



*TURNING WASTE into PROFIT*

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

# **Report on the Charter Year of By-Product Synergy NW Network & Next Steps**

# BY-PRODUCT SYNERGY PROJECT GOALS

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- Savings and efficiencies for companies:
  - Reduced resource use – energy, water, petroleum, natural resources
  - Reduced waste disposal costs – waste to landfill
  - Reduced processing and disposal costs of hazardous materials
- Business opportunities and economic development
  - Innovations in manufacturing
  - Job creation
- Regional -- and company -- benefits
  - Reductions in carbon emissions
  - Reduced drain of energy and natural resources
  - Alternative, productive use of waste materials
  - Regional clusters – refineries, ports

# PROJECT MILESTONES

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**July 2007**

*Introductory Meeting for Recruitment*

**March 2008**

*First Member Group Meeting*

**May 2008 – March 2009**

*Working Groups and Member Meetings to identify and focus on Synergy Projects*

**September 30, 2008**

*“Creating By-Product Synergies Informed by Life Cycle Thinking and Assessment”*

Workshop during American Center for Life Cycle Assessment Annual Conference in Seattle

**February 18, 2009**

*Community-Wide By-Product Synergy Event*

**May 2009**

Launch of Second Year

# CHARTER COMPANIES – 2008

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- Canyon Creek Cabinets
- Cascade Designs
- Conoco–Phillips
- Cook Composites and Polymers
- Genie Industries
- Grays Harbor Paper Company
- King County Solid Waste Division
- LaFarge
- Leader International
- Nucor Steel
- Phillips Services
- Port of Seattle – SeaTac Airport
- Seattle Public Utilities
- Shell Puget Sound Refinery
- Snohomish County Solid Waste Management Division
- Tri–Vitro

# WORKING GROUPS & PRIMARY SYNERGY OPPORTUNITIES

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## Wood

- Trucks delivering paper to Seattle area could collect scrap wood and truck it back to Grays Harbor for fuel and for **renewable energy** generation.
- Scrap wood being pressed into **pellets** is another business is another opportunity being explored.
- **Paper pulp**– can we develop post-consumer recycled pulp production locally to increase economic development and reduce shipping?
- Can two companies **combine their orders** to reduce shipping costs by consolidating (and get better prices for the smaller company)?
- Is there interest in exploring a new industry that combines **wood waste and concrete for building forms**?
- Can another product be substituted for wood?

# WORKING GROUPS

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## Metals

- **Steel scrap sheets** from one company can be cut into smaller parts for another company
- **Metal shot blast** is going to local steel company for resmelting

## Other materials and chemicals

- Building **deconstruction** materials
- **Carpet**
- **Fabric** and **foam** scrap
- **Chemicals** and materials are being shipped out of the region for further processing or destruction. Can we find interim uses for some of these materials that extend their life. At the end of life, can more of the disposal/remanufacture be done locally?
- **Waste Gelcoat**: Exploring possibilities for remolding into other products.

# Synergy Status Overview I

Source Company	Receiving Company	Synergy	Status	Amount of Material Diverted Annually	Annual \$ Value of Synergy	Annual Avoided CO <sub>2</sub> equiv.
Genie	Nucor	Steel shot	Complete	192 tons used rather than treated as waste	\$16,800 from avoided disposal	(not calculated)
Genie	(n/a)	Pallet recycle	Complete	8.9 tons recycled rather than land-filled	\$9,500 from avoided disposal	18 MTCO <sub>2</sub> e
Canyon Creek	(n/a)	Acetone distillation	Already in place	19,910 gallons (65.7 tons) not purchased or disposed of	\$180,000	• 37 MTCO <sub>2</sub> e (estimate)
Canyon Creek	Coning and Sons	Wood scrap used as kiln fuel	Already in place	2275 tons	\$180,000 (avoided disposal)	601 MTCO <sub>2</sub> e
Canyon Creek	Pacific Topsoil	Sander dust used in soil products	Already in place	1121 tons	\$0 (dust would be burned in kiln)	1870 MTCO <sub>2</sub> e (for recycling vs. burning)

<b>Source Company</b>	<b>Receiving Company</b>	<b>Synergy</b>	<b>Status</b>	<b>Amt of Material Diverted Annually</b>	<b>Annual \$ Value of Synergy</b>	<b>Annual Avoided CO<sub>2</sub> equiv.</b>
Leader Int'l	(n/a)	In-house recycling + scrap sales	Complete	(not calculated)	\$6,600	(not calculated)
Leader Int'l	Cascade Designs	Scrap steel plate, brackets, hinges for cabinets	Investigating	(pending)	(pending)	(pending)
Shell	Lafarge and Ash Grove	Aluminum silicate for use in cement	Investigating	Up to 1500 tons	(pending)	(pending)
Shell	(n/a)	Reduce carbon usage through filter system upgrade/source control	Investigating	Up to 175,000 pounds	(pending)	Up to 291 MTCO <sub>2</sub> e
Shell	Seachar	Activated C for soil improvement, C sequestration	Investigating	Up to 350,000 pounds	(pending)	Up to 582 MTCO <sub>2</sub> e

# Synergy Status Overview III

Source Company	Receiving Company	Synergy	Status	Amount of Material Diverted Annually	Annual \$ Value of Synergy	Annual Avoided CO <sub>2</sub> equivalent
Shell	Nucor	Spent activated carbon to use as slag conditioner and fuel	Investigating	Up to 350,000 pounds	(pending)	(pending)
Gray's Harbor Paper	Lafarge	Boiler ash to use in cement	Investigating	Up to 700 tons	(pending)	(pending)

# BPS Results Summary

- **\$393,000+ annual savings**
  - Does not include all purchase costs avoided (some data missing)
- **2,489 metric tons CO<sub>2</sub> equivalent emissions avoided annually**
- **3,663 tons of material diverted annually**
- **66+ tons of material not purchased**
  - Does not include all purchases avoided (some data missing)

# Barriers Encountered & Possible solutions

Critical mass of material – recruit more companies

Need for processing for re-use – seek companies doing this work or interested in developing

Transportation – collaboration, combined hauling

Market development for new products – seek innovation and R&D partners or companies working in product area

Permitting – seek assistance from regulators

Budget – ongoing funding challenges

# Synergy Results

## Ranked Value of BPS

- Profitable and environmentally beneficial materials and resource exchanges.
- Regional collaboration for addressing economic and environmental issues.
- Technical assistance and business support from government agencies, PPRC and NBIS.
- Collaborative and collegial B2B relationships.
- Sharing best practices and stimulating innovation.
- Results - documenting and calculating impacts of synergies and process changes.

# Goals for 2009

- Sustained membership in a tough economy.
- Develop regional groups in Puget Sound counties.
- Explore industry clusters - refining.
- Continue innovative discovery process for new business development and opportunities.
- Conduct community exchange events in 2009/10 both in Seattle / King County and in several other counties.
- Increase company leadership in BPW NW and in Puget Sound regional goals.

# **NEW COMPANIES – 2009/10 CONFIRMED AND PENDING**

**atelierjones llc**

**Cascadia Consulting Group**

**E3 Energy Partners**

**Sellen Construction**

**Washington Manufacturing Services (New  
Partner)**

**Coatings Unlimited**

**Exotic Metals Forming Company**

**Janicki Industries**

**KML - Kustom Material Laminators**

**Port of Seattle - Seaport**

**Puget Sound Energy**

**T Bailey Inc.**



# NBIS

Network for Business Innovation & Sustainability

P.O. Box 2338 Kirkland, WA 98083

425-828-0982

[www.NBIS.org](http://www.NBIS.org)

Karl Ostrom & Mary Rose

Co-Directors



United States  
Business Council  
For Sustainable  
Development

