Public Procurement and Energy Efficiency in the Pacific Northwest

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FINAL Report to the

Public Procurement and Energy Efficiency in the Pacific Northwest

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Executive Summary

State and local governments in the United States spend tens of billions of dollars each year to purchase energy consuming products.[1] Where governments do not currently "buy efficient," there may be viable opportunities to influence them toward greater efficiency.

The current research, conducted on behalf of the Northwest Energy Efficiency Alliance (Alliance), set out to:

➢ Better understand those who buy or influence the purchase of energy related goods and services for public agencies in the Northwest.

➢ Identify strategies to encourage public agencies to buy higher efficiency products and services.

This executive summary focuses upon key findings and our suggested intervention strategies. To better understand how purchasing occurs, and where energy is considered, please see the body of the report.

Methods

Staff from the Washington State University Energy Program led a team of researchers who used qualitative research methods to collect and analyze data on public purchasing. From December 1998 to April 1999, we conducted 77 in-depth interviews with buyers, end-users, and policy-makers in 17 federal, state, and local governments in the Northwest. We asked respondents how their purchasing systems worked; the role of competitive requirements; how products and services are specified; how they engage in "green" buying and buy energy consuming products; and what important trends are likely to affect purchasing.

Key Insights from the Research

These findings underlie the intervention strategies presented in the next section, and are crucial to understanding the public purchasing arena.

➢ **Public sector buying patterns are variable, complex, and somewhat unpredictable. Many actors are involved in a variety of roles.** Although detailed purchasing rules and competitive requirements existed in most agencies, much buying is neither rigidly structured nor highly competitive. Thus, just changing *the rules* will not necessarily change procurement practices.

Most agencies combine centralized purchasing processes (for higher cost items) with decentralized purchasing by end-users (for less costly items). These variations in purchasing approaches are illustrated in Table A.

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[1] Purchases by local and state governments of durable and non-durable goods and investment in equipment/structures was $262 billion in 1997, according to the U.S. Bureau of the Census, 1998.

Table A: General Parameters for Purchasing

Type of Purchase	Dollar Limit Range and Exclusions	Procedures/Authorities/ Requirements	Other Purchase Methods
Petty Cash	Generally below $100, often combined with Direct Buy level	Employee choice, no competition required, decentralized in department	➢ Use of master contracts developed by other jurisdictions, most often states
Direct Buy	From $0 - $5,000, with the top limit varying from $800 to $5,000. Professional services and construction might be excluded. State universities might have different limits than other state agencies.	Employee choice, decentralized in departments. May require department approval. Little bidding, although 3 quotes may be technically required. Must comply with relevant policies/laws. Use purchase orders (LPO), purchasing cards. May account for bulk of buying. Master contracts may supercede direct buying.	➢ Developing in-house master or annual supply contracts, which may be mandatory for departments
Informal Competition	From $800 - $100,000, with many variations.	Up to 3 informal written or telephone bids/quotes. Usually central purchasing involved, although department may lead.	➢ Use of cooperative purchasing groups to increase buying power
Formal Competition	From $25,000 up.	Formal IFB/RFP, sealed bid, competitive process, often with a central purchasing authority leading the process although specifications usually developed with end-users.	➢ Emergency buying procedures

➢ **Energy costs and efficiency are not widely or consistently considered in purchasing energy consuming products.** Other factors, such as performance, price, and convenience, drive buying decisions. Energy efficiency information, without reference to the other buying criteria that are salient to buyers, may receive limited use.

➢ **Energy efficient buying can be leveraged by piggybacking on these three major purchasing trends:**

1. *Best value buying* – an approach that considers the overall costs and benefits of products and services rather than just first costs and benefits.

2. *Electronic commerce* – a mechanism that serves as a source of information, a tool for improving purchasing processes, and a way to buy.

3. *Green purchasing* – buying that goes beyond recycled content products and "safe" products to consider broader environmental concerns.

> ➤ **In the organizations we profiled, we observed nine factors that are related to higher levels of energy efficient buying. These factors, listed below, are also entry or leverage points for transforming public purchasing.**

1. *Political or citizen support for green buying or energy efficiency;*

2. *Specific budget for energy efficiency or environmentally protective approaches;*

3. *Active energy efficiency resources (e.g., energy efficiency staff);*

4. *Active "green" resources (e.g., agency sponsored recycling);*

5. *Active Resource Conservation Managers or Resource Efficiency Managers (RMs);*

6. *Influential efficiency champions;*

7. *Vendors promoting use of energy efficient or green products;*

8. *Strong user/buyer education about buying energy efficient; and*

9. *Experience with energy efficient buying.*

> ➤ **Finally, organization theory suggests that three processes are important for changing organizational behavior**:

1. *Regulatory and policy effects* – changes in formal rules and requirements (e.g., to using life cycle costing) can institutionalize efficient buying practices.

2. *Normative and professional influences* – changes in purchasing standards within professional organizations can shape purchasing practices.

3. *Imitative (mimetic) processes* – changes in approach, or successes, at one agency can influence other agencies to adopt similar practices

Our recommended intervention strategies, which result from our organizational observations, interviews, and literature review, make use of these three interrelated processes. Thus our recommendations should be viewed collectively, rather than as independent, standalone strategies.

Recommendations for Transforming Public Sector Purchasing

Given the variability in government purchasing, the many purchasers, and the many markets, we are not advocating strategies to transform a specific market for a particular product. Rather, we are recommending strategies to encourage agencies to change how they buy – that is, to buy higher efficiency products. Such change likely requires a long-term commitment, multi-faceted approaches, flexibility, and leveraging of existing resources. Such change also moves organizational behavior or practices toward being self-sustaining, so that the commitment to efficiency is institutionalized.

Our goal in these recommendations is to help purchasers – designers, project managers, users, and professional buyers – get the best products **and** the most energy efficient ones. We introduce each set of recommendations by describing how they fit with the factors and trends that encourage energy efficient buying.

Stimulating Regulatory and Policy Effects

Policy level support is essential if public organizations are to institutionalize the buying of energy efficient products.   But our research shows that energy efficiency is **not relevant** for political leaders or policy makers. Therefore, energy efficiency needs to be joined with issues that are more relevant to these leaders and to their constituents, such as best value buying and green purchasing trends.

The three strategies listed below suggest how energy efficiency can be tied to issues of interest to policy makers. These actions will help develop political and citizen support which, in turn, will encourage agencies to devote specific resources to energy efficient buying (i.e., for staff, training, support materials, or policy changes).

➤ **Link energy efficient buying with existing environmental initiatives and policies in public organizations (e.g., buy recycled).**

➤ **Connect energy efficient products to political and policy priorities such as clean air, clean water, sustainability, cost-savings, and good government.**

➤ **Work with environmentally oriented agencies and with networks targeted to policy makers to identify existing environmental policies, demonstrate that energy efficiency policies can be incorporated within those existing environmental policies, and disseminate these examples through appropriate networks and media.**

Enhancing Normative and Professional Influences

Most government purchasers, whether Resource Managers, end-users, or professional buyers, belong to and rely upon professional organizations for new ideas and dependable advice. Often these organizations are looking for meeting and conference presentations, as well as training opportunities on topics relevant to their members. While energy efficiency per se may not be perceived as a "hot" topic, it can be linked to topics that are. For instance, "best value" buying and E-commerce topics are of great interest within professional purchasing groups – a natural place for energy efficiency to fit in.

➤ **Use mechanisms within existing professional networks – web pages, list servs, newsletters, training programs, conferences, chapter meetings, users' groups, and trusted "energy champions" – to inform members about the relevance of energy efficiency and how to include it in purchasing specifications, the availability of products, and the presence of existing energy purchasing initiatives (e.g. Energy Star).**

➤ **Work with purchasing groups to conduct joint competitive bids for specific energy efficient products, so that individual organizations can obtain**

competitive prices and better access to particular energy efficient products. Get energy efficient products on master contracts that many organizations can access.

➢ Leverage the resources of other initiatives that support energy efficient practices in public organizations, including energy managers, resource managers, energy efficient new construction programs, and utility, non-profit, and Federal programs.

➢ Identify and work with major vendors to public agencies to offer energy efficient products.

Encouraging and Facilitating "Imitation"
The processes of imitation work on two levels. First, the approaches and benefits of buying efficient can be made visible through successful demonstrations. Second, an infrastructure of reliable, accessible information about products must be built. This includes developing awareness among purchasers and policy makers of how to specify, identify, and buy efficient products. Electronic media (E-commerce) is likely to become a popular route for conveying information, experience and advice about efficient purchasing.

➢ Conduct targeted pilot projects at specific high profile organizations to develop and demonstrate organizational models for purchasing energy efficient products. Disseminate results.

➢ Help key actors develop networks of energy efficiency champions (such as RMs) within their organizations.

➢ Support development of organizational models that demonstrate the value of energy efficient purchasing to public organizations.

➢ Make information on energy efficient products and their performance readily available from trusted sources

➢ Make buyers and organizations aware of existing suppliers of energy efficient products so that they can access them through existing purchasing procedures.

➢ Make energy efficient products easy to identify (i.e. using labeling) and show how they compare to similar products along a number of key product characteristics (i.e., not just energy efficiency).

➢ Work with existing groups and, if warranted, support new groups – including users, manufacturers, and suppliers – to develop comprehensive product specifications and contract language that include energy efficiency. Make these available through existing networks and sources.

Conclusions

We believe that public purchasing in the Northwest can incorporate energy efficiency considerations to a much greater extent. Attention to energy costs and energy related

environmental impacts is already taking place in some government agencies, and there is considerable potential for greater penetration of high efficiency products. Success will require that a variety of efforts be coordinated to reach all organizational levels.

The strategies we recommend are intended to encourage long-term organizational change towards more energy efficient buying. They provide guidance to individuals and organizations planning and developing programmatic initiatives to encourage energy efficient buying. We have identified trends, leverage points, and strategies that should be incorporated into program conceptualization and development efforts. The process of program development needs to include actors within professional networks and at leading public organizations. Developing initiatives within this framework will result in efforts that are well targeted and that best take advantage of existing resources and leveraging opportunities.

Several trends, such as interest in "good government" (best value purchasing), concern for the environment, and the development of pro-environmental public policies, offer important opportunities to associate energy efficiency in purchasing with politically potent issues. Policies that support these trends, along with professional acceptance of energy efficiency as an important purchasing criterion, are required for the desired organizational changes to take place.

However, other trends (e.g., E-commerce) suggest that strategies will also need to be targeted at end users and mass-market vendors—those actors involved in the bulk of routine purchases of energy-using goods. Since energy does not concern most end-users or vendors, strong emphasis on the quality, safety, and reliability attributes of energy consuming goods will be needed. Manufacturers and vendors must also have an adequate supply of high efficiency products readily available at comparable prices and quality.

We believe encouraging energy efficient purchasing will foster efficiency in other parts of public organizations and outside of them as well. For instance, adherence to energy efficiency in purchasing could lead to a wider "standard practice" of energy efficiency in building design. Changes in how public agencies purchase can also help induce changes in the types of products that manufacturers develop and vendors offer, since vendors and manufacturers will notice the preferences of these large buyers. In this way, the impacts of organizational changes in buying habits extend beyond public purchasing.

Contents

Chapter 1 – Background and Methods

Study Context and Purposes

The federal government is the single largest consumer in the United States, spending over $500 billion per year on products and services, while state and local agencies spend over $900 billion per year on these purchases (Slater and Strawser 1999). The Federal Energy Management Program estimates that $10 to $20 billion per year of federal purchases are for energy related products.[2] A similar estimate does not exist for state and local governments, although data are available on purchases of durable and non-durable goods and investments in structures and equipment, which total $262 billion per year (U.S. Bureau of the Census 1998). Even if only a small fraction is used for energy consuming products, public agencies expend tens of billions of dollars each year on items such as light bulbs, copiers, and HVAC systems. They also hire services that affect efficiency, including architects and engineers for new buildings and maintenance contractors for existing facilities. Clearly, in how and what they buy, public agencies can be more or less energy conscious. And, this consciousness will affect how markets for energy consuming products develop and how much energy is ultimately consumed (and saved).

The experience of those who have tried to intervene on behalf of energy efficiency in the marketplace repeatedly shows that it is essential to be market-sensitive – that is, to understand the whole context in which the target audience operates. In the case of the current research, that means understanding the milieu, motivations, and actual practices of those who buy goods and services – especially energy related goods and services – for public agencies in the Northwest.

An interdisciplinary team of researchers, in conjunction with and on behalf of the Northwest Energy Efficiency Alliance (Alliance), conducted this research to:

➢ Better understand how public agencies in the Northwest routinely buy products and services;

➢ Ascertain where, when, and how energy efficiency enters into those buying decisions; and

➢ Identify workable strategies to encourage public agencies to buy higher efficiency products and services, including office equipment, building equipment, new building design and equipment, and operations and maintenance services.

Research Design

This research was conducted in two major phases, with the results of the initial phase being used to guide the subsequent phase. This plan called for a review of existing research on procurement and interviews with key informants (Phase 1), followed by a traditional survey of procurement officers representing up to a hundred public agencies throughout the Northwest in Oregon, Washington, Idaho, and Montana (Phase 2).

However, the results of Phase 1 suggested that:

➢ Public agencies generally do not use energy efficiency as a key criterion in choosing what goods and services to buy. However, some public agencies have developed successful green purchasing policies and programs, especially with recycled content goods.

➢ The standard model used to frame most past research has assumed that procurement is a rule-based, top-down process carried out by individuals who are rule-bound and who act fairly independently of other organizational actors and influences.

➢ Based upon our key informant interviews, many procurement processes may be more flexible, variable, and complex than the standard model, suggesting that other approaches to encouraging energy efficient purchases may be possible and useful.

➢ Trends toward decentralized purchasing and electronic commerce may significantly alter procurement practices.

➢ The standard procurement model has guided efforts to encourage the purchase of energy efficient products. Relying largely on directives from the top and rewritten procurement guidelines, these efforts have met with limited success.

These findings suggested it would be useful to develop an in-depth picture of both procurement processes and potential interventions to encourage greater energy efficiency in product and service choices. The research team then revised its plan to focus on these topics:

➢ The existence of, or potential for, more flexible procurement models within target organizations in the Northwest, including those that have successfully incorporated green purchasing practices;

➢ The opportunities to encourage energy efficient purchases of office equipment, building equipment, and O&M services within this wider procurement context; and

➢ New purchasing trends such as decentralization and electronic commerce (E-commerce).

Research Methods

Overall Approach

The methods used in this research depart from methods commonly used in previous procurement research. This research has traditionally relied on quantitative techniques, including:

➢ Surveying one person to represent a whole organization, although more than one person may be involved in purchasing decisions;

➢ Using quantified results to emphasize majority views, even though minority views may be important to understanding how energy efficient purchasing can be encouraged; and

➢ Assuming codified procedures accurately represent how purchasing is actually conducted.

The approach we used for this research was more qualitative and descriptive in nature, allowing the research team to:

➢ Represent organizations through interviews with a network of contacts within an organization;

➢ Qualitatively catalogue the diverse purchasing practices regarding green products and energy consuming products;

➢ Describe how actual practices departed from codified procedures;

➢ Describe where opportunities exist to encourage the purchase of energy efficient products; and

➢ Use additional interviews (such as with vendors) as well as secondary research to augment insights about purchasing trends (e.g., decentralization, E-commerce).

Our approach to conducting the organizational analysis included these steps (described more fully in the sections that follow):

1. Constructing the sample of target organizations;

2. Establishing key contacts within those organizations;

3. Creating an interview guide;

4. Collecting field data from key contacts and their referrals;

5. Conducting additional interviews and researching secondary research sources on topics related to our primary data collection efforts; and

6. Analyzing and reporting on data within and across organizations.

Constructing the Sample

We developed an initial list of organizations using recommendations from key informants, research team members, and the Alliance. To develop an appropriate mix of organizations, we considered:

➢ Different types and levels of public agencies;

➢ Public agencies across the four-state region;

➢ Different types of experience with purchasing green products; and

➢ The presence of existing contacts within that organization.

The sample of individuals or groups to contact and interview within each organization was constructed through an ongoing networking process, beginning with contacting and interviewing an initial key contact in each agency (see next section) who was then asked to refer the interviewer to other contacts. This sampling method, also known as "snowball sampling," was intended to establish trust and rapport and to provide interviewers with access to professional networks. This method also helps the researcher to gain an understanding of the overall market system, which for this research includes a dense network of suppliers, vendors, colleagues, policy makers, and advocates.

In all we interviewed, in depth, 77 individuals across 17 public agencies in the Northwest, as shown in Table 1. The agencies chosen included one federal facility, two state governments, three counties, one independent municipal corporation, five cities, four universities, and one school district. Eight agencies were in Washington, four in Oregon, three in Montana, and two in Idaho. Interviewees included purchasing managers and staff, chief administrative officers, facilities and construction managers, equipment managers, and energy and resource managers.

Establishing Key Contacts

As the sample was developed, we set out to identify and establish key contacts within each agency. Members of the research team called potential organizations to start this process. These contacts and interviews were especially important, for it is through this person that the team:

➢ Confirmed the types of insights and experience the organization was likely to offer;

➢ Confirmed if the organization was likely to cooperate in the research;

➢ Established the rapport and trust needed for networking throughout the organization; and

➢ Gained initial feedback on the types of questions to ask others in the organization.

Table 1. Agencies by Name, Type, Location, and Number of Interviews

Agency Name	Agency Type	Agency Location	Number Interviewed
1. Boise School District	School District	Boise, ID	4
2. City of Burien	Medium City	Burien, WA	1
3. City of Missoula	Large City	Missoula, MT	1
4. City of Portland	Largest OR City	Portland, OR	17*
5. City of Seattle	Largest WA City	Seattle, WA	3
6. City of Tacoma	Large WA City	Tacoma, WA	3
7. Fort Lewis	Federal Military base	Tacoma, WA	6
8. King County	Largest WA County	Seattle, WA	5
9. Missoula County	County	Missoula, MT	1
10. Multnomah County	County	Portland, OR	2
11. Seattle Housing Authority	Independent Municipal Corporation	Seattle, WA	7
12. State of Oregon	State	Salem, OR	2
13. State of Washington	State	Olympia, WA	8
14. University of Idaho	University	Moscow, ID	4
15. University of Montana	University	Missoula, MT	2
16. University of Oregon	University	Portland, OR	3
17. Washington State University	University	Pullman, WA	8
The Consortium of Energy Efficiency helped support research at the City of Portland, allowing a more in-depth analysis of this organization.			
Summary: Table 1			
17 agencies	**1 Federal Regional** **2 States - WA, OR** **1 Independent Municipal Corp.** **3 Counties - WA, OR, MT** **5 Cities - WA, OR, MT** **4 Universities - WA, OR, MT, ID** **1 School District ID**	**8 WA (1 federal)** **4 OR** **3 MT** **2 ID**	**77 In-depth interviews**

Developing the Interview Guide

In conjunction with the Alliance, the research team prepared an interview guide for use during the in-depth interviews (see Appendix A). The guide introduces and frames the topic for respondents, and lists a series of open-ended topics and questions that interviewers could tailor to the situation of each respondent. These five major topic areas guided the interviews:

1. **Overview.** What is your job title and role in your organization? How does your job relate to purchasing products and services? How centralized/decentralized is purchasing?

2. **Competitive Requirements.** As we understand it, most governmental bodies require that purchasing meet certain competitive requirements. What are these requirements in your organization? How do these requirements affect purchasing?

3. **Specification Development.** How are specifications (specs) developed for products and services?

4. **Green Purchasing.** In your organization, do you know if formal or informal approaches have been developed to meet environmental requirements, such as saving energy or water, or buying recycled content products? How are specific energy consuming products and services bought? What would you suggest for encouraging more attention to energy efficiency in buying products and services?

5. **Trends to Watch.** What trends, such as electronic commerce, do you see as being important for purchasing in your organization over the next few years?

Collecting Field Data

Pairs of researchers conducted interviews with the targeted organizations. Where possible, interviews were conducted in-person with both researchers present so that the fullest picture of purchasing could be constructed. To enhance communication among the researchers, a different pair of researchers was assigned to each organization and the overall research team regularly spoke with each other to share ideas and directions.

Interviewers worked from the core interview guide with the understanding that they could pursue other relevant topics and implement alternative data collection approaches. They were also responsible for gathering relevant documents and background information (e.g., copies of green ordinances and samples of procurement master contracts). The goal of this interviewing process was to obtain a complete picture of procurement processes and possibilities within each organization and, if possible, also foster interest in energy efficient procurement.

Added Interviews and Secondary Research

We supplemented the primary interviewing within public organizations with four outside interviews with vendors of energy using equipment and with representatives from the Federal Energy Management Program. Our secondary research also allowed us to gain a larger picture of key trends and features of the procurement process. Topics of particular interest for the secondary research effort included decentralized purchasing; E-commerce; purchase of recycled products; roles of peer organizations; roles of manufacturers and vendors; and programs or initiatives to encourage energy efficient purchasing.

Analyzing and Reporting

Interviewers took detailed notes during their interviews and used these notes to develop summaries about each organization. These summaries presented key findings and categorized information into the five major interview topics. The interview notes and summaries, along with the results of additional interviews and of secondary research, form the basis of this report. We have tried to accurately portray the rich and insightful data that that the 17 agencies provided to us. Since this is qualitative data, however, care should be taken in generalizing these findings to all public agencies in the Northwest.

Chapter 2 - Public Procurement in the Northwest

This chapter tells the story of how public procurement works in the Northwest. An overview of the general patterns of public procurement in the Northwest begins this chapter, followed by a more detailed look at the variations within those patterns. The overview discusses the interweaving of key factors in procurement. More detail about how these factors vary follow in separate sections, serving to remind us that good solutions for how to encourage energy efficient purchases will likely need to be tailored and multi-faceted.

Overview of Patterns of Public Procurement

To capture the story of purchasing, it is important to see both the forest and the trees. The 17 agencies we studied do have common threads. At the same time, this research shows that public sector buying patterns are variable, complex, and only somewhat predictable by type or size of public institution or by the types or dollar amounts of purchases being made.

Purchasing systems also appear to be subject to many influences and likely to change over time. Thus, while each agency in this study had purchasing rules, their procurement systems did not tend to be rigidly rule-based. Indeed, our study shows that the changing preferences of end-users and policy-makers, changes in product and service suppliers and how they are accessed, and changes in product choices and technologies also strongly affect purchasing behavior. Thus, just changing the rules will not necessarily change procurement practices. (Notably, professional purchasing officers who enforce the rules do pay more attention to "the rules" than the many people who informally buy products and services. Since much prior research focused on professional purchasers, the importance of rules may have been overemphasized.)

Keeping in mind, then, the variability of procurement approaches, here is a picture of the patterns of purchasing most commonly found in Northwest public agencies.

Formal Purchasing

The perspective that purchasing is driven by rules may be related to the awarding of large contracts, generally above $25,000. These processes are often more standardized, specified, and visible due to documented competitive bidding requirements, written Invitations For Bid (IFB) and Requests For Proposals (RFP) that include the product and service specifications and criteria for evaluation, and the involvement of central purchasing authorities. Sometimes this process is directed to a one-time contract; at other times, the goal is to create a master, long-term contract that can have multiple vendors. Thus, it may seem that this type of buying encompasses much of what is being spent. This type of buying offers opportunities to have energy

efficiency, life cycle cost analysis, and other green purchasing requirements clearly specified and standardized.

Informal Purchasing

Individual buyers housed in separate departments regularly make many smaller purchases that, added together, are substantial. Three types of purchasing are included in this category:

➢ Petty cash, where very small purchases can be made quickly;

➢ Direct buying, where the dollar limits range up to $5,000 and where little or no competition and no central purchasing approval is required; and

➢ Informal competition with dollar limits up to $50,000, where up to three informal bids by telephone or letter are required, and where a central purchasing authority may have some involvement (largely administrative). Where informal bidding is conducted, competition is limited and can be managed to favor a preferred vendor or product.

Replacement products are often bought through informal purchasing avenues, including many products that consume energy (such as light bulbs, office equipment, and motors). While this buying approach may be less documented and less consistent, it also allows the "champions" of innovative, efficient, or "green" products and services to surface. Although this buying is informal and can end when the buyer leaves the agency, it is possible that the views of these champions may become adopted and normalized over time.

New Construction

Purchasing for new construction and large retrofit or remodeling projects (an important arena for ensuring energy efficient purchasing) is often managed differently and separately from other types of purchasing. For instance, the State of Washington centralizes the purchasing authority for these projects under the Department of General Administration's Division of Engineering and Architectural Services. These projects are usually high cost, long-term, complex, and unique.

The purchasing process tends to be quite formal and well specified for acquiring the services of a project design team (e.g., architects and engineers). Once selected, these external consultants often work in concert with in-house design and engineering staff; however, the relative influence of each group varies by organization and project. The project architects and engineers specify much of the material and equipment that is purchased. These specifications are subject to relevant codes, standards, and standard practices.

The building design is then packaged into a formal invitation for contractors to bid on the construction. This formal process is conducted and the winning contractor is selected to construct the building. This contractor is responsible for purchasing all of the building components according to the specifications in the building design. The contractor, or subcontractors hired by the contractor, buys the components of the building and does

the construction. (There are variations on this design-bid approach to new construction projects, but in all cases the purchasing is done through the contractor. In a design-build approach the designer and contractor are part of the same team (or firm) and are hired by the purchasing entity at the same time.)

Under the auspices of the general contractor, the purchasing of building components can be much more informal since it is outside the public organization's purchasing processes. The long-term, variable nature of much construction usually includes substitutions and change orders. During construction, energy efficient products are sometimes replaced with lower cost, less efficient products due to budget constraints.

Operations and Maintenance Services

Many of the organizations we talked with – which tended to be large – conduct day-to-day maintenance activities with in-house staff. The few smaller organizations we talked with in our study have fewer staff and hire more outside services on an as-needed basis. When agencies need expertise beyond what is available in-house, they hire that service. Specialized services might include the handling of hazardous wastes, dealing with emergency situations, and the maintenance of specialized equipment.

Agencies have the latitude to hire special services based on qualifications, not just on price. The methods used to hire these services include: hiring on a one-time basis; through a master contract; as part of a service agreement (that is part of the purchase of the equipment); or through developing a list of qualified providers through a request for qualifications.

Other Purchasing Alternatives

Four other types of purchasing approaches are commonly used by public agencies:

➢ Using master contracts developed by other agencies. Local governments often "piggyback" on the contracts of other local governments or make use of state master contracts. These contracts are developed using formal purchasing guidelines for the initiating government; these guidelines may or may not match the purchasing requirements of those who piggyback.

➢ Developing in-house annual supply contracts or master contracts. This mechanism also creates a master contract, but it is developed using the agency's rules, and is often mandatory across all departments within an agency, even for small purchases.

➢ Developing cooperative purchasing arrangements. By banding together, agencies can leverage their buying power. In cooperative buying arrangements, agencies agree upon specifications and competition requirements.

➢ Emergency purchase procedures. Emergencies can invoke exceptions to normal buying procedures. Emergency buying focuses on speed and solving the problem rather than on formal competition, detailed specification, and extensive documentation.

Key Variables in Purchasing

In all agencies we interviewed, the following factors affected purchasing. Many of these factors tended to interact with one another in the buying of products and services:

Laws, Regulations, Rules, Policies, And Authorities

This study tried to understand what rules were important – both written and unwritten – for each purchasing operation. We did not focus upon cataloguing the specifics of the variety of laws, regulations, rules, policies, and authorities that could affect purchasing activities in the public agencies we interviewed.

In general, rules are part and parcel of procurement activities because governments need to be able to document and justify how they spend the public's money. Public agencies operate under a variety of formal rules, regulations, and ordinances regarding purchasing. These rules set both the specifics of purchasing procedures and the agency's view toward purchasing activities. Every agency has its own rules, but each may also be affected by the rules from other agencies – especially from one level of government to another (e.g., federal to state to local governments).

More specific drivers behind operative rules and regulations include:

➢ Ensuring a consistent, fair and competitive environment for purchasing;

➢ Ensuring access to a variety of vendors;

➢ Complying with specific initiatives such as use of Minority and Women Owned Businesses or the purchase of recycled content products;

➢ Meeting community values;

➢ Promoting streamlined, efficient, and timely purchasing;

➢ Ensuring efficient tracking of contracts, purchases, and stores;

➢ Meeting the requirements of users;

➢ Getting the best price for the product specified; and

➢ Avoiding fraudulent or wasteful activities.

Rules in one jurisdiction can directly affect purchasing at other jurisdictions, when:

➢ Local agencies use federal or state money;

➢ Local agencies make use of master purchasing contracts or cooperative agreements established by several jurisdictions; and

➢ A law at a higher level applies to purchasing in all local level public agencies. For instance, in one state, we found that state law requires that all public agencies solicit formal bids for all purchases over a certain amount.

Despite the web of rules that may surround purchasing, interpretation and application of those rules may vary greatly. For instance:

➢ Many smaller purchases (such as those below $5,000) do not need to comply with the same constraints placed upon larger purchases;

➢ Ordinances can be ignored. In several of the agencies interviewed, an ordinance was passed to give preference to buying recycled content products. However, for a variety of reasons, this ordinance was not enforced over time;

➢ Buyers may exercise competitive rules in more situations than is actually required;

➢ Individuals (champions) can choose to promote certain types of buying (e.g., green purchases) independent of organizational rules;

➢ Politicians can intervene in purchasing practices;

➢ Central purchasing authorities may oversee purchases, even those they are not required to handle, because users request their help; and

➢ Use of master contracts from other jurisdictions might mean different rules are in place than those of the initiating jurisdiction.

Meeting Competition Requirements

Most public agencies in the Northwest are required by policy, laws, regulations, and ordinances to purchase competitively under certain conditions. (Greater requirements for ensuring competition are one of the major differences between public sector and private sector purchasing.) The goals of these requirements are to ensure a variety of vendors, no special treatment to specific vendors, and competitive prices for the products and services desired. However, competitive requirements vary greatly by the cost of the purchase, the type of product purchased, and the user needs and vendor relationships that have developed over time.

Ensuring competition was important to the purchasing philosophies of the agencies in this study, but as this section illustrates, it received more or less emphasis depending upon the following types of factors:

➢ The value of the purchase;

➢ The type of product being purchased; and

➢ The availability of an existing contract for the desired item.

Even where formal competition is not required, most public agencies say they support a competitive environment where they encourage a variety of vendors to bid on goods

and services. The agency then evaluates the bids and acquires the good or service from the "lowest responsive and responsible bidder." This commonly used phrase is interpreted in terms of the specifications in the request for bids and can produce different results: from acquiring products at the lowest first cost, to including the maintenance, fuel, and environmental costs of a product, to weighting qualifications over cost.

Each agency interviewed in this study had specific guidelines for purchasing products and services at different dollar amounts; at each level, competitive requirements were different. Agencies had three or four levels of purchases that, in general, corresponded to low, medium, and high dollar values. Dollar limits might change with the type of purchase being made – for instance, construction limits might differ from limits on commodity purchases. (Note: Besides competition, dollar limits also are part of the overall system of controlling purchases.)

Table 2 outlines four levels of purchasing, the range of dollar limits associated with each level, how purchasing at each level is typically handled, and alternative purchasing methods that might be employed unrelated to any specific dollar level. As shown in the table, the four possible levels of purchasing within the 17 agencies we interviewed included:

1. **Petty cash.** Emphasizes buyer autonomy, no competition, and few procedures. Petty cash is used for small, immediately needed purchases.

2. **Direct buy.**   For less expensive purchases, but with limits ranging up to $2,500 or $5,000. Direct buy procedures are informal and emphasize individual buyer choice, often with required departmental approval. Although competitive thinking is assumed, competition is rarely documented. Direct buy also may use easy purchase methods, such as credit cards and purchase orders. It is an important category for this study since many energy-consuming products are likely to be purchased this way.

3. **Informal competition.**   For intermediate dollar purchases, but among the 17 agencies, the range was wide ($1,000 to $100,000). Informal competition usually requires at least three informal bids and ultimate approval by a central purchasing authority. As with direct buying, informal requirements can result in buying patterns that depend on individual or collective past experience that can limit innovation. On the other hand, a less formal approach can encourage innovation and flexibility, allowing new types of products and services to be tried and champions of innovation to surface (e.g., for green purchases or for energy efficiency).

4. **Formal competition.** For higher dollar purchases, usually $25,000 and up. Formal purchasing requires multiple sealed bids and involvement of a central purchasing authority. It requires a written specification process, usually a cooperative effort between end-users and the central purchasing authority. This

can result in high end-user satisfaction and a thorough exploration of the marketplace and of innovations. However, the process can be time consuming and disconnects can occur between the end-user and the central authority.

Notably, as shown in the third column of Table 2, public agencies employ a variety of alternative purchasing methods, such as piggybacking off of master contracts developed by other jurisdictions, and using emergency buying procedures. These mechanisms can change the competitive nature of the purchasing being done. In the case of using master contracts, the jurisdictions or central purchasing departments developing the master contracts would set the competition requirements. In the case of emergency buying, competitive rules are likely to be relaxed.

Table 2. General Competition Parameters for Purchasing

Type of Purchase	Dollar Limit Range and Exclusions	Procedures/Authorities/ Requirements	Other Purchase Methods
Petty Cash	Generally below $100, often combined with Direct Buy level	Employee choice, no competition required, decentralized in department	➢ Use of master contracts developed by other jurisdictions, most often states
Direct Buy	From $0 - $5,000, with the top limit varying from $800 to $5,000. Professional services and construction might be excluded. State universities might have different limits than other state agencies.	Employee choice, decentralized in department. May require department approval. Little bidding, although 3 quotes may be technically required. Must comply with relevant policies /laws. Use purchase orders (LPO), purchasing cards. Master contracts may supercede direct buying.	➢ Developing in-house master or annual supply contracts, which may be mandatory for departments
Informal Competition	From $1,000 - $100,000, with many variations.	Up to 3 informal written or telephone bids /quotes. Usually central purchasing involved, although department may lead.	➢ Use of cooperative purchasing groups to increase buying power
Formal Competition	From $25,000 up.	Formal IFB/RFP sealed bid, competitive process, often with a central purchasing authority leading the process although specifications usually developed with end-users.	➢ Emergency buying procedures

Table 3 underscores that there is much variation in the specifics of how competition guidelines are structured. This table shows more specific examples from the 17 agencies covered in this study and highlights the diversity that can occur.

Table 3. Examples of Competitive Structures

Dollar Ranges and Limits	Procedures/Authorities	Other Purchase Methods
Large City A • Under $5,000; <$100, petty cash • $5,000-$41,000; professional services up to $19,000 • Over $41K; for construction, begins at $25K; for professional services begins at $19,000	• Departments purchase using limited purchase order (LPO) or City Card, but must meet overall regulations and policies • Department sends purchase requisition to Purchasing which gets 3 informal quotes, chooses vendor, and creates purchase order. • Purchasing oversees formal competitive bid process, dept. approval and requirements	• About 200 annual supply contracts for large quantity purchases across bureaus • State purchasing contracts • Emergency Purchase Orders
Large City B • <$1,000 • $1,000 - $5,000 • Over $5,000; more formal when over $25,000	• Employees choose, submit P.O. to Purchasing • Departments solicit 3 bids; forwarded to Purchasing for approval • Purchasing runs process. Ads for bids for >$25,000; smaller bids listed w/ Purchasing	• Establishes master contracts or uses contracts developed by others
County A • <$2,500, $1,000 for Solid Waste • >$2,500 - $25,000 • >$25,000	• Anyone can buy anything • Purchasing requires 3 informal quotes • Formal sealed bids through Purchasing	• Blanket contracts for some commodities – may be mandatory use
County B • <$2,500 • $2,500 - 50,000 • >$50,000	• Department discretion • Buy off County/State contracts or may buy via Purchasing using informal bids • Purchasing handles competitively bid process	• County and State master contracts • Inter-Cooperative Purchasing Group
Independent Municipal Corp. • Up to $2,000 • $2,000-$100,000; $0-$40,000 for construction • Above $100,000; $40,000 for construction	• One informal phone bid required • More formal RFQs; 3-5 phone or written bids • Sealed bidding process through purchasing	• Piggybacking on State and City contracts
State (excludes universities) • $0-$800 • $800 - $35,000 • >$35,000	• Direct Buy: Obtain desired quality at lowest price • Informal Request, for quote to at least 3 bidders • Formal RFP or IFB	• State master contracts used by state agencies and others; use may be mandatory

Centralization Versus Decentralization

In its pure form, decentralized purchasing means a buying structure where individuals, departments, or bureaus handle the purchasing process and no central purchasing department exists (although each follows similar regulations and/procedures). Centralized purchasing, on the other hand, means that buying is accomplished through a central authority, and follows an established set of steps.

In the 17 organizations we studied, most agencies combined aspects of both decentralized and centralized purchasing. The two mid-size cities in the sample, however, had no centralized purchasing authority. Consistent with the criteria described in the "Competition" section above, the use of a centralized authority generally depended upon the cost and type of the purchase as well as the philosophy of the organization. Centralized purchasing authorities are usually used for more expensive purchases and to develop master contracts, while decentralized methods are used for less expensive products and services. Decentralized purchasing can be subject to fewer competitive requirements and puts most responsibility in the hands and judgement of end-users. It is important to note that tension can exist between proponents of these two approaches to buying.

When a centralized purchasing department is involved in purchases, its major role varied considerably among the agencies. These roles including serving as a:

➢ Service bureau with largely administrative responsibilities, with end-users having the greatest say in what is purchased;

➢ Central player involved in helping end-users develop specifications and accomplish the bidding/decision process, especially for more costly purchases; or

➢ Support to end-users in terms of education and training.

The degree of centralization/decentralization can change over time within public agencies (depending on changes in leadership). Many of our respondents mentioned it as an ongoing issue, since buying through a centralized authority often meant a less responsive route to buying, involving more time, more steps, and more paperwork. State universities in particular seemed to mention their push to have a buying authority separate from state central purchasing authorities. However, there were concerns about decentralized buying because it was harder to track what was occurring and the extent to which purchasing was being done in a consistent, fair, and cost-effective manner.

Perceptions about the level of centralization, and the value of a centralized purchasing authority also varied. In some cases there appeared to be good cooperation between the end-users and centralized departments. In other cases, end-users were not aware of the resources available through the central authority or they saw the central authority as a bureaucratic structure to work around.

Outsourcing Versus Insourcing

Public agencies can either provide services within their own organizations or they can contract them out to other organizations. Outsourcing involves using private sources to deliver internal government services as well as citizen services.

Among the organizations we interviewed, the range of service delivery was wide. One medium-sized city outsourced almost everything, from meeting internal printing needs to contracting out for utility and fire services. On the other hand, many of the larger organizations we spoke with kept the majority of these services in-house and outsourcing was limited to services requiring specialized expertise (such as hazardous waste handling, specialized equipment maintenance, or unique legal issues).

Outsourcing tends to remove the public agency from specifying the products and services that the contractor uses, leaving those decisions up to the contractor. Therefore, even if an organization wanted to use green or energy efficient products and services, this requirement could get lost when the purchasing is in the hands of an outside contractor.

How Specifications Are Developed

Product and service specifications are at the heart of any purchase, regardless of its size or the purchasing procedures followed. However, the type of specification used (see below), the extent to which specifications are formalized, and the number and type of people involved in specifying any particular purchase varies widely. Purchasing specifications can range from being a brand and model specification to a complex set of written performance standards, i.e., for building a new wastewater treatment plant.

In general, the purpose of specifications is to clearly, concisely, and unambiguously describe the purchase requirement in terms of the minimum quality level required to perform the intended function. Three basic types of specifications are generally used by public agencies, with a fourth type being a combination of the first three. These approaches include:

1. **Brand or trade name specifications.** In this approach, the purchaser specifies a specific brand name and model number to describe the minimum standards of quality required for the purchase. Competition among brand names is obtained by adding the phrase "or equal" after the brand name. This type of specification is the quickest and easiest way to describe the requirement and is often used for lower dollar purchases.

2. **Design specifications.** The purchaser describes the item in terms of its dimensional and physical characteristics. Design specifications focus on how an item or product is to be manufactured or constructed. Professional design assistance is frequently required and the specifications often convey the thinking of the architect or engineer involved. Engineering drawings often accompany this type of specification.

3. **Performance/Functional specifications.** The purchaser describes in words the function that the item or product is to perform. This type of specification is more concerned with what the product does than with its dimensions, materials, and configurations. Suppliers are encouraged to innovate and use technologically advanced processes to meet the purchaser's requirements.

As mentioned above, these specification approaches can be combined; however, the more detailed and complex the specifications become, the greater the cost of specification development. During the course of this research we were told about specification development processes that lasted six months or more.

Within the organizations we studied, the end-user of a product or service is usually involved, at some point, in developing specifications, whether the process is decentralized and less formal or centralized and more formal. When an existing piece of equipment needs to be replaced, and its cost allows informal purchasing, end-users tend to replace the item with a similar or identical unit. No specifications are written beyond the purchase order.

Where larger purchases are planned, and a central purchasing authority is involved, that entity may either lead specification development or it may assist end-users in developing them. Often a team of end-users is organized to develop specifications so that all user needs can be identified. Existing specifications for similar products are a common starting point for specification development. Central purchasing may also begin the process by gathering sample or model specifications from other jurisdictions, websites, or professional organizations. For master contracts and annual supply contracts, central purchasing entities often have more influence and involvement in specification development, and they tend to push more toward performance specifications. Where agencies use another organization's master contracts, they also use that organization's specifications; thus, end-users select among existing options.

Standards and standard practices – such as design, engineering or energy efficiency standards – can also influence specifications. These types of standards can particularly come into play for new construction projects where design, engineering, and technical requirements are high. Specifications can be developed by in-house design and engineering staff, by outside consultants and developers where in-house staff is minimally involved, or by an integrated collaboration of the two.

In a number of the jurisdictions we studied, individual departments had developed standards for some energy consuming products such as lighting and motors. These standards tended to be somewhat loose for replacement projects, and more defined for new construction or major renovation projects.

In a few of the agencies we interviewed, some progress has been made in moving toward "best value" bidding. In these cases, a best value product would be specified and then the lowest bid for that best value product would be chosen. A best value perspective allows for the consideration of multiple variables such as price,

maintenance and energy costs, staff training, and internet ordering capacity within the specification.

Agency Culture and Outside Influences

All purchases take place within a complex social/professional/market context, where experience, professional networks and standards, organizational culture and values, organizational hierarchy and bureaucracy, and the changing marketplace significantly influence government purchasing. Purchasing systems are dynamic, not static, but agencies vary quite a bit in their desire and ability to change and innovate.

Some of the agencies in this study thus have an approach and philosophy to purchasing that still works well for them and they are contemplating few changes. Others are now in the process of making significant changes to their purchasing approaches. Not surprisingly, larger agencies such as states and major cities tend to develop more complicated systems than do smaller ones. Further, these larger agencies appear to be the ones looking for ways to become more simplified, more responsive, and more efficient. Notably, they also have the resources to devote to orchestrating change.

Several types of internal actors can influence purchasing activities. These actors bring varying orientations to purchasing, including:

➢ **End users** – non-professional buyers who specify what they need and buy what they need (especially smaller purchases). Their primary job is to use what is bought. This group is more interested in the result than the process and may be at various levels in the hierarchy.

➢ **Purchasing officials** – the professional buyer whose job it is to make sure administrative procedures are followed and that end users are satisfied. They may also be responsible for educating end-users about the purchasing process. This group pays a lot of attention to the process. They are often housed in a central purchasing entity.

➢ **Political leaders and policy makers** – a generally non-buying group that nonetheless sets policies that can significantly affect what is purchased. They are interested in seeing measurable results or having memorable anecdotes from the policies they advocate.

Two sets of external actors also influence purchasing:

➢ **Professional networks and organizations** – serve as a source of information and example for all the internal actors listed above. For purchasing officials, these networks appear especially important.

➢ **Vendors** – serve as the supply side of purchasing. This group provides information and sells products to buyers. In government agencies, bureaucratic and competitive requirements often make this relationship weak, although these relationships may be quite strong for individual end-users.

Philosophy and new ideas in purchasing (see Chapter 4 on Trends) can also influence changes in the purchasing system, including:

➢ the desire to be more efficient;

➢ good government initiatives;

➢ the need to increase convenience – e.g., use of credit cards and electronic payment and tracking methods;

➢ developing websites to provide vendor and purchasing contract and product information;

➢ accessing vendor websites;

➢ investigating electronic commerce opportunities;

➢ finding ways to decrease the number of suppliers to be considered;

➢ considering best value instead of just low cost; and

➢ using more cooperative purchasing arrangements.

Public Versus Private Procurement

Although this study did not focus on private sector purchasing systems, several interviewees with experience in both the public and private sectors, pointed out a variety of similarities and their differences. What we learned from them, along with information from our secondary research efforts (notably from studies conducted by the Center for Advanced Purchasing Studies, or *CAPS),* is captured in this section.

Our interview findings support *Kolchin's (1990)* study across sectors (industrial, institutional, governmental, and retailing) that found public and private purchasing similar in their:

➢ Overall goals, and the processes to meet those goals (i.e., meeting the needs of users while doing so at the lowest possible cost);

➢ Combining of centralization and decentralization to organize buying activities;

➢ Use of professional organizations as an important mechanism to train and develop staff;

➢ Use of multiple strategies to improve purchasing practices; and

➢ View that cost-containment is the bottom line of "good buying."

Kolchin also points to some differences, also supported by our interviews. Compared to the private sector, government agencies:

➢ *Make greater use of detailed procedures* (i.e. government procurement is more complex, reflecting a more bureaucratic organizational structure, perhaps resulting in less innovation, less competition, and a slower pace);

➢ *Make greater use of buying cooperatives to leverage purchases*, largely because they often have fewer resources than private sector companies; and

➢ *Have a reduced focus on buyer-supplier relationships.* Developing strong, long-term buyer-supplier relationships is common in the private sector, to maximize cooperation and efficiency. However, due to competitive and other requirements that assume an arms-length stance, public sector purchasing emphasizes the buyer viewpoint rather than the relationship of buyer and supplier.

Chapter 3 – Public Sector Purchasing of Energy Consuming Products

This chapter characterizes the patterns and status of energy efficient buying among the Northwest agencies we studied. In this chapter we:

➢ Explore how two trends may directly encourage the purchase of energy efficient products;

➢ Discuss the patterns that agencies use to buy the three types of energy consuming products that are focused upon in this study;

➢ Present a snapshot of the 17 agencies and their current efficient buying activities;

➢ Summarize the advice respondents gave us for increasing energy efficient buying practices.

Two Trends: "Green" and "Best Value" Buying

Two trends – being "green" and buying for the "best value" instead of lowest price – are currently attracting government policy-makers, purchasing professionals, and end-users. (See Chapter 4 for further discussion of these trends.) Despite growing interest in these trends, attention to buying energy efficient products and services is not typical among the Northwest agencies we studied. This should not be surprising. Even when products consume energy, energy is rarely their "reason to be" or their most visible attribute. Indeed, energy use is hard to make visible and its connection to being green and to value buying is not straightforward. Agencies buy energy consuming products so they can make clear copies, get good light, or reliably run pumps. If these products happen to be green or save money by saving energy, those considerations are usually secondary or added benefits.

Most Northwest agencies appear to be more green thinking than green acting when it comes to purchasing, even though they may be quite environmentally proactive on other fronts (e.g., recycling programs). Except for a few notable cases, agencies do not routinely buy green, and any green buying largely depends on individual buyers who champion the cause. In addition, the buying of energy consuming products is largely decentralized, rests in the hands of many users, is informal, and often is not well documented, except for the largest purchases.

In the few agencies where being "green" is integrated with the purchasing system, or where resource efficiency has been mandated, energy efficiency concerns in purchasing still tend to pale beside more touchable and visible green buying, such as buying recycled content products. In some agencies, there even appeared to be competition among green causes for attention and support.

In general, purchasers say they want to meet user needs *and* get the lowest cost or the best value. Energy efficient products are rarely the lowest cost, but they can be part of getting the best value. For buyers to pay attention to energy use, it usually has to be connected with other things they find important such as better performance, less maintenance, a longer life, or a lower cost to operate. So, considering energy efficiency is both an extra step in thinking and a step removed from the most important reasons people have for buying a product in the first place.

Patterns of Energy Efficient Purchasing

Our study considered three categories of energy consuming products: office equipment, replacement equipment for existing buildings, and equipment for new construction. In this section, we explore how energy efficiency is considered (or not considered) in buying these products.

Buying Office Equipment

Energy consumption appears to have little importance for most buyers and users of energy consuming office equipment (desktop computers, monitors, printers, fax machines and copiers). Energy use is a hidden feature and other features – such as speed, friendliness, and reliability – are the attributes users want most. Vendors also do not tend to promote the energy efficiency of this equipment, but rather focus on matching user preferences.

In the case of computers, the Energy Star rating resides on many major brands, and buyers/users often end up with fairly efficient models without a conscious effort. However, we were told of several instances where energy efficient products have been purchased (e.g., Energy Star compliant computers and copiers), only to have their energy saving functions (i.e., powering down or sleep mode) never enabled, or disabled, because users say it wastes time to wait for machines to wake up.

Several patterns of buying exist for office equipment including:

➤ Buying as needed, or for quick replacement. Energy efficiency is unlikely to be considered. Products are purchased through direct buy and informal purchasing methods, where the purchases fall within the specified dollar limits. Departments or single users identify needs and preferences and specify what they want to vendors of their choice. In the case of computers, there may be a departmental information technology group that sets the specifications so that equipment is compatible.

➤ Buying off master contracts. This method has several variations, and may be the most amenable to including energy efficiency as a criterion. Central purchasing works with users across departments to define the specifications across a wide spectrum of users (some of which may champion energy efficiency). Centralized buyers may be more aware of the value of energy savings than individual departments or single users, and may pay more attention to trends, to professional

networks, and to agency policy. Agencies use master contracts to buy larger quantities of office equipment, and departments may be required (or may want) to purchase from a master contract, even for smaller amounts. The reasons for buying from a master contract include low price, technological consistency, and ease of buying.

➢ Buying by putting out formal bids. Departments or agencies may also pursue more formal bid processes for office equipment outside making use of master contracts. A centralized purchasing authority would likely be involved. If efficiency is raised as a concern, it could get considered as a specification in the bid.

Buying Equipment for Existing Buildings

Energy consuming equipment for existing buildings includes lights, motors, chillers, and HVAC equipment. For these products, energy efficiency tends to be secondary to considerations such as maintainability, lifetime, performance, safety, availability, and price. In addition, some buyers of energy efficient products have horror stories about their performance – like the lamps that burned out two weeks after they were installed.

For building equipment, the existing piece of equipment is the starting point for determining its replacement. If the replacement is urgent (e.g., a motor goes out), the time to consider alternatives is limited. In this case, direct purchase, or even an emergency purchase, would be used. With less urgent purchases, equipment for existing buildings would be obtained through the same methods described for office equipment.

Energy efficiency may be considered to the extent that the existing equipment is energy efficient (e.g., an existing motor was energy efficient), and thus similar equipment would be specified. This type of buying would not be able to take advantage of efficiency improvements due to technology advances. We found a few cases where energy efficiency standards (formal or informal) exist for lighting or motors. In a few cases the development of these standards was influenced by the organizations participation in a utility sponsored energy efficiency program (such as an energy efficient lighting program). These standards, however, did not tend to be organization-wide. In one city, for instance, an energy efficiency champion at the wastewater treatment facilities is in a position to develop, foster, and ensure standards within his department, but his expertise is not well known or used outside of his own department.

Buying Equipment for New Buildings

Lighting, chillers, HVAC equipment, pumps, motors and other energy using equipment for new buildings are included in this category. These products may be the largest and most long lasting investments that agencies make in efficiency. Fortunately, energy use may be somewhat more visible with new building equipment decisions because the whole building is being designed and analyzed at one time, not just its replacement parts. Some architects, engineers, and clients may consider operations and maintenance costs in their design due to the size of the project, due to high operation

costs of other buildings, or due to good experiences with energy efficiency programs for new buildings offered in the region for many years.

Other reasons public agencies may look at efficiency in new construction include:

➢ *Efficiency analysis requirements.* An energy life cycle cost analysis (ELCCA) is required in one state (Washington) for public buildings over 25,000 square feet, although it is not consistently applied (making it more of an opportunity than a requirement). Other agencies use life cycle cost analysis on a limited basis.

➢ *Utility incentives.* Some organizations have a lot of experience using utility incentives.

➢ *Performance standards for energy efficient products.* Standards varied from formal to informal, to none at all.

➢ *Quality needs.* Energy efficient products may be easier to maintain, last longer, and improve performance. These criteria are more likely to be considered if users/maintenance staff are included in the process of specification.

➢ *Sustainable/Green Buildings.* There may be an interest on the part of the organization to produce a showcase, sustainable building. This will usually result in design criteria that promote the use of resource efficient materials.

➢ *Building Commissioning.* This activity may indirectly encourage the purchase and application of efficient equipment.

New construction projects go through a bid process, but it is often handled outside of the central purchasing authority (for instance, by a department that oversees contracts for new construction). The contracting agent usually works with a departmental project manager to construct a bid package; this package includes design and equipment specifications (that could address energy efficiency). The project is then put out to formal bid with design/contractor firms, bids are submitted, and the winning team chosen.

The general contractor on the winning team does the subsequent bidding and buying of energy consuming equipment. Decisions regarding this equipment may change over time. Even if energy efficient equipment was originally specified, design changes, money constraints, delivery times, and other factors could result in change orders that reduce the level of energy efficiency of the equipment or systems built into the building.

Snapshots of Energy Efficient (EE) Buying

Success Factors

It might be helpful to imagine our 17 agencies as a scatter plot with a gently sloping upward line representing a continuum from "low" to "high" levels of energy efficient purchasing. Around this line, a few small agencies would be grouped at the low end, the bulk of the agencies would be dispersed around a wide middle, and several would

be hovering around medium-high. While we can generally group the agencies at these levels around this continuum, their individual points on the plot remind us that each agency has individual characteristics when it comes to energy efficient purchasing.

All the agencies we studied have more potential to buy efficiency. Some were strong in buying efficiency for new construction, but not for replacement or office equipment. Others stood out because of a strong commitment to the environment that appeared to be edging them toward energy efficiency. Still others were just getting started (e.g., had recently hired a Resource Manager), but they were moving in the right direction.

Our research suggests nine "success" factors for energy efficient purchasing within public agencies. These success factors are also entry or leverage points for market transformation efforts. In general, the more of these success factors, the more likely the agency is to take energy efficiency into account – or be poised to take it into account – when buying energy consuming products and energy related services. Success factors include:

> ➢ Top political, policy-maker, and/or citizen support for green buying or energy efficiency (Top Support);
> ➢ Active energy efficiency policies and/or resources (includes energy office, utility or other energy efficiency staff) (EE Policy/Resources);
> ➢ Active "green" policies or resources (Green Think/Act);
> ➢ Active Resource Managers (RM);
> ➢ Specific funding for energy efficiency or environmentally protective approaches (EE Funding);
> ➢ Strong user/buyer education about buying energy efficient (EE Education);
> ➢ Experience with energy efficient buying (EE Buying);
> ➢ Influential energy efficiency champions (EE Champions); and
> ➢ Use vendors promoting energy efficient or green products (EE/Green Vendors).

Tables 4, 5, and 6 show the extent of variation among the 17 agencies, to display their specific energy efficient purchasing attributes, and to connect the data from individual organizations with the factors listed above. The headings on each table reflect:

> ➢ *Type* of agency – i.e., city, county, state, federal;
> ➢ *Level* of energy efficient buying : low, low to medium, and medium to high;
> ➢ *Efforts* to buy efficient for: office, replacement, and new construction products, equipment, and services; and
> ➢ **Success factors** (see list with abbreviations above).

Top Tier Agencies (Medium to High Efficiency Buying)

Table 4 is a snapshot of the four agencies that had progressed the most in pursuing energy efficient buying. This table shows that a commitment to energy efficient buying practices can occur at any level of government

Notably, each of these agencies has at least six of the nine success factors, with all having these four factors: top down support; energy efficient policies and/or resources (e.g., a federal energy mandate, an energy office); available funding for energy efficiency efforts; and experience with buying energy efficient products. Three of the four had a strong overall environmental ethic that they had built or were consciously trying to build. Three also had an active Resource Manager.   More detail about two of these agencies is given in examples following the table.

Table 4. Snapshots of Four Top Tier Agencies (Medium to High EE Buying)

Type	Level of EE Buying	Effort: EE Office Equipment	Effort: EE Existing Equipment	Effort: EE New Buildings	Success Factors
University	Medium to High	Energy Star computers	EE regularly considered for lighting, HVAC	Overall resource conservation, including energy efficiency, routinely included; LCCA	➢ Top Support ➢ EE Policy/Resources ➢ Green Think/Act ➢ Active RM ➢ EE Funding ➢ EE Education ➢ EE Buying ➢ EE Champions ➢ EE/Green Vendors
County	Medium to High	EE computers awarded extra points in bid process	RM works with maintenance staff to optimize efficiency	RM works with vendors to ensure high efficiency in new buildings and major renovations	➢ Top Support ➢ EE Policy/Resources ➢ Green Think/Act ➢ Active RM ➢ EE Funding ➢ EE Buying ➢ EE/Green Vendors
Federal	Medium to High	Energy Star computers/ printers; Bulk purchase of EE h-axis washers	Large EE project with ESCO/Utility including lighting, controls, motors, drives – established new lighting standards; LCCA for long life products	Design standards/ mandate for EE; Some LCCA	➢ Top Support ➢ EE Policy /Resources ➢ Active RM ➢ EE Funding ➢ EE Education ➢ EE Buying
Large City	Medium to High	Digital copiers (not bought for EE)	Some EE motors, some use LCCA; utility lighting retrofits w/ rebates set informal EE standards	Some EE implemented with utility rebates. Some interest in green buildings	➢ Top Support ➢ EE Policy/Resources ➢ Green Think/Act ➢ EE Funding ➢ EE Buying ➢ EE Champions
Note: While every attempt has been made to make these snapshots accurate, our level of knowledge of each one varies due to the number and type of people we interviewed and the depth and accuracy of respondent viewpoints.					

Example 1 – A "Green" University: This university has built a pervasive green buying ethic and while energy efficient buying is somewhat less strong than other green buying, it is present and growing. The university employs a comprehensive environmental policy and a formalized recycling policy, both of which grew out of student activism almost twenty years ago. They focus on "changing the culture" toward greenness over the long term.

Green thinking has been mandated through policy and supported through ongoing educational efforts. A central purchasing support service has major responsibilities for continuously educating and assisting the many end-users who purchase products within this largely decentralized purchasing system. Green goals are specified along with the ways those goals can be achieved through purchasing environmentally safe and resource efficient products. Life cycle cost analysis is regularly used as part of purchasing. Vendors have become more attentive to these environmental goals and in identifying products that respond to the University's needs. A new energy manager has just been added with the mandate to increase campus attention to energy efficiency, including purchasing.

Example 2 – A City with Potential: A major city is environmentally aware with a variety of environmental initiatives underway. This city has an energy office that helps the city pursue efficiency projects and that has tracked energy use to show that, despite growth, consumption has remained stable. The office fostered lighting retrofits using utility incentives and this appears to have promoted higher efficiency levels for lighting throughout the city.

A citizen-based sustainability committee and an employee-based Green Team also attend to environmental issues. While ordinances exist that favor recycled content products and life cycle cost analysis, they tend not to be widely applied. Using energy efficiency as a criterion for purchasing products is currently limited to special projects or a few efficiency champions, such as a manager of the waste water treatment facilities who has developed a set of guidelines for ensuring premium equipment is bought, where "premium" includes efficient.

Middle Tier Agencies (Low to Medium Efficiency Buying)

Great variation exists among these eleven agencies as shown in Table 5. Two success factors which were strongly in place in the top tier agencies are rare among these agencies: top down support and specific energy efficiency policy (although several have good efficiency resources, such as a conservation-minded utility or an energy office or department). In addition, Resource Managers, strong educational activities, and relationships with green vendors are not present in most.

Table 5. Snapshots of Eleven Middle-Tier Agencies (Low to Medium EE Buying)

Type	Level of EE Buying	Effort: EE Office Equipment	Effort: EE Existing Equipment	Effort: EE New Buildings	Success Factors
State	Low to Medium	Little apparent – not important to end users	Work with ESCO to do EE retrofits	Energy LCCA required for buildings >25,000 sq. ft.; LED exit signs standard; higher EE lighting standards followed	➢ EE Policy/Funding for GA ➢ RM for GA ➢ EE Funding ➢ EE Buying ➢ EE/Green Vendors
University	Low to Medium	Little apparent	Major lighting retrofits with EE bond, utility incentives	Commissioning; EE considered in design; innovative EE approaches	➢ EE Policy/Resources ➢ RM ➢ Green Think/Act ➢ EE Funding ➢ EE Buying
State	Low to Medium	Energy Star computers	Limited LCCA for large equipment	Little apparent	➢ EE Resources (Energy Office) ➢ EE Education (from State Energy Office) ➢ Green Think/Act
County	Low to Medium	Little apparent	Insulation, lighting retrofits; uses LCCA	LCCA (5 year payback "the key")	➢ Intermittent EE Funding ➢ EE Buying ➢ EE/Green Vendors ➢ Energy Champion
Large City	Low to Medium	Energy star computers, copiers (sleep mode may not be enabled)	Little apparent	Commissioning for new public buildings; some green building activities	➢ Top Support ➢ EE Resources (utility) ➢ EE Funding ➢ Green Think/Act
University	Low to Medium	Little apparent	Little apparent	Stringent EE standards; commitment to high quality buildings; some LCCA; some green orientation	➢ EE Policy/Resources ➢ Green Think/Act ➢ EE Funding ➢ EE Buying
University	Low to Medium	Little apparent; perhaps in future for computers and copiers (digital)	Looks at energy costs/savings vs. equipment costs	Commissioning; EE in design review, incorporation of measures such as variable freq. drives; innovative EE (e.g., heating kettles with central steam)	➢ RM ➢ EE Education ➢ EE Buying
Independent Municipal Corporation	Low to Medium	Consider Energy Star appliances; little apparent otherwise	Little apparent	For large new development, conducted LCCA and implemented heating, lighting, and windows measures; do look at "price point" for EE	➢ EE Funding ➢ EE Buying ➢ EE Champions
County	Low to Medium	Energy Star Computers	Lighting retrofits only possible w/ utility rebates; some LCCA	Limited use of LCCA; first costs driver; some green building activities	➢ Top Support (green only) ➢ Green Think/Act ➢ Green Vendors (not EE)
School District	Low to Medium	E Star Computers	LCCA for air conditioning; ballast replacements	Little apparent	➢ Active RM (new) ➢ EE Buying
Large City	Low to Medium	E Star Computers	Some LCCA, especially for electric T&D equipment	Little apparent	➢ EE Resources (utility) ➢ EE Buying

Note: While every attempt has been made to make these snapshots accurate, our level of knowledge of each one varies due to the number and type of people we interviewed and the depth and accuracy of respondent viewpoints.

Other findings of note include:

➢ Being "green" may be important in other areas such as recycling or buying recycled content products, but green doesn't necessarily include energy efficiency.

➢ Energy efficient equipment might be bought (e.g., computers and copiers), but the energy saving features may not be enabled.

➢ Energy champions may exist for individual departments, but do not influence the whole organization very much.

➢ Some energy efficiency "buys" tend to be invisible, such as Energy Star computers, which tend to be industry standard, or consideration of digital copiers, where the reasons to buy have little to do with efficiency.

➢ Resource Managers appear to be strongly connected to new construction and major renovation activities, but less so to office equipment and smaller replacement projects.

➢ Experience with utility incentive programs had mixed results for influencing future energy efficiency activities.

Example 1 – A Strong Resource Manager. This university has an Energy Manager, housed in Facilities Management, who has been instrumental in fostering efficiency in new buildings, some with innovative approaches and some that have been commissioned. In the past, the university also obtained energy efficiency bonds allowing lighting retrofits in many buildings. These bonds are now spent and funding is limited for any further upgrading. Still, energy efficiency is strongly on the table with the presence of the Resource Manager. No general energy efficiency policy exists at the university, there is no green ethic, and the work by this Resource Manager does not appear to extend to other University functions outside of campus facilities.

Example 2 – A "Green" County. A large county has steadfastly pursued green purchasing, which grew out of recycling initiatives. An Environmental Purchasing Coordinator is very active, sponsoring educational efforts for green activities and use of innovative green materials. But there appears to be an efficiency "gap" in crucial areas. The county only uses life cycle cost analysis on a limited basis, and first costs are the driver on new construction. Lighting rebates from electric utilities helped achieve more efficient lighting, but staff report it would not be done otherwise. Energy Star computers are specified, however.

Bottom Tier Agencies (Low Efficiency Buying)

Two medium sized cities are included in this tier, as depicted in Table 6. These are the smallest of the agencies included in our study. This may suggest that small agencies are less likely to have the resources needed to buy efficiency without a great deal of support from other, larger entities. Clearly, they had few of the success factors present in the other two tiers. One city, however, has a history of grass roots green behavior

(recycling program) and oversees a good deal of building activity; the other city has a lapsed "buy recycled" policy and does little direct buying of energy consuming products.

Table 6. Snapshots of Two Bottom Tier Agencies (Very Low EE Buying)

	Level of EE Buying	Effort: EE Office Equipment	Effort: EE Existing Equipment	Effort: EE New Buildings	Success Factors Present
Medium City	Very Low (little to buy)	Little apparent	Little apparent	Little apparent	None apparent (lapsed recycled content buying policy)
Medium City	Very Low	Little apparent	Little apparent	Little apparent	➢ Green Think/Act
Note: While every attempt has been made to make these snapshots accurate, our level of knowledge of each one varies due to the number and type of people we interviewed and the depth and accuracy of respondent viewpoints.					

Example – An Outsourcing City. This new city appears to have little current potential to buy energy efficient products. The city only owns three buildings, four cars, and three copy machines. Purchasing is not centralized and most city services are outsourced (e.g., water, energy, fire protection) to other entities that do their own purchasing. To influence these purchases would mean developing and imposing different specifications in the buying habits of these service providers. Although this city does have a recycled content ordinance on the books, the city council member who championed it is no longer in office and the ordinance is not active. The level of influence on energy related purchasing could change if the city took on the delivery of more of its services.

Advice From Respondents

Respondents were asked to suggest ways to make energy efficient purchasing more viable. Their advice is captured in the bullets below.

➢ *Connect Energy Efficient Products to Important Benefits.* Our respondents provided a list of benefits that they feel should be strongly connected to buying energy efficient products. (It's important, of course, that the products live up to these claims.) These benefits are much more likely to be of interest to buyers and end-users than energy efficiency alone. They advised us to emphasize that high efficiency products:
  - are premium products that last longer;
  - have lower maintenance and operation costs;
  - are safer;
  - are more reliable;
  - offer improved comfort;
  - are innovative (can be perceived as negative, however);
  - are good government;
  - are the "best overall value"; and
  - have everything to gain and nothing to lose.

➤ *Connect efficiency to other green topics and to good environment.* Attach efficiency to recycling and reuse and make it clear how energy efficiency can benefit the environment (e.g., decreased pollution).

➤ *Devise methods to make energy efficiency visible and noteworthy.* How many low-income homes can be heated if an efficient government building is constructed? How can money saved on energy efficient purchases be used elsewhere in government? Efficiency can also be personalized by identifying actions staff can do at home.

➤ *Make energy efficiency easier.* Purchasers are busy and have no time to pay attention to anything extra. Information about efficiency needs to be readily available through their normal information channels and connected to attributes of importance to buyers (see above). Purchasers are interested in education on how to easily identify and purchase energy efficient products.

➤ *Use multiple approaches.* Single pronged approaches to higher efficiency are probably not enough. For instance, mandating efficiency, while important, can be ignored unless support exists through:
  • ongoing education;
  • easily available and easy to use information;
  • a good supply of high efficiency products from reliable vendors;
  • establishing goals that are achievable and measurable; and
  • collecting and disseminating success stories.

➤ *Influence and infiltrate professional networks.* Professional associations are often looking for topic ideas and speakers for conferences and meetings. Materials (in the form of meeting or conference handouts and presentations) and speakers on energy efficiency could be developed and offered to these organizations.

➤ *Foster imitation of successful energy efficiency efforts.* Public organizations watch one another's activities. Governments would be interested in seeing examples of how other governments successfully purchase energy efficient products and pursue other avenues to sustainability and efficiency.

➤ *Motivate energy efficient supporters to spread the word.* For instance, allow staff to use the money saved from high efficiency choices on something politicians and /or citizens will notice. Staff also appreciate opportunities to exchange information and experience within the organization.

➤ *Correct misperceptions about who is responsible for energy efficiency.* Buyers may feel that enough energy efficiency is already built into codes and utility activities or that "someone else" is doing it. Energy efficiency has to be made everyone's responsibility.

➤ *Connect energy bills to the sites where the energy is being used.* This allows energy benefits to be more easily seen and high use facilities with energy efficiency opportunities to be identified

➤ *Make energy efficiency tools such as life cycle cost analysis more streamlined or reframe these tools for purchasers as part of "best value" buying guidelines.* These

tools will help demonstrate how high efficiency is not more costly overall and not always more costly up front.

➢ *Increase awareness of tools, resources, and information sources that are already available (e.g. MotorMaster).* These tools could be more widely marketed and distributed.

Chapter 4 – Key Trends Influencing Public Purchasing

As discussed in Chapter 2, public procurement systems tend to be dynamic (despite a reputation of bureaucratic inertia) and subject to a variety of influences. Some organizations we spoke to were in the process of changing their purchasing processes, always with the hope of improving efficiency and effectiveness. Some spoke of making significant changes while others indicated much more minor modifications. Barriers to making changes included bureaucracy/organizational inertia, security issues, loss of control, competitive requirements and technology limitations.

Two agencies in our study – a major city and a federal agency – illustrate the types of motivations for changes in purchasing. The goals of re-engineering the city's purchasing processes are to:

➢ reduce procurement spending citywide, including transaction costs;

➢ be more strategic in acquiring goods and services;

➢ be more proactive in implementing social policies through contracting;

➢ decrease the number of suppliers; and

➢ use an automated system for purchasing transactions.

At the federal agency, the goals are to:

➢ get away from the traditional transaction type processes; and

➢ steer purchasing toward best business judgement rather than low price.

The respondents in our study described several trends they thought would influence purchasing within their organizations over the next several years. Most organizations are aware of these trends and are actively discussing them and following their progress. Some are already responding to these trends, but others don't expect to in the near future. Key trends noted by respondents included:

➢ Making awards based on best value (including factors such as service, delivery time, quality, performance) rather than lowest first cost;

➢ An increased use of electronic information and communication technologies;

➢ Use of a smaller number of suppliers;

➢ Development of partnerships with suppliers and vendors; and

➢ Using cooperative purchasing to reduce procurement costs and to obtain more competitive prices.

Many of these trends are in line with eighteen trends recently highlighted in the *Future of Purchasing* research from the Center for Advanced Purchasing Studies (Carter 1998). While this research emphasizes private sector firms, trends equally relevant to the public sector include:

➢ Electronic commerce technologies will support efforts to improve purchasing efficiency.

➢ Supply-side strategies – i.e., relationships with suppliers – will be strengthened. Strategies such as taking advantage of increased competition, development of partnerships, linkages and alliances, and use of supplier performance measurements.

➢ Demand-pull purchasing will link suppliers and buyers and their information systems more closely to produce the products needed.

➢ Third-party purchasing will be increased. Consortium and third-parties will use leveraging and buying expertise to purchase and make products available through master contracts.

➢ Competitive bidding and negotiations will continue to be used to ascertain market prices and award business. Competitive bidding will become more intensive because of greater price transparency and cost visibility.

In addition, we have noted a growing interest in environmental issues among some of the organizations in this study. We believe this trend and related initiatives will support the continued expansion of environmental purchasing efforts.

A number of the trends noted above could potentially support the purchase of more energy efficient products. This chapter describes three trends likely to change purchasing in general and energy efficient purchasing in particular. These trends are:

1. Best value buying;
2. Electronic commerce; and
3. Green or environmental purchasing.

Best Value Buying

"Good government" initiatives and the desire to move toward more sound business practices often motivate change in government procurement. Best value buying, or buying that looks beyond first costs to overall costs of products and services fits both of these motivations.

The pitfalls of traditional transaction focused purchasing, rather than value focused purchasing, were described in a recent report on purchasing trends. (*Carter 1998)*

> *Traditionally, purchasing has been transaction focused — getting the right quantity and quality of goods of all kinds to the right place at the right time at the lowest price possible. Traditional purchasing is insufficient in today's competitive environment. Buying goods at the cheapest price absent an overall strategy that takes into account competition, total cost of ownership, and a host of other factors is a recipe for disaster. Traditional thinking centered on cost-control. Now "a procurement chief may be told that merely buying from the lowest bidder isn't always best, and he may not like it" (Brown 1997). According to the Harvard Business Review, strategic needs are more likely to influence procurement, with items to be purchased assessed according to their impact on company performance.*

Best value buying can positively influence the purchase of higher efficiency products, since factors such as lower maintenance and operating costs, longer lifetime, or improved performance can be factored into product purchases. While energy efficiency products may have higher first costs than standard products, they often can be justified by their lower costs over time. Still, best value buying, while sensible, is not familiar or easy for most buyers. Buyers can feel that determining "value" instead of comparing "sticker prices" requires considerably more work. Institutional mechanisms for considering value are not often in place.

Electronic-Commerce Among Public Agencies

Many of the improvements and innovations identified by the organizations we talked to involved the increased use of the internet or electronic information and communication technologies. These include:

➢ Use of websites to obtain vendor and purchasing contract and product information (for both internal organization purchasers and external users of an organization's purchasing contracts);

➢ Use of purchasing cards and electronic payment and accounting methods;

➢ Links with suppliers websites containing product and purchasing information; and

➢ Paperless purchasing systems that allow for electronic purchase orders and more efficient tracking and accounting.

E-commerce deserves special attention because it is fast becoming part of the way governments do business. At this point, E-commerce is largely used as an information source (information available electronically on the intranet or internet). Examples respondents mentioned include state purchasing contracts on the web, internal purchasing catalogs, vendor catalogs, and product information on vendor/manufacturer web sites. The use of the internet by professional organizations as a tool for sharing information among peers appears promising (purchasing officials mostly mentioned this). However, actual use of the internet as an information source varied widely. Some were overwhelmed by all the information while others could not live without it.

E-commerce is also beginning to be used to provide basic purchasing process improvements, such things as paperless purchasing processes, electronic purchase

orders, invoicing, and tracking systems. Some organizations are using purchasing cards (like credit cards) to link into these process improvements, although some organizations are quite resistant to using these cards.

Actual electronic or on-line purchasing is not yet occurring among the organizations we talked to. Some see this as the future, but several mentioned security concerns.

Environmental Purchasing

Early environmental purchasing initiatives were in part a response to successful community-based recycling programs. The development of these recycling programs was due to increasing costs for waste disposal and difficulties developing new waste disposal sites. Strong political and community support emerged to implement waste reduction programs.

The success of recycling programs created a glut of recycled materials, greatly diminishing the demand for these materials. Recycling programs faced the problem of having no ready market for the products they were collecting. In response to this problem, many government organizations implemented policies and initiatives to encourage the purchase of recycled content products. Most environmental purchasing programs in public organizations focus on recycled content purchasing.

Another aspect of environmental purchasing is reducing the purchase of toxic, hazardous materials. The trends driving this interest are health and safety, the high cost of handling and disposing of these products, and environmental concerns (these materials kill wildlife, foul water resources, etc). Many public organizations are seeking alternatives for such things as pesticides and cleaning chemicals and are seeking out low emissivity products (furnishings, carpet, paint, and sealants).

There is a broader set of environmental concerns that we believe will continue to spur interest in environmental purchasing and broaden the scope of these initiatives. Some of the issues that will drive this expanded interest include global climate change, the endangered species act (e.g. salmon), water supply constraints, and quality of life issues.   Some public organizations (including some in our sample) are showing interest in sustainability issues such as sustainable development and citizen health and well being. Initiatives and policies to address these issues are in place and in a few cases are having some effect on the purchasing of products.

Currently, energy efficiency is not generally associated with environmental purchasing. It does not fit well into environmental purchasing initiatives that focus on the purchase of recycled content or low toxicity products. However, energy efficiency fits quite well with broader environmental concerns. Issues such as global climate change, the listing of salmon as endangered species, and water supply shortages all have strong links to energy use in the Northwest. Growing interest in these issues (including the emergence of organizations such as the Natural Step) supports policies that could encourage the purchase of energy efficient products.

Chapter 5 – Transforming Public Sector Purchasing

In this chapter we summarize the key insights from our research, present a general framework for enhancing public sector purchases of efficient products and services, and outline intervention strategies for transforming public sector purchasing.

Key Insights from the Research

This section captures the central findings from our research. These findings are crucial to understanding the public purchasing arena and underlie the intervention strategies presented later in this chapter.

➢ **Public sector buying patterns are variable, complex, and somewhat unpredictable. Many actors are involved in a variety of roles, often for a single purchase.** Although detailed purchasing rules and competitive requirements existed in most agencies, much buying is neither rigidly structured nor highly competitive. Thus, just changing *the rules* will not necessarily change procurement practices. Most agencies combine centralized purchasing processes (for higher cost items) with decentralized purchasing by end-users (for less costly items).

➢ **Agencies do not widely or consistently consider energy costs and efficiency in purchasing energy consuming products.** Other factors, such as performance, price, and convenience, are more salient to purchasers and drive buying decisions. Energy efficiency information, without reference to the other buying criteria that buyers find important, may receive limited use.

➢ **In the organizations we profiled, we observed nine factors that are related to higher levels of energy efficient buying. These factors, listed below, are also entry or leverage points for transforming public purchasing.**

- *Political or citizen support for green buying or energy efficiency;*
- *Active energy efficiency resources (e.g., energy specialists);*
- *Active "green" resources (e.g., agency sponsored recycling);*
- *Active Resource Managers (RMs);*
- *Specific budget for energy efficiency or environmentally protective approaches;*
- *Strong user/buyer education about buying energy efficient;*
- *Experience with energy efficient buying;*
- *Influential efficiency champions; and*
- *Vendors promoting energy efficient or green products.*

➢ **Energy efficient buying can be leveraged further by piggybacking on three major purchasing trends:**

- *Best value buying* – an approach that considers the overall costs and benefits of products and services rather than just first costs and benefits.

- *Electronic commerce* – a mechanism that serves as a source of information, a tool for improving purchasing processes, and a way to buy.

- *Green purchasing* – buying that goes beyond recycled content products and "safe" products to consider broader environmental concerns.

A Framework for Organizational Change

Given the variability in government purchasing, the many purchasers, and the many markets, we will not, in this report, advocate intervention strategies to transform a specific market for a particular product. Rather, we will recommend strategies to encourage agencies to *change how they buy* – that is, to buy more and higher efficiency products.

As with most market transformation efforts, such changes will likely require:
- a long-term commitment
- multi-faceted approaches
- a broader context than just energy efficiency or purchasing alone
- flexibility
- leveraging of other resources and networks

This type of change also works toward organizations being self-sustaining, so that the commitment to efficiency is institutionalized. In the next section we present theoretical underpinnings for organizational change.

Organizational Theory

We looked to organizational change literature to ask a key question: "What do we know about how and when organizations change their practices?" Powell and DiMaggio (1991) describe three primary processes of organizational change that encourage organizations to change:

1. **Regulatory or policy processes** – For example, changes in formal rules such as green purchasing or life cycle cost analysis requirements have led some public agencies to institutionalize energy efficiency considerations in their specification and procurement practices.

2. **Normative or professional processes** – For instance, the changing standards of the numerous professional groups to which public sector employees belong have shaped purchasing practices.

3. **Mimetic processes** – Learning from and emulating the successes of other organizations occurs in government as well as in competitive business contexts.

These three processes of change (and the inertia they also can produce) must be taken into account and used strategically to influence government purchasing patterns. Since they suggest changes in organizations can be due to outside influences, they offer cause for optimism about the prospects of successful intervention in this market. However, they also point to the need for coordinated action, since change in one arena (e.g., regulatory requirements or professional orientation) is often blunted by other internal and external influences. Our recommended intervention strategies, which result from our organizational observations, interviews, and literature review, make use of these three processes.

Market Intervention Strategies

Our goal in these recommendations is to help purchasers – designers, project managers, users, and professional buyers – get the best products **and** the most energy efficient ones. We have organized the recommendations using Powell and DiMaggio's three change processes; however, it's important to keep in mind that there is interaction among these areas of change.

Stimulating Regulatory and Policy Effects

Policy level support is essential if public organizations are to institutionalize the buying of energy efficient products. But our research shows that energy efficiency is **not relevant** for political leaders or policy makers. Therefore, energy efficiency needs to be joined with issues that are more relevant to these leaders and to their constituents, such as best value buying and green purchasing trends.

The three strategies listed below suggest how energy efficiency can be tied to issues of interest to policy makers. These actions will help develop political and citizen support which, in turn, will encourage agencies to devote specific resources to energy efficient buying (i.e., for staff, training, support materials, or policy changes).

➢ **Link energy efficient buying with existing environmental initiatives and policies in public organizations (e.g., buy recycled).** Energy efficiency is not currently relevant at a policy level in public organizations; thus more policy support is needed for energy efficient purchasing to occur with any degree of consistency. Where public organizations have existing environmental policy and initiatives, efforts need to be made to get energy efficient purchasing on the policy agenda as an element of these environmental initiatives. Energy efficiency needs to be identified as an effective way to meet environmental policy goals.

➢ **Connect energy efficient products to political and policy priorities such as clean air, clean water, sustainability, cost-savings, and good government**. Energy efficiency is generally not relevant to most policy-makers or individual purchasers and the connections are not obvious (e.g., how does efficiency make the environment better?). The way to sell energy efficiency is to identify policy and

product benefits (e.g., quality, convenience, availability) for policy makers and purchasers.

➤ **Work with environmentally oriented agencies and with networks targeted to policy makers to identify existing environmental policies; demonstrate that energy efficiency policies can be incorporated within those existing environmental policies, and disseminate these examples through appropriate networks and media.**

Enhancing Normative and Professional Influences

Most government purchasers, whether Resource Managers, end-users, or professional buyers, belong to and rely upon professional organizations for new ideas and dependable advice. Often these organizations are looking for meeting and conference presentations, as well as training opportunities on topics relevant to their members. While energy efficiency per se may not be perceived as a "hot" topic, it can be linked to topics that are. For instance, "best value" buying and E-commerce topics of great interest within professional purchasing groups – a natural place for energy efficiency to fit in.

➤ **Use mechanisms within existing professional networks -- web pages, list servers, newsletters, training programs, conferences, chapter meetings, and trusted "energy champions" – to inform members about the relevance of energy efficiency and how to include it in purchasing specifications; the availability of products; and the presence of existing energy purchasing initiatives (e.g. Energy Star).** Through these mechanisms, standing committees, users' groups and advisory groups on the special topic of energy efficient or environmental purchasing could be formed. Professional networks also provide an important forum for the exchange of information and experience, and will help define good practice and professional identity. For instance, organizations could be encouraged to include energy efficiency in definitions of "best value." Advances in telecommunications technologies make it easier to form and link these networks with existing energy purchasing initiatives (Energy Star) and with end-users.

➤ **Work with purchasing groups to conduct joint competitive bids for specific energy efficient products, so that individual organizations can obtain competitive prices and better access to particular energy efficient products. Get energy efficient products on master contracts that many organizations can access.** This step calls for working within existing purchasing peer organizations (professional purchasing associations, intergovernmental purchasing cooperatives) to develop cooperative purchases and other active forms of environmental purchasing.

➤ **Leverage the resources of other initiatives that support energy efficient practices in public organizations, including energy managers, resource managers and energy efficient new construction programs.** Initiatives that support organization-level Energy Managers or Resource Managers can be supported. Building operator certification, which develops the professional capability

of facility operations staff, can also be offered. Leverage opportunities also include initiatives to promote energy efficient new construction projects, since new construction purchases are often large and take place outside of the standard purchasing process. Initiatives aimed at improving the energy efficiency of new buildings are important for addressing the energy efficiency of these product purchases.

➢ **Identify and work with major vendors to offer energy efficient products.** Helping organizations identify and easily access energy efficient products through trusted vendors will also be important. Interest in efficient products will wane quickly if supply of those products isn't readily available.

Encouraging and Facilitating "Imitation"

The processes of imitation we imagine work on two levels. First, an infrastructure of reliable, accessible information about products must be built; followed by developing awareness among all purchasers and policy makers about how to specify, identify, and buy efficient products. Second, the approaches and benefits of buying efficient can be made visible through successful demonstrations. E-commerce is likely to become a popular route for conveying experience and advice about efficient purchasing.

➢ **Conduct targeted pilot projects at specific high profile organizations to develop and demonstrate organizational models for purchasing energy efficient products. Disseminate results.** Demonstrations need to develop policies, standards, education, and an energy function in the organization (such as a resource manager, energy manager, or energy office). These models produce success at the local organization, can be used by other organizations, and perhaps most importantly build the critical mass for energy efficient purchasing. Information about these models and associated best practices need to be disseminated through trusted networks (associations of public officials, purchasing professionals' associations, facilities managers' and resource managers' associations). Information about problems and how they've been resolved also needs to be communicated so those lessons can be shared across governments.

➢ **Help key actors develop networks of energy efficiency champions (such as RMs) within their organizations.** Education and technical support efforts need to be targeted to developing a critical mass of energy efficiency champions within organizations in the region.

➢ **Make information on energy efficient products and their performance readily available from trusted sources. This information needs to allow energy efficient products to be easily identified and compared to other products, along a variety of product characteristics (not just energy efficiency).** Product information must be specific and readily accessible by many means, from energy-related media such as the Energy Ideas Clearinghouse, the Lighting Design Lab, and EPA or DOE web pages, to professional publications, vendor product catalogues, and web pages. Links (electronic and otherwise) need to be made between more conventional purchasing information sources and ones that are more

directly geared to buyers already interested in efficiency (i.e., energy champions). Perhaps a new electronic information source could be developed to provide a spectrum of information (i.e., one-stop shopping), including energy efficiency, to help buyers decide on the best product.

➢ **Make buyers and organizations aware of existing suppliers of energy efficient products so that they can access them through existing purchasing procedures.**

➢ **Work with existing groups and, if warranted, support new groups -- including users, manufacturers, and suppliers – to develop comprehensive product specifications and contract language that include energy efficiency.** Make these available through existing networks and sources and encourage their use for developing organization-level standards. Identify sources used by designers to develop specifications (such as MasterSpec).

➢ **Support development of organizational models that demonstrate the value of energy efficient purchasing to public organizations.**

Conclusions

We believe that public purchasing in the Northwest can incorporate energy efficiency considerations to a much greater extent. Attention to energy costs and energy related environmental impacts is already taking place in some government agencies, and there is considerable potential for greater penetration of high efficiency products. Success will require that a variety of efforts be coordinated to reach all organizational levels.

The strategies we recommend are intended to encourage long-term organizational change towards more energy efficient buying.   They provide guidance to individuals and organizations planning and developing programmatic initiatives to encourage energy efficient buying. We have identified trends, leverage points, and strategies that should be incorporated into program conceptualization and development efforts. The process of program development needs to include actors within professional networks and at leading public organizations. Developing initiatives within this framework will result in efforts that are well targeted and that best take advantage of existing resources and leveraging opportunities.

Several trends, particularly concern for the environment and the development of pro-environmental public policies, offer important opportunities to associate energy efficiency in purchasing with politically potent issues. Policies that support these trends, along with professional acceptance of energy efficiency as an important purchasing criterion, are required for the desired organizational changes to take place.

However, other trends (e.g., E-commerce) suggest that strategies will also need to be targeted at end users and mass-market vendors—those actors involved in the bulk of routine purchases of energy-using goods.   Since energy does not concern most end-users or vendors, strong emphasis on the quality, safety, and reliability attributes of

energy consuming goods will be needed.   And, manufacturers and vendors must be able to supply high efficiency products readily at comparable prices and quality.

We believe encouraging energy efficient purchasing will foster efficiency in other parts of public organizations and outside of them as well. For instance, adherence to energy efficiency in purchasing could lead to a wider "standard practice" of energy efficiency in building design. Changes in how public agencies purchase also can help induce changes in the types of products that manufacturers develop and vendors offer, since vendors and manufacturers will notice the preferences of these large buyers.

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This is a sample of many of the products and materials collected in the course of this study

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