

Promoting Green Purchasing: Tools and Resources to Quantify the Benefits of Environmentally Preferable Purchasing

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Environmentally Preferable Purchasing Program (EPP)
U.S. Environmental Protection Agency

For more information on Environmentally Preferable Purchasing, please visit:

<http://www.epa.gov/epp/>

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Introduction

Federal government offices are directed by federal laws, regulations, and Executive Orders (E.O.s) to make purchasing decisions with the environment in mind. In order to help federal officials meet these requirements, the U.S. Environmental Protection Agency (EPA) created an Environmentally Preferable Purchasing (EPP) Program, which has prepared a number of resources, available at <http://www.epa.gov/epp/>.

As they implement the green purchasing requirements, federal managers need to consider costs and advantages before making changes in their procurement and operational practices. These choices are easier if the likely benefits of proposed acquisition decisions can be demonstrated. Federal offices also face growing pressure to set strategic goals and targets and demonstrate the value of their programs in quantitative terms. For example, EPA has set a series of goals to "green" EPA through implementation of several Executive Orders (particularly Executive Orders 13101, 13123, and 13149).

This brief guide is designed to help federal offices meet these challenges. It identifies a series of existing tools and resources that can be used to help develop quantitative estimates of the projected benefits of making new EPP choices and document the estimated benefits of past EPP actions. The tools and other resources summarized here are the most useful ones we found which are currently available. They tend to focus on environmental benefits, although some address other areas such as cost savings. Some of the resources are calculators, where users can enter set inputs and obtain outputs estimating impacts in their situation. Other resources are guides, collections of policies, lists of products, data collection and tracking instruments, etc.

The document is organized around EPA's "Greening" goal areas. For each goal, EPA's objectives are listed and types of benefits from meeting the goal are noted. For each area you will find a chart that identifies the tools, their source (e.g., web site), inputs, outputs, possible uses, and other information. At the end of the document is a list of acronyms and a few useful conversion factors.

E.O. 13123 Goal: Power

Goal Objectives

- Each year, add at least one facility to the list of facilities already procuring green power.
- Renew existing green power contracts upon expiration.
- Maximize the percentage of green power at EPA's largest facilities (RTP, HQ, Cincinnati).

Benefits

- Offset CO₂ emissions associated with facility electricity use.
- Improve regional air quality and human health.

Tool	Source	Inputs	Outputs	Use	Other Info
Green Power Tracking Spreadsheet	EPA	MWh of green energy purchased eGRID subregion Emission factors for eGRID	Pounds of CO ₂ offset		Contact Bucky Green for access to this resource: green.bucky@epa.gov
Power Profiler	EPA	Zip code of facility Electrical distribution utility	Fuel mix Rates of GHG emissions	Compare emissions profile of input region to national average.	
Energy Escalation Rate Calculator	FEMP	Project location (State) Energy use by fuel source Industry sector Performance period Inflation rate	Average annual escalation rate for fuel prices	Use rate in contract language for ESPCs and UESCs.	

E.O. 13149 Goal: Fleets

Goal Objectives

- Increase EPA's use of alternate fuel vehicles (AFVs) by continuing to:
 - Exceed the minimum AFV acquisition rate of 75 percent per year for new vehicles.
 - Acquire AFV replacements for the GSA and commercially leased fleet.

- Increase the fuel economy of EPA's new vehicle acquisitions by using:
 - Smaller-class vehicles
 - More fuel-efficient models for less efficient ones in the same class.
 - Hybrids, compressed natural gas (CNG), and ethanol vehicles.

Benefits

- Reduce fuel use and associated green house gas (GHG) emissions.
- Increase fuel economy thereby saving Agency funds.
- Promote development of AFV and hybrid markets.

Tool	Source	Inputs	Outputs	Use	Other Info
Federal Automotive Statistical Tool (FAST)	DOE	Petroleum use/year Alternative fuel use/year Biodiesel use/year Alternative fuel use in AFVs	n/a - for data collection only	DOE compiles data inputs annually.	EPA's lead contact for green fleets is Paul Grigsby. grigsby.paul@epa.gov
Hybrid Electric Vehicle (HEV) Cost Calculator	DOE	Details of HEV and Non-HEV: - Make/Model/Transmission - Fuel economy information - Other cost factors	Assuming HEV use: - Emissions avoided - Cost savings	Creates analysis of cost savings associated with HEVs over non-HEVs.	EPA's lead contact for green fleets is Paul Grigsby. grigsby.paul@epa.gov
Freight Logistics Environmental and Energy Tracking (FLEET) Performance Model	EPA	Carrier information Current fleet details	Proposed green strategies and their environmental benefits, including: - Fuel saved - Emissions avoided	Produces environmental impact analysis of large vehicle fleets.	Focuses on large vehicles. EPA contact for this tool is Cheryl Bynum. bynum.cheryl@epa.gov
Hybrid Car Gas Mileage Impact Calculator	hybridcars.com	Make Model Engine Annual mileage Gas price	Gas consumption Fuel cost Fuel economy Emissions	Compares estimated annual or 10-year cost and emissions between hybrid and non-hybrid vehicle.	Data for tool provided by the American Council for an Energy-Efficient Economy's Green Book. www.greencars.com

E.O. 13101 Goal: Paper

Goal Objectives

- Meet minimum EPA requirements for paper acquisition:
 - 100% recycled content
 - Process chlorine free
- Increase acquisition of copy/printing paper, letterhead, envelopes, and color paper that meet these requirements.

Benefits

- Decrease wood consumption.
- Reduce fossil fuel-derived energy use.
- Reduce atmospheric emissions of GHGs and criteria pollutants.
- Reduce waterborne and solid waste.
- Support the market for recycled-content paper.

Tool	Source	Inputs	Outputs	Use	Other Info
Paper Calculator	OFEE	Details of current paper use Target paper use	Energy use GHG emissions Solid waste Waste water Wood use	Compares current environmental impact with decreased impact achieved by target paper use.	Hosted by Environmental Defense.

E.O. 13101 Goal: Buildings

Goal Objectives

- As of March 2006, meet LEED Gold rating for all new construction and building acquisition.
- Request that all new office leases meet ENERGY STAR® requirements.
- Use the FMSD Green Rider Lease provisions for new leases.
- Use EPP Program's green construction specifications for construction and renovation.
- Achieve a 30% energy reduction compared to the current ASHRAE standard (ASHRAE 90.1-2004).

Benefits

- Increased energy and water savings.
- Stormwater runoff reduction.
- Construction waste diverted.
- Emissions avoided (e.g., public transit, AFVs).
- Improved indoor air quality and improved employee health and productivity.

Tool	Source	Inputs	Outputs	Use	Other Info
San Francisco's Green Building Project Reporting Information Tool (SF GreenPRINT)	SF Environment	Project Profile LEED Scorecard information LEED environmental data Local calculator data: - GHG emissions, utility costs, etc.	Environmental Scorecard: - Sustainable Site - Water Efficiency - Energy and Atmosphere	Each section includes data on environmental benefits and economic savings.	Can be easily adapted to EPA's needs.
Sustainable Federal Buildings Database	FEMP	Search by: - Date - Organization - Title - Type	Compilation of federal agency policies and guidelines on energy efficient, sustainable government facilities.	Documents listed provide guidance for federal organizations developing their own policy or guidelines.	Helpful resource, not a calculator.
Building for Environmental and Economic Sustainability (BEES)	NIST/EPA	Analysis parameters: - Weight of environmental impacts - Weight of economic impacts - Discount rate Alternative building materials	Life-cycle assesment of alternatives: - Economic performance - Environmental performance (12 areas)	Data and graphs comparing life-cycle performance of alternative building materials.	Free download.
Construction Waste Management Database	GSA	Location Material(s) to be recycled	List of companies that can help meet C&D recycling criteria.	Contact information for suitable C&D recycling companies.	Can be useful to do nationwide search, then scroll down to find companies in your state.

E.O. 13101 Goal: Electronics

Goal Objectives

- Have all electronic purchases include environmental aspects in the decision-making process – beyond just price and performance.
- Encourage the use of eco-labels and product certifications in determining if the electronic equipment is environmentally preferable.
- Support EPA's Government Wide Acquisition Contract (GWAC) for electronic asset recovery and green IT acquisition.

Benefits

- Ensure environmentally sound recycling of EPA electronics.
- Reduce amount of hazardous waste entering the waste stream (lead, mercury, chromium, cadmium, beryllium).
- Offset greenhouse gas emissions (CO₂, SO_x, NO_x).
- Increase the usable lifespan of EPA electronics, thereby maximizing the equipment's value.
- Influence design of greener electronics.

Tool	Source	Inputs	Outputs	Use	Other Info
Electronic Product Environmental Assessment Tool (EPEAT)	Green Electronics Council	Search products by: - Equipment Type - Keywords - Manufacturer - Rating	List of electronic products that fit search criteria	Easily enables purchasers to include environmental impacts in electronics purchase contract language.	Registered products are awarded bronze, silver, or gold with decreasing environmental impact.
Savings Calculator	ENERGY STAR	Appliance type Number of units Electricity cost Other appliance details	Annual operating cost Life-cycle cost	Calculates cost savings of ENERGY STAR unit over conventional unit.	Includes different calculators for different appliances.
Recycling Electronics and Asset Disposition (READ) Services	EPA	n/a	n/a	Provides a method of managing, recycling, or disposing of electronic equipment in an environmentally responsible manner.	Utilizes EPA's GWAC for electronics equipment disposal and IT acquisition.

E.O. 13101 Goal: Meetings

Goal Objectives

- Green all meetings planned or funded by EPA.
- Train meeting planners how to minimize environmental impacts of meetings.
- Require contracted meeting planning support to follow EPA green meeting guidelines.
- Incorporate green language throughout EPA's Best Practices Guide for Meetings and Conferences.

Benefits

- Reduce the environmental impact of EPA meetings.
- Be a steward for government agencies in promoting greener meetings.

Tool	Source	Inputs	Outputs	Use	Other Info
BlueGreen Meetings	Oceans Blue Foundation	Details of meeting or conference being planned.	<ul style="list-style-type: none">- Tips on how to green your meeting.- Percent green meeting planning potential realized.	Decrease the environmental impact of your meeting.	Developed with support from EPA.

E.O. 13101 Goal: Recycling

Goal Objectives

- Act to increase and promote recycling and reduce materials entering EPA's waste stream.
- Perform a waste audit of at least one major EPA facility each year.
- Seek EPA partners to improve recycling at their facilities.
- Have all EPA locations identify opportunities to improve recycling in their EMS.

Benefits

- Conserve natural resources and save energy.
- Reduce GHG emissions.
- Preserve ecosystems.

Tool	Source	Inputs	Outputs	Use	Other Info
Waste Reduction Model (WARM)	EPA	Full details of current waste management practices	GHG emissions	Compare baseline and alternative waste management practices.	Web-based calculator or Excel spread sheet.
Durable Goods Calculator (DGC)	EPA	Type of durable Disposal method	GHG emissions Energy use	Compare outputs of baseline and alternative disposal scenarios.	
Recycled Content (ReCon) Tool	EPA	% recycled content of existing inventory. Recycled content of available inventory. Pounds purchased over time.	GHG emissions Energy use	Compare existing to available inventory by emissions avoided and energy saved.	
Environmental Benefits Calculator	Northeast Recycling Council (NERC)	Area being analyzed (incl. # households) Waste disposed CO ₂ and other GHG emissions Acid rain emissions from electric utilities Energy use, cost, and source breakdown Amount recycled (tons of each recyclable) Source reduction (tons of each recyclable) Reuse (tons of each recyclable)	Material management overview GHG emissions Energy use Life-cycle stage comparisons Air emission reductions Waterborne waste reductions Selected natural resource savings	Detailed description of environmental impact avoided by recycling carried out, especially in relation to: - Energy - Waterborne waste - GHG emissions	Based on emission factors outlined in EPA's WARM.
Environmental Benefits Calculator	National Recycling Coalition	Recycling tonnage for each recyclable Total tons waste not recycled	Waste management overview GHG and emissions reduced Energy and natural resources saved Life-cycle stage comparisons Air emissions and waterborne waste	Details of emissions and waterborne waste reduced, and energy and natural resources saved by recycling.	Requires password.

E.O. 13101 Goal: Janitorial and Maintenance Services

Goal Objectives

- Green all significant EPA janitorial and maintenance services contracts by 2010.
- Janitorial services contracts should meet ASTM Cleaning Stewardship for Community Buildings Standard and specify use of products that meet the Green Seal Cleaning Products Standard.
- Include green janitorial and maintenance requirements in all new EPA leases.
- Promote green cleaning in operations and maintenance contracts of EPA-owned facilities and GSA-owned/EPA occupied facilities.
- Increase the use of Integrated Pest Management in janitorial and maintenance services of all significant EPA facilities.
- Develop contract language directing environmentally preferable purchase, use, and recycling of all fluorescent bulbs, and incorporate into all contracts.

Benefits

- Reduce amount of hazardous and toxic substances entering waste stream.
- Preserve ecosystems.

Tool	Source	Inputs	Outputs	Use	Other Info
Green Cleaning Pollution Prevention Calculator	EPA	Carpeted area of building Hard floor area of building Types and annual amounts of cleaning products Cleaning product handling and mixing practices Changes to use and practices (choose from list)	Decrease in consumption of: - Cleaning products - Hazardous materials	Determine environmental benefits of changes in use of cleaning products and practices.	

E.O. 13101 Goal: Office Supplies

Goal Objectives

- Buy all office supplies through EPA's tailored green online ordering system.
- Train all EPA credit card purchasers on EPP and how to use the online ordering system.
- Work with the online ordering system manager to continually expand and improve green product offerings through this system.

Benefits

- Reduce environmental and human health impact of EPA offices.
- Promote the use of green office supplies among federal agencies.

Tool	Source	Inputs	Outputs	Use	Other Info
Corporate Express Web-based Ordering System	EPA	n/a	n/a	Ordering system for EPA's Blanket Purchase Agreement for green office supplies.	Provides data to EPA for tracking EPP purchases.

EPP Assistant

- Analyzes the environmental impact of an organization's purchases through the end of manufacturing, prior to purchase ("cradle to gate").
- Provides a method for organizations to prioritize EPP efforts by purchase type (commodity), and quantifying results.
- Developed with support of EPA and the Texas Commission on Environmental Quality (TCEQ).

Tool	Source	Inputs	Outputs	Use	Other Info
The EPP Assistant	earthster.org	Commodity list (choose one): - NGIP - BEA - your own Annual spending on each commodity	Relative environmental impact of each commodity and, if desired, a comparison of two different purchasing scenarios.	Users can determine where to focus EPP efforts to have the greatest improvement in environmental impact, and can quantify EPP results.	Read User Manual before download. Also download Analytica Player at: www.lumina.com/ana/player.htm

Appendix 1:

Acronyms	
AFV	Alternative Fuel Vehicle
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASTM	American Society for Testing and Materials International
BEA	Bureau of Economic Analysis
BTU	British thermal unit
CNG	Compressed natural gas
DGC	Durable Goods Calculator
DOE	United States Department of Energy
ED	Environmental Defense
EPA	United States Environmental Protection Agency
EPEAT	Electronic Product Environmental Assessment Tool
EPP	Environmentally Preferable Purchasing
ESPC	Energy savings performance contract
FAST	Federal Automotive Statistical Tool
FEMP	Federal Energy Management Program
FLEET	Freight Logistics Environmental and Energy Tracking
FMSD	Facilities Management and Service Division
GHG	Greenhouse gas
GSA	United States General Services Administration
GWAC	Government Wide Acquisition Contract
HEV	Hybrid Electric Vehicle
HQ	Headquarters
NERC	Northeast Recycling Council
NIGP	National Institute of Governmental Purchasing
NIST	National Institute of Standards and Technology
OFEE	Office of the Federal Environmental Executive
READ	Recycling Electronics and Asset Disposition
ReCon	Recycled content
RTP	Research Triangle Park
SF Environment	San Francisco Environment
UESC	Utility energy service contracts
WARM	Waste Reduction Model

Appendix 2:

Useful Conversion Factors	Source
CO ₂ emissions/car/year: 11,450 lbs.	www.epa.gov/otag/consumer/f00013.htm
CO ₂ sequestered/tree/year: 10 lbs.	
Average BTU's/Home/year: 92.7million	