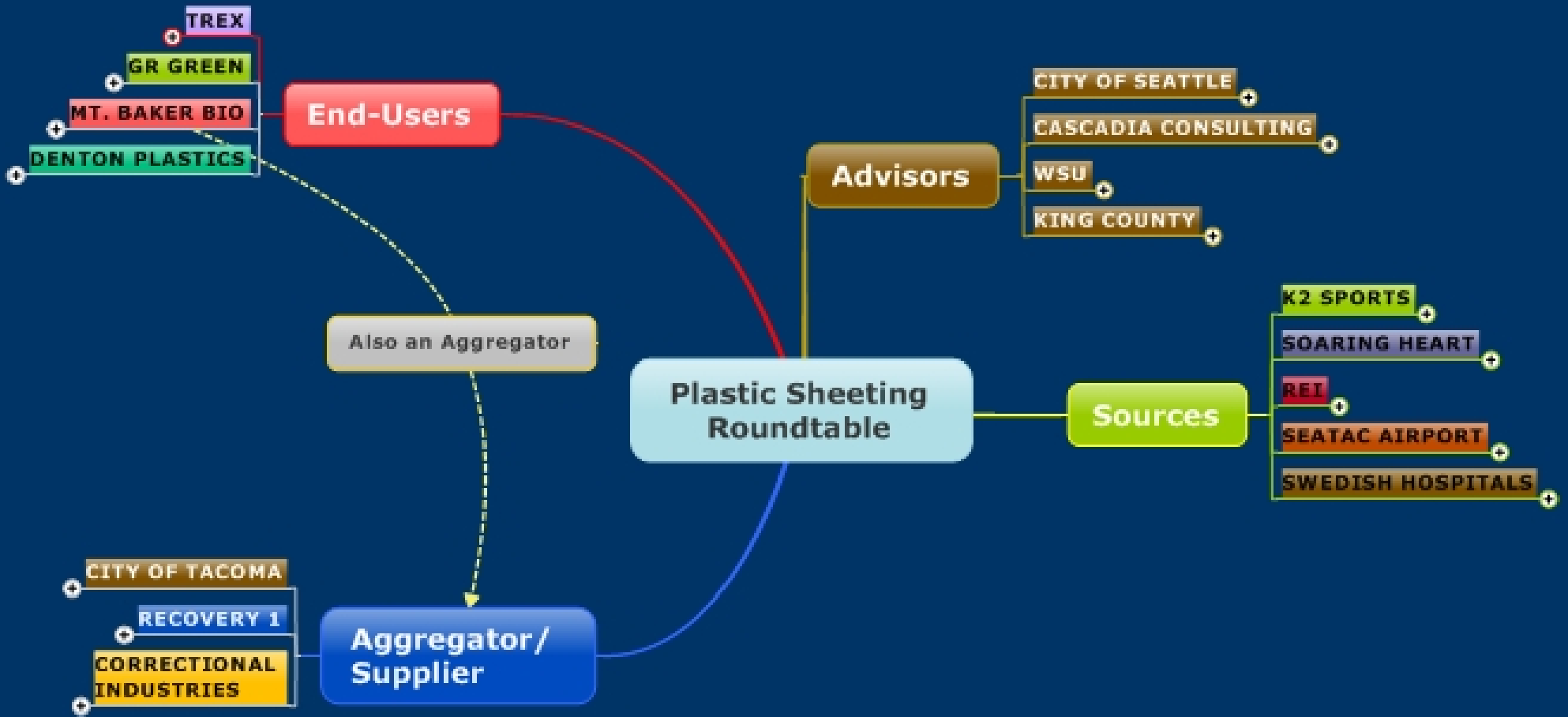
- Discovery and Documentation
- Stakeholder Engagement
- Solution Development and Facilitation

# C&D Waste and Salvage Recovery



## Closing the loop







# Barriers and Challenges to Materials Reuse

## Culture

- Time = money: Garbage is not in my job description
- Waste is not part of our business model: we are not in the business of making waste; we make widgets!

## Systemic/Structural Issues

- Liabilities re materials
- Condition of the materials and sorting
- Dumpster driven process
- Multiple stakeholders and channels
- Communication: end users might not be in the same industry.

## Education Lacks/Opportunities

- Value of Reuse over Recycle
- Accounting for the true cost of materials/resources wasted
- Need for education in best practices, behavior change, and adjusting mindsets of work context

# Solutions Options & Approaches

## Culture/Business Case/Process

- Create a business case for opportunities.
- Prove it's profitable and makes sense on the ground.
- Employee engagement strategies
- Process solutions: making it easy

## Systemic Change

- Map the flow.
- Identify stakeholders and key participants.
- Identify possible end users.
- Identify barriers and engage participants in solutions.
- Create a new or evolved flow system.

## Role of Government/Non-Profits

- Waste is a public issue as well as a private challenge...
- Therefore, public assistance for programs is essential.
- The business case cannot necessarily stand on its own.
- Regulations can drive solutions.

## Tools & Resources:

- Provide easy access to solutions, regulations and assistance.
- Develop broader set of tools and understanding of opportunities.
- Facilitation and *Materials Innovation Exchange* to connect suppliers with markets.



# Solutions Options & Approaches

## □ Solution Options:

- Facilitate culture change, or design solutions for the culture?
- Systemic change: understand flow and build new links between vital parts of the system.
- Education: create understanding and accessibility.
- Business propositions: prove it's profitable and makes sense on the ground.
- Governmental Initiatives: Roles, Leverage, Regulation
- Tools & Resources: Develop broader set of tools

[www.materialsinnovationexchange.com](http://www.materialsinnovationexchange.com)

**Materials  
Innovation  
Exchange™**

*Helping companies turn waste  
into revenue and reduce environmental impacts.*

Buy, sell and trade materials.  
Share innovative stories,  
best practices, ideas and tools.



**By-Product  
synergy  
Northwest**

Engaging members in innovative,  
entrepreneurial approaches  
to materials and resource  
management.

# Materials Innovation Exchange

[www.materialsinnovationexchange.com](http://www.materialsinnovationexchange.com)



# What is the Materials Innovation Exchange?

## Materials Innovation Exchange

A regional marketplace and a global resource supporting innovation in materials management and waste reduction.

- **The Marketplace** -- where companies can buy, sell or trade industrial by-products.
- **The Innovation Zone** – a growing collection of success stories, materials reuse ideas and tools.
- **Synergy Calcs** – calculate the impact of your trades and sales.
- **Resources** – connect with local resources, directories, regulatory information, etc.



# Target Audiences

**Partners and stakeholders** seeking to reduce waste, toxins and related social, economic and environmental costs of materials and waste

**Companies** developing sustainability opportunities in their products, services and/or their operations

**Individuals** who are driving EHS and sustainability as part of their jobs

**Members of By-product Synergy NW** who track their progress, share their experiences and document results

**Experts** who have technical advice to give to help solve problems and find solutions

**NW-based companies or subsidiaries** interested in reducing waste, sourcing locally, seeking reductions in hazardous materials

**Entrepreneurs:** Companies who need by-products to create new products

**Service providers:** companies or individuals who provide match-up and disposal services



# www.materialsinnovationexchange.com



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Materials Marketplace Innovation Zone Synergy Calcs Working Groups Network Resources Post Your Material

What are you looking for? Material Categories

Featured Listings

- Extra SIPS Panels \$50
- Cabinet grade scrap wood \$FREE
- Pantone Chips \$250
- Wanted: crab shells for ferti... \$152
- Plastic Containers \$152

Just Listed Most Popular Random

Classified Ads / Just Listed

**Wanted: crab shells for fertilizer**  
Misc | nbis | March 23, 2012  
Crab shells wanted for fertilizer in agriculture business. Willing to discuss shipping. Thanks for your interest.

**Plastic Containers**  
Plastics | JenP | October 20, 2011  
Tightly bound together crushed containers of plastic scrap \$152

**Bicycle Frames**  
Metals | James | October 19, 2011  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis rhoncus laculis mi auctor convallis. Suspendisse potenti. Quisque at nisi id lorem consectetur consequa...

Welcome back, JenP.  
You last logged in at: March 15, 2012 8:42 pm  
Manage your ads or edit your profile from your personalized dashboard.  
Manage Ads Edit Profile

Welcome to the Materials Innovation Exchange Toolbox

Need help? Want technical Advice?

Visit the Innovation Zone or contact our materials experts for:

- Technical assistance
- Ideas
- Other resource connections

Do more!

- Share your ideas in the Innovation Zone
- Calculate the impact of your sale/exchange at the

Materials Innovation Exchange

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Materials Marketplace Innovation Zone Synergy Calcs Working Groups Network Resources Post Your Material

Welcome to the By Product Synergy Materials Innovation Exchange (MAIX)

Gain opportunities for your organization to cut disposal costs, increase revenue, reduce energy and resource use and showcase your company's green achievements. By-Product Synergy Northwest member companies and participating city and county representatives have pursued and implemented synergy, recycling, and material re-use opportunities which have contributed to:

- Diversion of waste from landfill
- Reductions in cost of hazardous and non-hazardous waste disposal
- Reduced cost of materials inputs and raw materials
- Exploration of new business opportunities

By-Product Synergy Northwest is a program run by the Network for Business Innovation and Sustainability (NBIS).

Materials Marketplace Buy, Sell, Trade Turn waste materials into money generators; find local sources of materials. Get Started

Innovation Zone Stories, Ideas, Tools Access best practices in materials management, case examples, and success stories. Explore

Materials Innovation Exchange

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By-Product Synergy + Innovation Zone

By-Product Synergy Players Are Stars On The Sustainability Team!

Popular Comments Tags

There are no popular posts yet.

About the Innovation Zone

Across the country and around the globe, people are finding exciting ways to reuse and repurpose materials. New industries are forming to produce products made from recycled materials. Product designers, materials engineers, and manufacturers are all eagerly looking for solutions to problem materials and to stubborn waste streams. The Innovation Zone will aggregate and make available this creative, wisdom and experience.

How to use the Zone

Search  
Looking for ideas? Use the search form at the top of the page for success stories, case studies, and innovative solutions and applications for all sorts of materials.

Share  
Have solutions to share? Post your ideas, success stories and useful links to augment the value of this site.

Query  
Need technical advice? Query our technical experts and fellow site visitors.

Categories

- > Articles (1)
- > Case Studies (4)

Steel Shot Blast Dust

JenP | Case Studies | October 20, 2011

Genie Industries is a global company building all kinds of aerial work platforms, booms and lifts. Genie's Washington State plants are in Redmond and Moses Lake. Nucor Steel is one of the largest manufacturers of steel from recycled and reclaimed steel material. Its plant is based in West Seattle.

# Innovation Zone



Welcome ResourceFull Use  
to the Materials Innovation Exchange



Sign up

Get the latest  
news and  
updates

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## Minneapolis Metrodome Roof Recycled into Duluth Pack Duffels

 nbis |  [Articles](#), [What Can I Do With...](#) |  August 19, 2013



Someone let the cat out of the Duluth Pack bag a week early. Social media went abuzz late this week when word got out that the Duluth outdoor gear maker was about to introduce a duffel and shell bag made out of material once used in the roof of the Hubert H. Humphrey Metrodome. "It's

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# Expansion Opportunities

- *Regional Expansion:*
  - ResourceFULL Use – Portland and SW Washington
  - Spokane area, Eastern Washington
  - Additional site tailoring for regional use
- *Library Expansion:*
  - Add stories; share your successes and ideas
- *Network Collaboration:*
  - Share strategies for success

# Thank You!



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**Public Participation Grant: 2013-14; Materials Exchange Sponsor**



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