Public Procurement of Energy-Efficient Products
Lessons from Around the World

RPN Webinar
February 20, 2013

www.ResponsiblePurchasing.org
Questions?

Submit questions by typing them into the Questions box in your GoToWebinar application.

We will compile and answer them during the Q&A at the end of the webinar.
1. Welcome and Introduction
2. Jas Singh, World Bank
3. Una Song, U.S. EPA ENERGY STAR Program
4. Jonathan Rifkin, DC Office of Contracting & Procurement
5. Q&A
Introduction

Alicia Culver
Executive Director
Responsible Purchasing Network

Public Procurement of Energy-Efficient Products
February 20, 2013
Who is RPN?

International Network

- State and local governments
- Federal agencies
- Colleges and universities
- School districts
- Businesses
- Nonprofit organizations
- Faith-based organizations
RPN Resources

- **Responsible Purchasing Guides** for 15 product categories
- Webinars on “green” procurement issues
- Quarterly newsletter highlighting “green” purchasing activities and resources
- Sustainable purchasing policies and specifications
- **Model Responsible Purchasing Report**
- Calculators and other tools

www.ResponsiblePurchasing.org
Why Does Energy Efficiency Matter?

- Measurable environmental benefits
- Cost savings (typically on a life-cycle basis)
DIRECTING STATE AGENCIES AND AUTHORITIES TO IMPROVE THE ENERGY EFFICIENCY OF STATE BUILDINGS

WHEREAS, New York is dedicated to the mutually compatible goals of environmental protection, energy security, and economic growth; and

WHEREAS, increasing energy efficiency has been identified as among the most cost-effective methods for reducing greenhouse gas and other environmental pollutant emissions and increasing energy security; and

WHEREAS, increasing energy efficiency can lead to increased jobs and a reduction in building operating expenses; and
New Tools for Identifying Most Efficient Products
More Effective EE Product Labeling Systems

Whirlpool 80-Gallon 10-Year Hybrid Heat Pump Water Heater ENERGY STAR

- Utilizes the most advanced and efficient technology in electric water heating
- Less than half the cost to operate compared to a standard electric model (average of $540 versus $201 for the heat pump water heater)
- ENERGY STAR® qualified
Questions?
Comments?

Alicia Culver
Responsible Purchasing Network
510-547-5475
alicia@responsiblepurchasing.org
PUBLIC PROCUREMENT OF ENERGY EFFICIENT PRODUCTS
Lessons from Around the World

Jas Singh, Senior Energy Specialist
RPN Webinar • February 20, 2013
Why is EE important?

- Taps cheapest domestic energy resource
- Reduces investments needed to power economic growth
- Enhances competitiveness, creates fiscal space for other development priorities
- Reduces environmental impacts of energy use

**World Primary Energy Demand by Region**

Source: IEA, 2011
Why is the public sector important?

- Government often single largest energy user in a country
- Public sector typically represents ~2-5% of total energy use
  - 15-30% in countries with large heating loads
  - 20-30% in countries with low energy access rates
- Public facilities are highly visible, so improving EE can influence general public
- Government purchasing power creates huge opportunities to:
  - influence equipment suppliers
  - establish market norms
  - lower market prices
Government agencies are obligated to follow rules and procedures for budgeting and procurement to ensure transparency and efficient use of public funds. Unfortunately, rigid procedures can sometimes result in less efficient operations, especially when there is a focus on purchasing products based solely on the lowest upfront cost rather than the lifecycle cost (LCC), which can consider lower operational and replacement costs of more efficient products.

Many public administrators are not aware of EE opportunities or lack the expertise needed to identify potential projects, estimate energy cost savings, recognize efficient products, implement and finance upgrades, maintain and operate new equipment, etc. Many developing countries lack national programs for product efficiency testing, certification, and labeling, which makes specifying and purchasing efficient equipment more difficult. In other cases, there is too much information, some of it contradictory or confusing, which can lead to agencies choosing to maintain the status quo.

One of the more vexing issues relates to behaviors. Public employees can easily become used to doing things a certain way. Therefore, investing additional time and effort in doing things differently can be unappealing. Agencies may have previously developed technical specifications, which have been tested, as well as lists of approved products and vendors with which they have significant experience. In addition, they can become used to operating certain types of equipment or have inventories of replacement products or spare parts. All of these factors can discourage them from modifying their procurement strategies. Changing these habits can be challenging, particularly if it involves an increase in workload, a strain in budgetary resources, or the introduction of new risks.
EE Purchasing (EEP)

- EEP policies encourage or require public agencies to procure energy efficient products using or influencing energy use
  - Indoor and outdoor lighting, office equipment (computers, printers, copiers), vehicles, HVAC, water/steam pumps, insulation, windows
  - Some include recycled products, water conservation, solar panels
- Key issues involve how to ensure quality, transparency, competition
Methodology

- 10 country and city EEP case studies, 50+ expert interviews, literature review

**Countries/Regions**
- Australia
- China
- European Union
- India
- Japan
- South Korea
- United States

**Cities**
- Portland, Oregon (U.S.)
- Vancouver, B.C. (Canada)
- Vienna (Austria)
**EEP vs. GPP**

- **Energy Efficient Purchasing (EEP)**
  - Promotes procurement of EE products
  - Includes energy savings in cost comparison
  - Relatively simple to specify and certify

- **Green Public Procurement (GPP)**
  - Promotes environmentally preferable product procurement (EE = key attribute)
  - Includes energy savings and other environmental benefits but lifecycle cost (LCC) analysis is complex
  - Specification and certification is not straightforward
## Types of EE procurement policies

<table>
<thead>
<tr>
<th>EEP Policy</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Product-specific requirements       | China (ACs - 2004)  
EU (office equipment – 2008, vehicles - 2009)  
City of San Francisco (computers – 2009) |
| Product bans                        | Russia (2009), City of New York (2005)                                                                                                  |
| Green buildings                     | China (2005), City of Shanghai (2008), EU (2010), Cities of Portland (2005) and San Francisco (2008)                                  |
| Sustainability or climate protection plans | Mexico City (2008), State of Maryland (2009), City of New York (2008)                                                                 |
# EEP program models

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE labels</td>
<td>Requirement for an existing EE label, when available</td>
<td>Australia, Vancouver (Canada), China, EU, Japan, Mexico, South Korea, USA</td>
</tr>
<tr>
<td>Catalogues of technical specifications</td>
<td>Catalogue, book, or website of EE technical specifications</td>
<td>Vienna (Austria), EU, Japan, Mexico, Sweden, UK, USA</td>
</tr>
<tr>
<td>LCC or best value award</td>
<td>LCC analysis to inform purchasers which products offer best value over their useful lifetimes</td>
<td>Australia, Canada, EU, UK, USA</td>
</tr>
<tr>
<td>EE preferences</td>
<td>Extra points or price preferences in bid evaluation for qualifying products</td>
<td>Australia, China, Japan, EU, South Korea, USA</td>
</tr>
<tr>
<td>Qualifying product lists</td>
<td>Database of products that qualify with government EE specifications</td>
<td>Vienna (Austria), China, EU, South Korea, UK, USA</td>
</tr>
</tbody>
</table>
Poll Question #1

- Which program models has your jurisdiction or organization used to support energy-efficient procurement?

VOTE NOW
**EE Labels**

- **Endorsement Labels**

- **Comparative/Rating Labels**

- **Eco-labels**
Catalogues of technical specs

- Can be used when EE labels don’t exist or are not credible
- **Examples:** EU, City of Vancouver, USA
LCC or best value award

- **Considers cost-effectiveness over product’s lifetime**
  - Includes initial purchase price, O&M costs, produce lifetime, end-of-life (i.e., disposal, recycling) costs
  - Purchasers need training, technical support, tools

- **Many LCC calculators exist**
  - USA FEMP Energy and Cost Savings Calculators
  - EU Buy Smart Calculator, Clean Vehicle Portal
  - SEAD Street Lighting Tool
  - SEMCo (Sweden) LCC tool
EE preferences

- Types of EE Preferences
  - Permits extra technical points in bid evaluation if product exceeds minimum EE (or green) criteria
  - Allowable price preference (i.e., up to 5% premium for EE or green attributes)

- Examples
  - South Korea - Alternative Bidding System with Extra Points
  - EU - Comprehensive (Voluntary) GPP Criteria
Qualifying product lists

- Convenient for procurement agents but time-consuming to create, maintain

Examples:
# Program components

<table>
<thead>
<tr>
<th>Component</th>
<th>Key Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional</td>
<td>• Centralized, shared implementation, associations, NGOs</td>
</tr>
<tr>
<td>Testing &amp; Certification</td>
<td>• Which products should be included</td>
</tr>
<tr>
<td></td>
<td>• How to set standards, testing, who certifies, who oversees</td>
</tr>
<tr>
<td>Outreach &amp; Training</td>
<td>• Understanding polices and programs</td>
</tr>
<tr>
<td></td>
<td>• Use of tools and access to other resources (e.g., case studies, bidding document language, LCC tools)</td>
</tr>
<tr>
<td>Incentives and Behavior</td>
<td>• Mandatory and voluntary measures</td>
</tr>
<tr>
<td></td>
<td>• Institutional and individual mechanisms</td>
</tr>
<tr>
<td>Partnerships</td>
<td>• Collaborations with other jurisdictions, NGOs, business</td>
</tr>
<tr>
<td>Tracking &amp; Reporting</td>
<td>• Compliance monitoring</td>
</tr>
<tr>
<td></td>
<td>• Results reporting and evaluation of program effectiveness</td>
</tr>
</tbody>
</table>
## Select EEP results

<table>
<thead>
<tr>
<th>City or Country</th>
<th>Procurement Policy</th>
<th>Impacts</th>
</tr>
</thead>
</table>
| Vienna, Austria    | • Mandatory GPP policy in 1999, includes EE criteria  
                    • Guidelines cover 23 goods and services categories                                 | • Annual savings of €17 million and 30,000 tons of CO₂ emissions                                    |
| China              | • EEP policy enacted in 2004, mandated to all government levels in 2006  
                    • Guidelines cover 28 product categories (2011)                                          | • EEP reached RMB 15.72 billion (US$ .23 billion) in 2009  
                    • Covered 70% of products in target categories                                             |
| Mexico City, Mexico| • Mandatory GPP policy in 2011, includes EE criteria  
                    • Covers 8 product categories                                                             | • Energy savings of 340 GWh/year  
                    • 6,500 tons of CO₂ emissions avoided                                                     |
| South Korea        | • Voluntary GPP policy in 2004, includes EE criteria  
                    • Guidelines cover 11 product categories                                                  | • GPP reached KRW 1.12 trillion (US$ 1.0 billion) in 2009                                         |
# Alternative procurement strategies

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Inaccurate LCC</th>
<th>Changing Products</th>
<th>Proprietary Technologies</th>
<th>Performance Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCC analysis by bidders</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Output-based procurement</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Product competition</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Energy use warranties</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Performance-based warranties</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Energy supply contracting</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ESPCs</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Key take-aways

- Growing number of EEP programs in middle-income countries; trend toward GPP in developed countries
- Substantial anecdotal information on the benefits of EEP programs
- But, most governments do not have enforcement mechanisms in place, and none account for the costs and impacts or wider market influence
- Wide variety of resources exist to assist developing countries
## Key recommendations (part 1)

<table>
<thead>
<tr>
<th>EEP Component</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy</strong></td>
<td>• Adopt EEP policies with proper resources, targets</td>
</tr>
<tr>
<td></td>
<td>• Make EEP the “default” option</td>
</tr>
<tr>
<td><strong>Tools</strong></td>
<td>• Create and disseminate tools to keep transaction costs low</td>
</tr>
<tr>
<td><strong>Institutional Arrangements</strong></td>
<td>• Establish EEP program infrastructure, with roles, responsibilities, accountability</td>
</tr>
<tr>
<td></td>
<td>• Engage procurement, energy/environment, maintenance staff</td>
</tr>
<tr>
<td><strong>Product Testing &amp; Certification</strong></td>
<td>• Appoint credible testing labs/certification bodies</td>
</tr>
<tr>
<td></td>
<td>• Use other jurisdiction’s EE labels if none exist locally</td>
</tr>
<tr>
<td></td>
<td>• Spot check products if manufacturers self-certify</td>
</tr>
<tr>
<td></td>
<td>• Start with simpler, common products</td>
</tr>
<tr>
<td></td>
<td>• Update standards over time</td>
</tr>
<tr>
<td><strong>Outreach &amp; Training</strong></td>
<td>• Launch aggressive outreach/training to ensure buy-in</td>
</tr>
<tr>
<td></td>
<td>• Target purchasing agents and key product end-users</td>
</tr>
</tbody>
</table>

ESMAP: The Energy Sector Management Assistance Program
## Key recommendations (part 2)

<table>
<thead>
<tr>
<th>EEP Component</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| Incentives and Behavior     | • Create mix of obligatory and voluntary measures (e.g., competitions, recognition)  
                                • Focus on long-term, sustained cultural changes  
                                • Require reporting and targets to help ensure participation                                                                                           |
| Partnerships                | • Collaborate/consult with other jurisdictions, NGOs, business on certification, outreach, behavior change  
                                • Consider cooperative purchasing initiatives with others to reduce costs                                                                              |
| Tracking & Reporting        | • Develop compliance & results reporting plan with indicators  
                                • Use e-procurement, vendor reporting to help track purchases  
                                • Evaluate program periodically to assess program impacts and effectiveness                                                                          |
| Alternative EEP Options     | • Consider testing innovative schemes (e.g., output-based procurement, ESCOs, performance-based warranties) to promote further EE gains                                                                              |
## Getting started

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Test new procurement options</td>
</tr>
<tr>
<td>2</td>
<td>Update technical specifications</td>
</tr>
<tr>
<td>3</td>
<td>Make the EEP policy mandatory</td>
</tr>
<tr>
<td>4</td>
<td>Track and monitor EEP activities</td>
</tr>
<tr>
<td>5</td>
<td>Foster strategic partnerships</td>
</tr>
<tr>
<td>6</td>
<td>Develop program infrastructure – e.g., targets, tools, training</td>
</tr>
<tr>
<td>7</td>
<td>Conduct market/purchasing analyses, start with a small set of products</td>
</tr>
<tr>
<td>8</td>
<td>Adopt a voluntary EEP policy</td>
</tr>
<tr>
<td>9</td>
<td>Gain political buy-in around EEP initiatives</td>
</tr>
</tbody>
</table>

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**Source:** ESMAP (The Energy Sector Management Assistance Program)
Key challenges ahead

- **Transaction costs** for developing technical specifications is high, resulting in older specs being reused.
- Lack of **global testing and certification** regimes make quality assurance difficult.
- Limited **technical capacities of counterparts** make more complex evaluations more time consuming and potentially subject to abuse.
- Country concerns over **higher upfront costs**, given that many public agencies subject to **low energy pricing**.
- Behavioral biases favor **conventional practices**.
- New approaches may require changes in budgeting, procurement, etc. and create **new risks**.
How can RPN network help? (ideas for discussion)

| ✔  | Share best practice EE technical specs for key equipment, w/ LCC analyses |
| ✔  | Pilot some alternative procurement methods and document experiences, lessons and results for dissemination |
| ✔  | Foster harmonization of testing protocols, standards and labels |
| ✔  | Offer suggestions to ongoing Bank procurement review at: [http://go.worldbank.org/KVOEGWC8Q0](http://go.worldbank.org/KVOEGWC8Q0) |
Thank you!

For more information, please visit:
www.esmap.org

Jas Singh
Tel: (202) 458-0343
Email: jsingh3@worldbank.org
What Is ENERGY STAR?

- Voluntary labeling program managed the U.S. Environmental Protection Agency (EPA)
- Strategic approach to energy management, promoting energy efficient products and practices
- Tools and resources to help save money and protect the environment
- Influential brand recognized by over 80 percent of Americans
Environmental Results
Annual Greenhouse Gas Emissions Avoided

As of 2012, EPA estimates that ENERGY STAR products prevent more than 150 million metric tons of greenhouse gas emissions annually. More than 200 billion kilowatt-hours (kWh) of electricity is saved per year, which represents 15 percent of U.S. residential electricity use. These savings have offset the need for more than 135 additional power plants.
Key Guiding Principles for Specifications

- Significant energy savings
- Product performance can be maintained or enhanced
- Cost-effective
- Energy-efficiency can be achieved through one or more technologies
- Product energy consumption and performance can be measured and verified with testing
ENERGY STAR Most Efficient

ENERGY STAR

ENERGY STAR: Most Efficient

ENERGY STAR: Emerging Tech

ET Programs (Screening)

EE Programs (Deployment & Dissemination)

Codes & Standards (Federal and State)

Innovators

Early Adopters

Early Majority

Late Majority

Laggards

Commercial Introduction

Commercial Growth

Commercial Decline

Commercial Maturity

TECHNOLOGY ADOPTION RATE

TIME

Energy Efficient Technologies Commercialization Process
Main Program Elements

• Specifications
  – ENERGY STAR
  – Federal Energy Management Program

• Implementation Support
  – Working Groups
  – Tools
  – Purchasing vehicles
Poll Question #2

- Do you leverage ENERGY STAR in your purchasing policies or contracts?

VOTE NOW
Best Practices

- **Tools**
  - Product specifications
  - Product lists
  - Acquisition guidance
  - Training
  - Energy savings calculators
  - Sample procurement language
  - Case Studies – Best Practices

- **Purchasing Vehicles**
  - GSA Advantage – environmental aisle
  - DOD E-mail
  - GSA Multiple Award Schedules
  - Blanket Purchase Agreements

- **Working groups**
  - Interagency Energy-Efficient Product Procurement
  - Federal Electronic Stewardship
International Objectives

• Committed to current International agreements
  – Engaged with partner countries on US ENERGY STAR efforts with enhanced testing and verification
  – Interest from many countries to recognize international-based certification programs

• Enhance other ENERGY STAR relationships
  – contributing to high-profile international energy efficiency projects
  – sharing successful approaches and best practices

• Continue to pursue test procedure harmonization
  – providing in-depth coordination with countries that are developing new/revised product standards
Thank you

Una Song
US EPA
ENERGY STAR program
song.una@epa.gov
Operationalizing Green Purchasing in an Institutional Purchasing Environment

The Government of the District of Columbia

Jonathan Rifkin
Green Purchasing Coordinator
Green Purchasing: Where We’ve Been

Policy, Mayoral Orders & Legislation:

- **OCP EPP Policy 1303**
- **Mayoral Order 2009-60**
- **Energy Efficiency Amendment Act**
- **LEED Building Act**
- **PPRA Section 1101**

Though well intentioned, existing policies are overly vague, under resourced, and generally lost in glare of competing priorities.
Green Purchasing: Where We’ve Been

Following issuance of PPRA OCP took all “practicable” steps to comply with Section 1101.

**Section 1101. OCP Shall (Summarized):**
For all contracts over $100K:
- Apply an “Environmental Certification” to all contracts and/or,
- Require use of “Default Environmental Standards” in the solicitation, and,
- Submit a Green Spend Report to Council annually, that provides: Total “Green” spend, successes and challenges to implementing the policy, and changes to policy or standards.

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FY 2010-11 Green Initiatives

- Created and convened Green Procurement Team – OCP Serviced Agencies participated monthly.
- Conducted prioritization exercise to maximize initial impact of efforts.
- Developed “Environmental Analysis” to serve as proof of PPRA required “Environmental Certification.”
- Piloted Contract Expiration Reviews.
- Compiled and submitted FY2011 Green Purchasing Report to council, with $44.7M in substantiated green spend reported.
Prioritizing EPPS Opportunities

District of Columbia spend.

• EPEAT
• Energy Star
• AFV Fleet
• Renewable Energy
• E-Green

Timing of Contracts

Prevalence of EPPS Products

Ease of Implementation

Cost

Product and Service Prioritization
Prioritization & Environmental Analysis

Environmental Analysis

- GSA Recognized Standards and Certifications.
- Successful specs endorsed by other jurisdictions.
- Options available via the local marketplace.
- End-user comfort with the specification: Performance.
- Cost.

Prioritized Products and Service receive an Environmental Analysis. What is an Environmental Analysis?
Poll Question #3

• How does your organization track purchases of energy-efficient products?

VOTE NOW
New Tracking Mechanisms
Lessons Learned Inform New Initiatives

- DC needs a precise definition for specific green products that is developed with the input of diverse stakeholders.
- Political will must be strong and conveyed from top-down. Agency and stakeholder buy-in is essential.
- Green considerations will never be “institutionalized” if decision points are not baked into procurement process.
- Standards and certifications are a keystone of any program.
- Dedicated resources are necessary to realize goals of the program.
- Harness the political power of the small business community.
OCP and DDOE were awarded a grant as part of the Mayor’s SDCBC to develop a more robust Green Purchasing Program for the City.

The Green Purchasing Program

1) Establish definitive “green” specifications with the input of relevant stakeholders.

2) Re-engineer purchasing policies and procedures so that “green” considerations are routinely embedded into the solicitation process, and,

3) Train key procurement stakeholders in how to pursue environmentally preferable products early in the solicitation process per new green definitions and purchasing procedures.
Thank You for Attending RPN’s Webinar on Public Procurement of Energy-Efficient Products: Lessons from Around the World

Questions? Comments?