Improving Purchasing by Monetizing Environmental Impacts: Federal Agencies' Breakthrough & Next Steps

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ABSTRACT

In 2014, 15 federal agencies agreed to a breakthrough, $1 billion solicitation for package delivery services. For the first time, the evaluation combined the bidders' prices *with* their greenhouse gas emissions and the social cost of carbon.

This model of monetizing and including environmental impacts in contract and cost evaluations should be expanded and applied more widely to government and private purchases.

OVERVIEW

Many organizations' **purchased goods have larger environmental footprints than their internal operations**. Yet, in determining "best value", buyers generally do not want, or know how, to measure and weigh suppliers' environmental impacts.

Under pressure from investors and environmental advocates, buyers increasingly try to apply "environmentally preferred purchasing". Bid evaluations that require environmental certifications make some progress toward minimizing the environmental footprints of purchased goods. However, such **purchasing strategies suffer inefficiencies**.

In many cases, buyers can and should select suppliers by monetizing the environmental impacts of the goods.

Fact: Harm to the environment, including GHGs, has quantifiable costs and negative impacts on the economy and federal agency operations. - *GSA*

Fact: Approximately 90% of federal agencies' carbon footprint lies in the products and services they purchase. - *GSA*

Truck Emissions by Ground Package Carriers (EPA SmartWay Company Avg. g/mi – 2014)			
Carriers by Ranking	Carbon Dioxide (CO_2)	Fine Particulate Matter ($PM_{2.5}$)	Nitrogen Oxides (NO_x)
Top 20%	900	0.006	0.45
Bottom 20%	1300	0.187	5.65
% Difference	*44%*	*3017%*	*1156%*

Est. Social Costs of Truck Emissions by Package Carriers (EPA National Avg. Cents/Pkg - 2014)					
Carriers by Ranking	CO_2	NO_x	$PM_{2.5}$	Total Emissions Costs	CO_2 as % of Total Emissions Costs
Top 20%	2.8	0.4	0.6	3.8	74%
Bottom 20%	4.0	4.5	19.8	28.3	14%
Potential Social Gains from Factoring in Environmental Impacts in Vendor Selection (Cents/Pkg)					
Social Gains	1.2	4.1	19.2		

METHODS OF APPLYING ENVIRONMENTAL PREFERENCES IN PURCHASING

In trying to internalize their environmental impacts, buyers often apply methods leading to inefficiencies, such as **incentivizing suppliers to meet only minimum standards, overpaying for benefits, or missing major harms.**

Method 1] Requiring vendor certifications and standards (e.g., EnergyStar)

- ▲ Recognized standards with accepted minimum thresholds for environmental impacts
- ▼ No incentive for suppliers to exceed minimum threshold for certification.
- ▼ No guidance on how to weigh factors in purchasing evaluations.
- ▼ May fail to reflect multiple environmental impacts.

Method 2] Additional price allowance (e.g., 5-10%) for better environmental performance

- ▲ Buyer able to set price which represents its "willingness to do social good"
- ▼ May lead buyer to over/under pay for true social and environmental impact
- ▼ Cannot track true environmental impact of purchases
- ▼ No incentive for supplier to improve

Method 3] Buyer states preferences/objectives (may use aggregate target or encourage vendors to have environmental certifications/ sustainability plan)

- ▼ Vague incentive for suppliers to reduce impacts
- ▼ Vague guidance for buyer in selections; may miss easy opportunities

SUGGESTED METHOD:

Calculate the Complete Price for Evaluation

PRICE = *Payment to Vendor* + ∑ **(Environmental Impact of Producing and Distributing Product** x **Social Cost of Environmental Impact)** + *Direct Payments for Usage* + ∑ **(Environmental Impact of Using Product** x **Social Cost of Environmental Impact)** + *Direct Payments for Disposal* + ∑ **(Environmental Impact of Disposing of Product** x **Social Cost of Environmental Impact)**

- ▲ Fully and accurately captures the social costs of environmental impacts of the product lifecycle
- ▲ Allows for tracking and benchmarking environmental footprint
- ▲ Promotes competition among vendors to be the most environmentally efficient, reflecting private costs to buyer and social costs of environmental impacts
- ▼ Data may be challenging to collect or buyer may lack incentive

CASE STUDY:

In multi-agency solicitations for package delivery services in 2006 and 2010, the federal government *did not* consider environmental factors.

Pursuant to an Executive Order issued in 2009, a group of federal agencies led by the General Services Administration (GSA) embarked on a new course in 2012, culminating in a breakthrough in economic-based purchasing in 2014 (Domestic Delivery Services Blanket Purchase Agreement (DDS3)).

RESULTS:

- Bidders estimated emissions for representative set of deliveries (vehicles, loading, routes, sorting facilities)
- Evaluation applied "social cost of carbon" ($37/ton)
- Evaluation considered social cost of bidders' carbon emissions along with offer price

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NEXT STEPS

Policy measures, including Federal Executive Order 13693 (2015) and Illinois Transportation Sustainability Procurement Program Act (2013), as well as investor pressures should continue to push for more environmentally preferred purchasing.

As DDS3 showed, environmental impacts can be monetized in some purchasing decisions, with efficiency benefits. This model can be improved upon and expanded:

- Monetizing other environmental impacts in addition to CO_2. For DDS3, PM and NO_x had large social costs and could have differentiated bidders.
- Applying available data to monetize social costs for an expanding range of government and private purchases.
- Publicizing social cost savings of purchasing decisions, instead of trying to communicate in tons of carbon.
- Highlighting leaders that monetize environmental impacts in their purchases

ANALYSIS:

DDS3 has set a good standard by which other major vendors, in both the public and private sector, can use as a template for their future purchases. Other environmental criteria of this deal include:

- Bidders must belong to EPA SmartWay Transportation Partnership
- Bidders are required to submit company-wide baseline and annual data on several key emission types
- Bidders must submit company-wide plans and commitments
- Bidders must report GHG emissions for deliveries by agency annually

Comparing 2010 v 2014 Federal Purchases on Price and Environmental Factors		
Evaluation Factor	DDS2	DDS3
Offer price for services	✓	✓
Monetized social cost of carbon emissions from services	✗	✓
Monetized social costs of other toxic emissions from services	✗	✗
Required participation in EPA SmartWay Transportation Partnership	✗	✓
Reporting emissions, from services and company-wide	✗	✓
Company-wide plans and commitments to reduce emissions	✗	✓
Reporting by agency emissions from deliveries	✗	✓