Brookhaven National Laboratory's Federal Green Challenge National Award For Purchasing and Other BNL Green Highlights

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Citizens Advisory Council

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a passion for discovery

U.S. DEPARTMENT OF **ENERGY** | Office of Science

Recent P2 / Sustainability Awards

- US EPA Federal Green Challenge National Award – Purchasing
- US EPA Federal Green Challenge Regional Award – Waste/Recycling
- US DOE Sustainability Award for the LISF Solar PV Project at BNL
- US DOE Pollution Prevention STAR Award for Total Nitrogen Reduction at the Laboratory's Sewage Treatment Plant Using On-site Cafeteria Wastes
- US EPA Federal Green Challenge Regional Award – Reductions in Waste, Purchasing and Transportation
- White House Closing the Circle Award for leadership in Environmental Stewardship
- Long Island Pine Barrens Environmental Stewardship Award
- US DOE Pollution Prevention STAR Award for Study of DNA Repair Using Fluorescently Labeled Oligonucleotides
- Numerous Annual Awards from the Office of the Federal Environmental Executive for Electronics Recycling
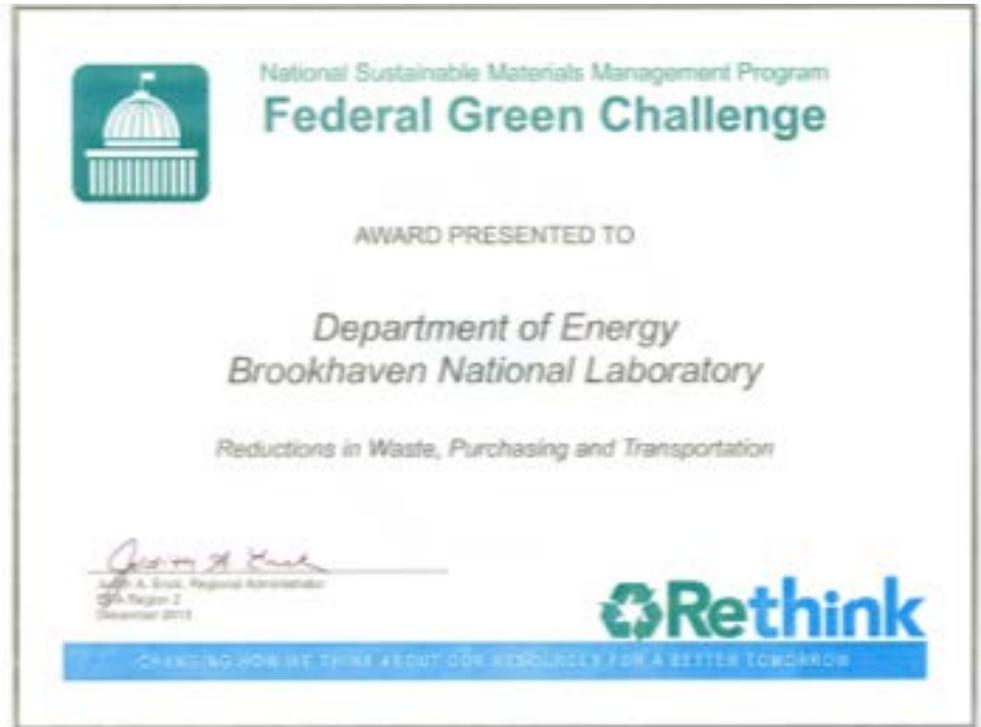- Numerous US DOE GreenBuy Awards for Sustainable Acquisition

Sustainable Materials Management
Federal Green Challenge ♻Rethink
CHANGING HOW WE THINK ABOUT OUR RESOURCES FOR A BETTER TOMORROW

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Federal Green Challenge National Award - Purchasing

- Revamp of BNL's Electronic Procurement (E-Pro) purchasing system to increase choice of sustainable office products

- Remanufactured Toner Cartridges

- Eco-Friendly Meetings and Conferences

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Existing E-Pro System

- Existing system combined multiple vendors for ease of computer ordering of office supplies, computers, lab supplies, and materials for the trades (electrical components, building supplies, etc.)

- System did not highlight, nor differentiate, items with recycled content

- Made DOE annual Environmental Preferable Purchasing (EPP) reporting quite onerous (manual search through purchases)

Modified E-Pro System

- System now has an added column that stipulates if the product has recycled content

- Upon review of past purchases, certain high use items (that did not contain recycled content) have been replaced with products containing recycled content (e.g., composition notebooks, binders, file folders and index cards)

- The vendor has simplified quarterly/annual data accumulation and summarization

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Environmental Report - BNL Q1 2015 (10/01/2014 – 12/31/2014)

Total Volume	18,855.12	(lbs)
Total Post Consumer Recycled Content	5,661.10	(lbs)
Average Post Consumer Recycled Content	30.02	(%)
Greenhouse gas emissions reduced (CO2) equivalents	6,286.65	(lbs)
Equivalent number of average US cars not driven per year	0.61	(cars)
Water saved	28,857.47	(gallons)
Trees saved	48.12	(trees)
Wood Resources saved	19,644.02	(lbs)
Total energy (BTUs) saved	48,119,363.33	(BTUs)
Energy equivalent to oil saved	343.71	(gallons)
Equivalent number of average US homes powered per year	1.24	(homes)
Equivalent number of average US homes heated per year	13,701.41	(Kwh)
Energy equivalent to electricity saved	1.21	(homes)

Remanufactured Toner Cartridges

- Admin and Staff had strong negative feelings towards Remanufactured (Reman) Toner Cartridges

- Looked at history and current quality of Remans

- Decisions:
  1. No color cartridges – just black
  2. No foreign remans or local "drill and fill"
  3. Top 3 U.S. manufacturers who stand behind their product

Remanufactured Toner Cartridges

- E-Pro system will only provide remanufactured toner cartridges from one of these vendors (if available):
  1. Clover Technologies
  2. LMI
  3. Katun

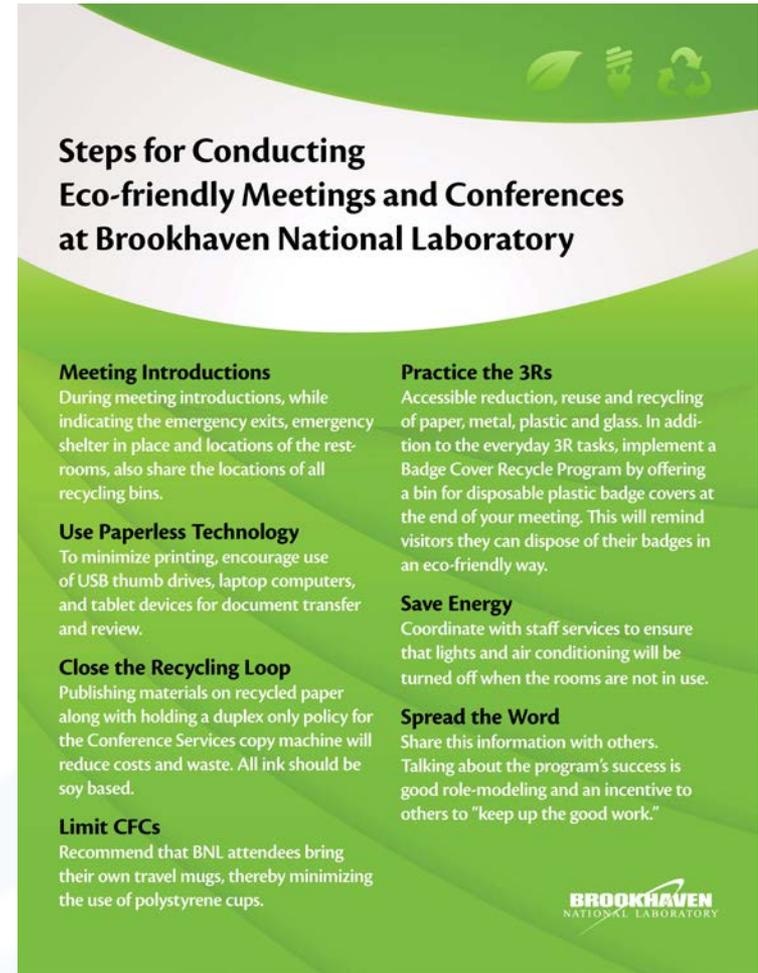- Original Equipment Manufacturer (OEM) will be offered if cheaper or reman is not available

- There is a potential cost savings of 27% by purchasing remanufactured toner cartridges.

Conversion Data
OEM To Remanufactured

OEM Part Number	Price	Reman Manufacturer	Reman Part Number	Price	Price diff between OEM & Reman (Savings)	Savings %
HEWC4092A	$60.79	CLOVER TECHNOLOGIES GROUP LLC	SEB92AR	$30.11	$30.68	50%
HEWC4182X	$193.99	CLOVER TECHNOLOGIES GROUP LLC	SEB82XR	$71.84	$122.15	63%
LEX12A5840	$202.68	CLOVER TECHNOLOGIES GROUP LLC	SEBT69R	$126.95	$75.73	37%
HEWC8061X	$125.12	CLOVER TECHNOLOGIES GROUP LLC	SEB61XR	$47.02	$78.10	62%
HEWC7115A	$63.04	CLOVER TECHNOLOGIES GROUP LLC	SEB15AR	$33.25	$29.79	47%
HEWC7115X	$79.53	CLOVER TECHNOLOGIES GROUP LLC	SEB15XR	$37.58	$41.95	53%
HEWC8543X	$261.89	CLOVER TECHNOLOGIES GROUP LLC	SEB43XR	$149.45	$112.44	43%
LEX12A6860	$284.69	CLOVER TECHNOLOGIES GROUP LLC	SEBT620R	$121.82	$162.87	57%
LEX12A6830	$182.31	CLOVER TECHNOLOGIES GROUP LLC	SEBT520R	$85.65	$96.66	53%
LEX08A0476	$106.11	CLOVER TECHNOLOGIES GROUP LLC	SEBE320R	$82.27	$23.84	22%
HEWC9720A	$151.31	CLOVER TECHNOLOGIES GROUP LLC	SEB4600BR	$103.98	$47.33	31%
HEWC9721A	$204.66	CLOVER TECHNOLOGIES GROUP LLC	SEB4600CR	$103.62	$101.04	49%
HEWC9723A	$204.66	CLOVER TECHNOLOGIES GROUP LLC	SEB4600MR	$102.69	$101.97	50%
HEWC9722A	$204.66	CLOVER TECHNOLOGIES GROUP LLC	SEB4600YR	$103.93	$100.73	49%
HEWQ1338A	$150.34	CLOVER TECHNOLOGIES GROUP LLC	SEB38AR	$69.56	$80.78	54%
HEWQ1339A	$199.81	CLOVER TECHNOLOGIES GROUP LLC	SEB39AR	$82.71	$117.10	59%
HEWQ2610A	$118.36	CLOVER TECHNOLOGIES GROUP LLC	SEB10AR	$37.67	$80.69	68%
HEWQ2613X	$89.23	CLOVER TECHNOLOGIES GROUP LLC	SEB13XR	$40.02	$49.21	55%

Meetings and Conferences
at Brookhaven National Laboratory

- **Meeting Introductions** -- During meeting introductions, while indicating the emergency exits, emergency shelter in place and locations of the restrooms, also share the locations of all recycling bins.

- **Use Paperless Technology** -- To minimize printing, encourage use of USB thumb drives, laptop computers, and tablet devices for document transfer and review.

- **Close the Recycling Loop** -- Publishing materials on recycled paper along with holding a duplex only policy for the Conference Services copy machine will reduce costs and waste. All ink should be soy based.

Steps for Conducting Eco-friendly Meetings and Conferences at Brookhaven National Laboratory

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Close the Recycling Loop
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Limit CFCs
Recommend that BNL attendees bring their own travel mugs, thereby minimizing the use of polystyrene cups.

Practice the 3Rs
Accessible reduction, reuse and recycling of paper, metal, plastic and glass. In addition to the everyday 3R tasks, implement a Badge Cover Recycle Program by offering a bin for disposable plastic badge covers at the end of your meeting. This will remind visitors they can dispose of their badges in an eco-friendly way.

Save Energy
Coordinate with staff services to ensure that lights and air conditioning will be turned off when the rooms are not in use.

Spread the Word
Share this information with others. Talking about the program's success is good role-modeling and an incentive to others to "keep up the good work."

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Other BNL

Green Highlights

Print Management

- **STOP Printing!** The key to reducing costs is making full use of electronic media and printing only what is absolutely needed.

- **Don't buy new desktop printers.** Instead locate the nearest network printer and ask ITD to set it as your default printer. A goal of 10 employees for each network printer is ideal.

- **Purchase the same network printers across your department.** This can reduce the number of different maintenance contractors needed for servicing and result in few contracts that need to be managed.

MANAGED PRINT

Data suggests that BNL can save about $200 annually for each personal printer removed from service. Considering that we have over 1000 printers onsite the savings can be substantial. This includes reductions in energy use and supply chain demands for consumables like toner and paper.

Data also suggests that BNL can save about $200,000 annually through the strategic placement of network and desktop printers.

Directorates are encouraged to optimize network capabilities. Choosing an objective to "Network Print First" or "Stop Purchasing Personal Printers" can transition into a more efficient Managed Print Operation for BNL.

What you can do to reduce costs:

- STOP Printing! The key to reducing costs is making full use of electronic media and printing only what is absolutely needed.

- Don't buy new desktop printers. Instead locate the nearest network printer and ask ITD to set it as your default printer. A goal of 10 employees for each network printer is ideal.

- Purchase the same network printers across your department. This can reduce the number of different maintenance contractors needed for servicing and result in fewer contracts that need to be managed.

- If a desktop printer is required, buy the same one as others in your department so that toner replacement is interchangeable.

- Be sure to default to double sided printing as a rule.

- Print black and white instead of color. Each color page costs about 6-10 cents to print. Black and white printing can be as low as 2 cents per page.

- By the way, don't print me. I'm a flyer that likes to be emailed :)

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Office of Institutional Improvement 12/23/14 Rev 0

MANAGED PRINT

Managed Print is the optimization of BNLs printing infrastructure to control resources and improve environmental sustainability.

NETWORK PRINTERS

Using a network printer is key to a fully managed program. ITD's Help Desk x5522 can locate the nearest Networked Printer in your area and get you connected.

CONTACT

For more information on implementing Managed Print concepts contact Peter Gross at x7337, Rick Backofen x6183, or John Selva x8611.

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Cost Savings through Pollution Prevention and Recycling

By re-engineering processes, sharing resources, recycling, and working smart; BNL saves millions of dollars in avoided disposal costs, reduces the risk of pollution, eliminates compliance concerns, and creates a safer work place. Realized annual cost savings:

CY2013	$12,723,505
CY2012	$3,030,079
CY2011	$2,086,216
CY2010	$1,889,774
CY2009	$5,481,217

Repurposing of g-2

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BNL Equipment Management Database ~ BNL Internal Craig's List

BNL Recycled Waste by Calendar Year   *   All in tons except as noted.

Recycled Waste *	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mixed paper	336	246	209	182	185	193	184	177	151	127	174	186	142	160	117
Cardboard	132	127	157	176	179	143	135	121	147	152	141	126	100	97	57
Bottles/Cans	19.5	29.3	19	23	22	22.1	27.7	24.4	19.6	23.7	24	22.5	18	16.5	14.2
Tires	0		3.5	12.3	11	12.8	32.5	19.9	34.5	15.5	10.1	9.2	10	7.1	5.2
Construction debris	243	289	304	334	367	350	297	287	302	312	416	256	380	304	274
Used motor oil (gallons)	3,296	3,335	1,920	3,920	3,860	4,590	2,780	2,020	1,500	1,568	1,700	1,145	1,585	1,550	1,460
Metals	534	44	48	193	128	559	158	382	460	91	131	84	278	174	198
Automotive batteries	2.2	4.8	6.3	4.6	5	4.6	5.5	2.5	2.7	4	1.6	2.1	2	2.1	0.9
Printer/Toner cartridges (units)	n/a	363	449	187	105	0	0	0	3,078	1,251	4,132	4,186	4,100	11,233	1,883
Fluorescent bulbs (units)	5,874	17,112	25,067	13,611	12,592	7,930	11,740	25,448	36,741	10,223	8,839	20,220	15,727	13,540	15,602
Blasocut coolant (gallons)	n/a	n/a	8,180	5,030	6,450	3,890	3,970	2,432	3,340	3,810	4,830	5,660	5,610	5,650	3,750
Antifreeze (gallons)	n/a	n/a	0	165	325	0	0	0	0	0	0	0	700	822	0
Tritium exit signs (each)	n/a	n/a	28	181	142	0	0	0	0	0	0	18	0	0	0
Smoke detectors (each)	n/a	n/a	40	0	0	0	0	0	0	0	0	0	0	0	0
Road base	n/a	n/a	2,016	0	2,666	0	0	0	0	0	0	0	0	0	0
Electronic reuse	n/a	n/a	0	0	0	0	0	0	16.3	11.4	12	11.6	3.2	1.4	7.5
Scrap electronics	n/a	n/a	0	0	0	6.1	70.3	40.5	48.9	17	16.7	19.9	30.9	23	22.4
Animal Bedding (composted)	n/a	n/a	0	0	0	6.3	19.6	42	41	52	54	3.3	30	12	
Tyvek (lbs)	n/a	n/a	0	0	0	0	0	0	0	84	60	92	105	0	0
Recycling Rate (%)	65	54	57	60	61	63	62	64	68	59	63	60	67	63	64
Demolition Projects															
Metals	n/a	n/a	8	23	11	6	35	0	0	0	0	0	60	90	0
Concrete	n/a	n/a	891	590	3,000	328	5,505	6175	0	0	4,050	0	4,050	3,500	3,700
Construction and demolition	n/a	n/a	790	388	1,200	157	818	0	0	0	0	0	0	0	0

Earth Day – Office Swap and Green Office

Glycol recycling

Blasocut Recycling

Precision Parts Cleaner

Water Evaporator

Food Waste Scraps Fed to Sewage Treatment Facility

Concrete Crushing

This Year's Goal – Pallet Recycling