Government Procurement Collaboratives: Creating and Transforming Markets

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1. SYNOPSIS

In the United States, government procurement presents a large and underdeveloped opportunity for market transformation. Programs which increase access to information about energy-consuming products and encourage their purchase can exploit this opportunity.

2. ABSTRACT

In the United States, the combined purchasing power of federal, state, and local government has been estimated in excess of 1170 billion ECU (\$900 billion). Of this amount, expenditures on energy-consuming equipment and appliances can be estimated at 52-104 billion ECU (\$40-\$80 billion). This represents a huge potential market for energy-efficient and environmentally-preferred products. Despite legislative and executive mandates that focus on energy-efficiency and the environment, government procurement officials frequently have difficulty realizing this market transforming potential.

Studies have shown that procurement officials frequently lack ready access to the type of information required to support changes in purchasing habits that will have market transforming effects. In addition, current trends in government procurement such as decentralization and electronic commerce present both opportunities and challenges for increasing the access of procurement officials to product information with market transforming potential.

This paper describes several types of program responses at both the federal and state level which are directed toward opportunities presented by current trends in procurement. One of these programs is the Energy-Efficient Procurement Collaborative, a national organization whose purpose is to integrate information concerning energy-efficient and environmentally-preferred equipment into the purchasing practices of federal, state, and local government agencies, and other large purchasers in the private sector.

The Collaborative includes federal and state energy and procurement officials, utility companies, environmental groups, and other non-governmental organizations. First year activities include: creation of a directory of databases of energy-consuming equipment, identification of energy-efficiency levels that meet or exceed Federal Energy Management Program (FEMP) guidelines, development of procurement strategies, and a feasibility study for creation of a nationwide electronic Product Network.

3. INTRODUCTION

- Public Sector Procurement as an Energy-Efficiency Strategy

For years, energy conservation policy in the U.S., and many other countries, was viewed as some appropriate mix of five elements: energy pricing, tax credits, rebates, or other financial incentives; information and training programs; mandatory efficiency standards, and research and development to advance the bounds of current technology. Recently, a new strategic element has been introduced: the use of several of these elements, in combination, to help transform the market for a specific energy-using technology so that today's best practice--or perhaps an advanced product yet to be introduced--becomes tomorrow's routine commercial source.

At the same time, policy-makers in many countries are recognizing the important roles, both symbolic and substantive, that government purchasing can play in initiating or accelerating this market transformation process. In both industrialized and developing countries, the buying power of government at all levels represents a largely untapped resource to stimulate market demand for more energy-efficient commercial equipment and consumer goods.

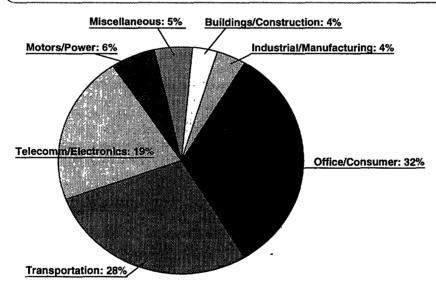
This paper explores policies and programs in the U.S., both in place and proposed, that are now attempting to realize this enormous source of leverage on the market for energy-efficient products.

3.1 Purchasing power of government

The U.S. Federal government represents the single largest customer in the world for most energy-related products, spending over 91 billion ECU/year (\$70 billion) to purchase supplies and equipment (1 billion = 10^9)¹. Of this, energy-related products account for roughly 13-26 billion ECU (\$10-\$20 billion) (see Figure 1). The majority of this is spent by the Department of Defense (DoD). The Defense Logistics Agency (DLA) serves as a supply source both for the military and for other civilian agencies.

The other major government supply agency is the Federal Supply Service of the General Services Administration (GSA), which provides other federal agencies with nearly 6,5 billion ECU/year (\$5 billion) of goods and services (both energy-related and non-energy), as well as 2,6 billion ECU/year (\$2 billion) in computers and communications equipment. Together, the GSA and DLA supply catalogs contain more than 4.3 million items. As significant as these numbers are, a large fraction of all supplies and equipment are purchased directly by agencies, rather than through the GSA and DLA supply services. Recent policy changes eliminated some mandatory requirements for using the federal supply agencies and raised the limits for "small" purchases from commercial sources, with minimal paperwork (or simply a government credit card).





Supplies and Equipment comprise more than 1/3 of total Federal purchasing. An estimated \$10-20 billion/year is energy-related equipment purchases (excludes aircraft, ships, spacecraft, weapon systems, and leasing of automobiles and equipment).

Energy accounts for a significant share (about 4,8 billion ECU/year or \$3.7 billion/year) of the total operating cost of Federal buildings and facilities². Recent laws and administrative policies direct federal agencies to reduce energy use by an average of 30% compared to 1985 levels. Several hundred million dollars are spent annually by these agencies for energy-saving retrofit projects, but an equally important means to achieve the targeted savings lies in the routine purchasing of energy-efficient products as part of facility operation and maintenance. These products include fluorescent task lights; energy-saving computers and copiers; efficient kitchen appliances; high-performance heat pumps and chillers; and "cool" (high-albedo) paint and roofing materials to reduce air conditioning loads. Outside of facilities themselves, additional savings are possible through the purchase of more efficient autos, trucks, tires, and vehicle accessories.

Each of these opportunities is also present in state facilities (offices, colleges, universities, prisons, etc.) and at local government facilities such as schools, hospitals, health clinics, and recreation centers. While it is difficult to estimate with any precision the purchases of energy-related products by state and local governments, they are about 3-4 times greater than the entire federal market.

3.2 Goals and Strategies

A series of program initiatives at the federal level are being pursued in cooperation with energy-efficient purchasing at the State and local levels, as described below. The Energy Policy Act of 1992 assigns the lead for the federal program to the Department of Energy's Office of Federal Energy Management Programs (DOE/FEMP), in partnership with other agencies. DOE's program objectives are equally applicable to energy-efficient product procurement by other levels of government:

- Make the government a leader in buying cost-effective, high-efficiency products. The public sector should provide leadership for consumers, business, and non-profit institutions by changing its own purchasing practices, documenting results, and disseminating product information to other market segments.
- Make the government an enlightened, environmentally responsible buyer. Government procurement decisions should consider energy, water, natural resource, and environmental impacts as well as functional requirements and life-cycle costs to the direct user.
- Make the government a force for advancing energy efficiency in the marketplace. Government should use its
 buying power both to increase the market share of today's energy-efficient products and to stimulate the
 introduction of new, efficient technologies.

In pursuing these objectives, there are several important strategy elements. First, top management in each agency must publicly adopt policies that favor energy-efficient purchasing and clearly communicate these policies to all employees. Second, procurement practices and procedures may need to be changed. Third, information on efficient products must be made widely available, so that the energy-efficient choice becomes at least as convenient as one based on lowest first cost. Fourth, follow-up must be provided to insure that a product is correctly installed, used, and maintained, and then re-used or disposed of in an environmentally sound manner. Finally, those who are the first to innovate, both in purchasing procedures and in trying out new energy-saving technology, should receive positive recognition--along with some tolerance for the mistakes that invariably accompany change. Leadership in energy-efficient procurement should be included in government-wide awards for energy savings, along with accomplishments in facility management and operations.

A successful program must also find ways to involve those who sell products to the government, as well as those who buy. Vendors can help to identify existing barriers to energy-efficient purchasing and to suggest new products or technologies that deserve consideration in the government market.

3.3 Market-aggregation

While independent action on energy-efficient procurement by each agency and each level of government may be adequate to meet internal needs for reducing energy costs, coordinated efforts will certainly have far greater impact on the market as a whole. An important part of the federal strategy is to enlist other levels of government, as well as non-governmental purchasers, to voluntarily adopt the same energy-efficiency criteria for their own purchasing. At the state level, energy-efficient procurement has been a required element for receiving grant funds under the DOE State Energy Conservation Program since 1976³. Several states and a few large cities have taken some initiative, but

have often been hampered by lack of product data, staff time, or the expertise to develop energy tests and specifications. These issues will be addressed through a recently established multi-state Energy-Efficient Procurement Collaborative, led by New York State with federal support from DOE and the Environmental Protection Agency (EPA). The Collaborative, as described in a later section, shares information, expertise, and results among participating states as well as the federal government.

Utility companies that offer customer incentives for purchase of energy-efficient products represent other potential partners. The utility-sponsored Consortium for Energy-Efficiency is now exploring ways to link its efforts in coordinating incentive criteria with efficiency levels established for government procurement programs. A similar effort could be extended, on a voluntary basis, to large institutional and corporate purchasers, perhaps in conjunction with third-party product certification and labeling programs such as Green Seal and PowerSmart.

4. POLICY ORIGINS

4.1 Government mandates

4.1.1 Federal

The Energy Policy Act of 1992 directs federal agencies to purchase energy-efficient products that are cost-effective on a life-cycle cost basis. It also instructs the Office of Management and Budget, with advice from DOE and other agencies, to issue guidelines that will help agencies identify such products. The Act further directs DOE to evaluate the potential for government purchasing to assist the commercial introduction of new, energy-efficient technologies.

In a parallel effort, the Clinton administration's National Performance Review, designed to produce a "government that works better and costs less," includes several proposals for reforming government procurement. Many of these recommendations were included in a 1994 Federal Acquisition Streamlining Act. Others, related to environmentally-preferred and energy-efficient products, are being implemented primarily through Executive Orders.

Executive Order #12902 on "Energy Efficiency and Water Conservation at Federal Facilities," signed in March 1994, directs DOE to cooperate with other federal agencies in a government-wide initiative on energy-efficient procurement, with four elements:

- initiate "best-practice" buying, defined as purchasing products in the upper 25% of energy or water efficiency or at least 10% above any DOE efficiency standards;
- help create or expand federal entry markets for new technologies and products through a voluntary, interagency "Procurement Challenge";
- identify opportunities for early retirement of older, less efficient equipment in the federal stock, and
- review and eliminate barriers to energy-efficient purchasing.

Two other Executive Orders, #12845 and #12873 respectively, require all federal agencies to purchase energy-efficient computers and office equipment and promote the purchase of "environmentally-preferable" products. A series of policy letters and memoranda issued by the Office of Management and Budget also encourage agencies to purchase "environmentally-sound and energy-efficient" products and services.

4.1.2 State

Beginning in 1986, governors in several states issued executive orders designed to reduce energy consumption in buildings owned or operated by state government. For example, California issued an Executive Order in 1986 to reduce energy consumption in state facilities by 25% and New York's Executive Order 132, issued in 1990, sought to reduce energy consumption in state facilities by 20% by the year 2000. Although significant progress has been made, both states have experienced some coordination difficulties in meeting these targets. Other states, such as Massachusetts, have had little difficulty meeting and exceeding mandates for a 10% reduction.

In a 1994 survey conducted for the Energy-Efficient Procurement Collaborative, a total of 12 states indicated that they are operating under an executive order to reduce energy consumption in state buildings. Collectively, these states

include 42% of the total U.S. population⁴. However, only 24% of all respondents acknowledged using energy-efficiency criteria in specifying products. Obstacles to more energy-efficient procurement included: lack of data, lack of staff time to research energy performance, and concern about the high cost of high-efficiency products⁵.

Many state and local governments also have policies in place to promote the purchase of environmentally-friendly products. According to a 1993 survey conducted of state and local government procurement officials by the National Association of State Purchasing Officials (NASPO), 20 states have laws or regulations requiring that a portion of total state purchases be made up of recycled products. Many states have achieved significant success in meeting goals for the purchase of recycled paper⁶.

4.2 Current trends in government purchasing- barriers and opportunities

4.2.1 Decentralization of purchasing decisions

Recent efforts to reduce the cost of government procurement, especially in the federal sector, have focused on decentralization of purchasing decisions. Decentralization allows for purchasing decisions up to a specified dollar amount to be made directly by the agency requesting the product rather than through a central entity, such as the GSA. The dollars saved through decentralization result from reductions in paperwork and processing as well as greater reliance on commercially available products.

State governments typically have centralized purchasing as well as a long-standing practice of delegating purchases of 1300-6500 ECU (\$1000-\$5000) to the end-use agency. Unlike the federal government, states nearly always purchase commercially available products. Some states have recently expanded purchasing delegation to purchases up to 19.500 ECU (\$15,000) and others are experimenting with the use of credit cards. It is anticipated that these practices will reduce costs through streamlining and encouraging flexibility in the procurement process, however they are too recent to evaluate⁷.

One way of implementing decentralized purchasing is through "electronic commerce". Increasing use of networked personal computers has created the possibility of a paperless system of ordering, billing, and paying for a wide variety of government purchases directly from commercial vendors. Electronic commerce has tremendous potential both for reductions in paper waste and for more efficient, flexible purchasing practices. Another advantage of electronic commerce is elimination of the need for warehousing bulk-purchased stock with its attendant overhead expense and risk of obsolescence. This method of ordering also tends to smooth out requests to vendors, allowing for more efficient, continuous production.

While trends toward decentralization are likely to increase flexibility and reduce paperwork costs, if improperly managed, they pose some risk for increased per unit cost and reduced opportunities to transform markets. Per unit price increases can be avoided if a centralized agency negotiates the unit price. Similarly, market transformation may be encouraged via decentralized purchasing, if purchase of equipment and appliances is informed by specifications that direct the purchaser to models within a desired range of performance. Ready access to product information is the key to modifying existing purchasing habits.

While open-ended contracts typical of decentralized purchasing create some uncertainty for vendors in predicting the total contracted quantity, reasonable estimates may be made for many items based on demand from previous years. If necessary, the centralized purchasing agency can offer the vendor a guaranteed minimum purchase based on historical demand or, in the case of new products, on forecasted demand⁸.

4.2.2 Intergovernmental cooperation within the United States

Cooperative procurement programs are becoming increasingly more common among state and local governments in the U.S. Respondents to the 1993 NASPO survey indicated that 22 states have statutory authorization to participate in multi-state purchasing, while 42 have such authorization for cooperative purchasing among different units of government (state, local, municipal).

There have been some successes in multi-state approaches for commodities, most notably pharmaceutical; road salt and other highway-related commodities; Women, Infants, and Children (WIC) program rebates, and recycled paper. Significant cost savings can be realized through multi-state contracts; for example, the State of Utah estimates savings of approximately 20% from participation in the Minnesota Multi-State Pharmaceutical Program. Regional coalitions such as the Western States Purchasing Alliance, the Great Lakes Purchasing Cooperative, and the Eastern Regional Purchasing Cooperative have formed to promote cooperative procurement.

Numerous barriers exist to successful multi-state cooperative procurement. The bid must be managed by a lead state; other states may have apprehensions about possible subordination to the lead state. Existing requirements for preferential treatment of in-state vendors (15 states have such requirements) and potential vendor resistance are critical issues to be addressed prior to bidding a multi-state contract. Consensus on specifications, terms and conditions, and distribution requirements are essential.

Cooperative procurement is far more common between state, local, and municipal governments. A state agency typically takes the lead on such cooperative contracts, since they usually have more staff resources to develop specifications and conduct bidding. Localities can either enter directly into a cooperative bid with the state or "piggyback", by buying commodities using existing state contracts.

Cooperative procurement between the federal government and the states is virtually unknown. Provisions of the Federal Acquisition Streamlining Act of 1994, however, permit states to use federal supply schedules of the GSA. Critics of this proposal point out that many of these supply schedules are developed without the benefit of a truly competitive sealed-bid process and may favor larger bidders. Some states have regulations concerning competitive bidding that would conflict with use of these schedules. The primary benefit to states from use of GSA schedules would be substantial reductions in the administrative costs of bidding.

Current trends in procurement, including cooperative procurement and electronic commerce, offer significant opportunities for leveraging the purchasing power of government to transform markets. Cooperative procurement at the federal, state, and local levels offers a large, aggregated potential market to manufacturers, distributors, and vendors. If this aggregated market specifies a target (such as a high level of energy performance) to which manufacturers can respond, market transformation is likely to be accelerated. The primary opportunity for market transformation inherent in electronic commerce is rapid and extensive transmittal of product information to purchasing decisionmakers. Although many state and local purchasing officials and small vendors do not yet have access to the hardware required to support electronic commerce, this situation is rapidly improving.

5. PROGRAM RESPONSE

5.1 Federal Government

In response to Federal law and Executive Orders concerning energy-efficient procurement, a number of steps have been taken or are now underway. Both the GSA and the DLA have published catalogs listing energy-efficient products. A coordinated effort is underway to use a consistent set of performance criteria and a single, government-wide symbol, to designate products that are "energy-efficient" as defined by Executive Order (i.e., in the upper 25% of the market or 10% better than federal standards). These criteria, and sources of information on efficient products, are being included in proposed revisions to standard reference sources such as the Federal Acquisition Regulations. The Departments of Defense, Energy, and the National Institute for Building Sciences are collaborating on an effort to compile data bases of construction-related products that have been certified to conform to various public codes and standards, including federal criteria for energy-efficient products.

DOE, in consultation with the supply agencies (DLA, GSA) and major federal purchasers, are defining specific performance levels for each major type of energy-using product, based on an evaluation of the distribution of efficiency for models currently on the market. These models are ranked, using established test methods and published

results, from the least to the most energy-efficient, thus establishing the performance level that corresponds to the upper 25% of efficient models.

In some cases, specific features rather than an energy performance value is used to define energy-efficiency (as with Energy Star computers and other office equipment with a built-in low-power "sleep mode"). Wherever the EPA defines criteria for an Energy Star label, there is a tendency to use these same criteria for purposes of federal procurement. Priority in defining these criteria will go to products frequently purchased or used extensively by federal agencies, which are also distinguished by the availability of comparative performance test data and efficiency improvement opportunities beyond any existing federal standard.

DOE, is also organizing a "Procurement Challenge," inviting all federal agencies to make a specific commitment to purchase "best practice" energy-efficient products, to commit funding to provide an entry market for innovative new products, or to otherwise show leadership in changing their procurement policies and practices to promote energy-efficiency.

5.2 State and Local

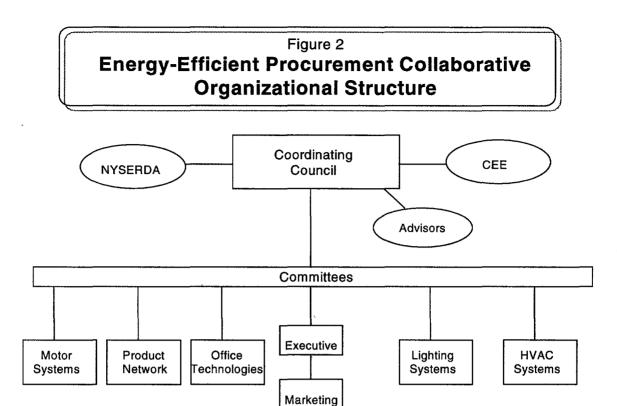
5.2.1 Development of the Energy-Efficient Procurement Collaborative

In late 1993, the New York State Energy Office (NYSEO) sought and obtained a small grant from DOE to explore the feasibility of conducting a federal-state-private sector initiative to promote the purchase of energy-efficient equipment and appliances. Two primary activities were funded through this initial grant. First, a written survey was conducted of energy and procurement officials to determine their need for, and existing access to, information on the energy performance of equipment and appliances. Second, a meeting was held in June 1994 of state and federal energy and procurement officials as well as representatives from many energy and environmental organizations for the purpose of determining interest in a national collaborative to provide such information.

Since the initial meeting, the mission and structure of the Collaborative have been outlined, a Coordinating Council has been formed, and startup funding has been secured from DOE, EPA, and DoD. The Collaborative was originally co-sponsored by the New York State Energy Office and the Consortium for Energy Efficiency (CEE). Following closure of the New York State Energy Office, co-sponsorship of the project was transferred to the New York State Energy Research and Development Authority (NYSERDA). The Collaborative includes participants from utility companies, state energy offices, and not-for-profit organizations throughout the U.S.

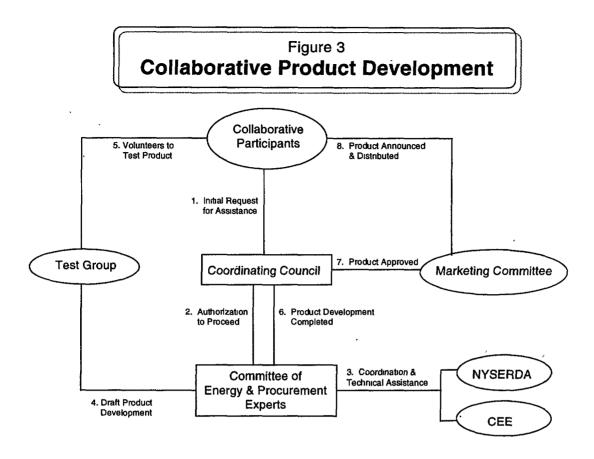
The mission of the Collaborative is to integrate information concerning energy-efficient and environmentally-preferred equipment and appliances into the purchasing practices of federal, state, and local government agencies and private purchasers. More broadly, this effort will stimulate demand and help transform markets for energy-efficient and environmentally-preferred equipment to make it more widely available at less cost.

The organizational structure of the Collaborative consists of an 18-member Coordinating Council, 4 advisors to the Council, and 7 committees. In addition to the executive and marketing committees, committees have been selected to develop procurement strategies for the following technologies: motor systems, office technologies, lighting systems, and heating, ventilating, and air-conditioning (HVAC) systems. The remaining committee is concerned with informational delivery mechanisms, including publication of a directory of existing equipment databases and development of a prototype national product network. It is anticipated that as the Collaborative evolves it will be restructured into a not-for-profit corporation, probably in association with an existing organization. Figure 2 provides a diagram of the current Collaborative structure.



5.2.2 Expected outcomes

Deliverables for the first two years of the Collaborative are designed to meet three specific areas of need identified at the initial meeting. First, participants expressed a need for immediate access to existing data sources. Addressing this need are: publication of a directory of existing data sources and analysis of twelve types of equipment (including publication of equipment listings) for compliance with Executive Order #12902 and CEE energy-efficiency tiers. Second, participants requested development of procurement strategies for four critical technologies. This request led to the formation of the motor systems, office technologies, lighting systems, and HVAC systems committees. The outcomes of these committees will be informational products (recommended specifications, guidelines, cooperative procurement initiatives, etc.) suitable for use by procurement officials. Third, the participants requested a comprehensive access system or product network to provide regularly updated information concerning the energy and environmental performance of energy-consuming equipment and appliances. The Product Network Committee is examining alternatives for providing this access in the most cost-effective manner. Figure 3 is a flow chart of Collaborative product development.



Another significant outcome anticipated from the Collaborative is improved communication between energy and procurement officials in government as well as the private sector. Discussions with state and local procurement decisionmakers reveal that many have limited or no access to data regarding the energy performance of equipment or appliances, unless it is provided by a vendor. Decisions are made daily on a variety of commodities, allowing little time to become expert in energy-efficiency. Although much energy data exists, very few energy-related organizations have the staff resources necessary to adequately evaluate and interpret the data in a manner useful to procurement decisionmakers. It is the intent of the Collaborative to provide the fullest possible exposure for existing information and to work with the manufacturing community to improve data quality, as needed.

The Collaborative also provides energy and procurement officials with a common forum for the development, testing, and use of products designed to improve the energy-efficiency of purchased items. NASPO has decided to form an Energy Committee to provide its membership with a pipeline for Collaborative activities.

5.2.3 Related activities

As mentioned previously, states have experienced some success in complying with mandates to purchase paper and other supplies with recycled content. NASPO created a Data Base of Recycled Commodities in 1992 to support these efforts. During the development phase of Product Network, the use and structure of this service will be examined for possible linkage with the Network.

The Electric Power Research Institute (EPRI), a utility-sponsored research organization, is funding a study of sales data for several types of equipment and appliances. EPRI is a member of the Product Network Committee and areas of common interest between the Committee's scope of work and the Sales Project are being pursued cooperatively.

6. CONCLUSION: Relationship to Market Transformation

6.1 Building market influence

For government purchasing policies to have their greatest impact, they must be part of a visible, open process that encourages active participation by other progressive buyers and by the manufacturers and sellers themselves. Maintaining good communication with government vendors and manufacturers is essential to identify opportunities, resolve any performance problems with newly introduced technology, and to assure that energy-efficient products, especially new products, will be available in adequate quantities to meet both federal and non-federal demand.

By concentrating on purchases by government agencies, other large (corporate or institutional) buyers, and utility incentive programs within a fairly narrow range of efficiency, the market impact of each program will most likely be magnified.

Market leverage can also be increased by assuring that programs are predictable, thus providing adequate lead time for manufacturers and distributors to prepare for meeting buyer demand, and also reasonably stable, so that a supplier can anticipate having adequate time to profit from introducing or expanding a line of more efficient products.

Finally, where an agency such as DOE is also responsible for setting mandatory energy-efficiency standards for some types of equipment, the standard-setting activity needs to be in careful balance with non-regulatory efforts to promote efficient products. At best, the two can compliment one another, with market-pull programs establishing the commercial feasibility and market acceptance of higher-efficiency products well before they are considered for a mandatory standard. At worst, the fear that today's "voluntary" program may lead quickly and inexorably to a mandatory standard could seriously erode industry interest and support.

6.2 New markets and technologies

Federal agencies like DOE and EPA, as well as a number of states, have an opportunity to coordinate their procurement and other market-pull activities with programs of research, development, and demonstration of energy-efficient technologies. For many products, a government procurement initiative may represent the logical next step to full commercialization, following completion of product development and demonstration. Conversely, technology limitations, manufacturing issues, or difficulties with installation and operation may emerge at the early stages of a new procurement, suggesting additional needs for product refinement and helping focus the R&D agenda on issues of immediate practical value. For this two-way communication to work well, agencies may need to redefine the traditional arms-length relationships between their research and "commercialization" (or program implementation) units.

6.3 Tracking market trends and policy impacts

As with any major policy, the pursuit of energy efficiency in government procurement is likely to encounter both unexpected difficulties and opportunities. Feedback on progress and careful monitoring of results will be essential. There are valuable lessons to be learned from both successes and failures, provided that the latter are promptly identified and remedied. Both federal and state agencies, building on existing data sources and working with utilities and industry wherever possible, need to evaluate policy impact in three ways. First, they must be able to track trends in the energy-efficiency of products purchased by government agencies. Second, they should monitor the performance and longevity of these energy-efficient products as they are actually installed and used. Finally, the impact of government purchasing on the larger market must be assessed, including purchasing patterns of other large buyers, the sales-weighted average efficiency for a given product, and the commercial introduction of new, advanced technologies.

6.4 International implications

Recent activities to aggregate markets in the U.S. through collaborative government activities at the state and federal level complement and broaden the potential for market transformation from similar activities in Europe by the Swedish Board for Technical and Industrial Development (NUTEK), the French Energy Agency (ADEME), and others. For example, the Annexe III of the International Energy Agency (IEA) provides a forum for sharing information, targeting technology types, and developing common criteria for the purpose of transforming international markets.

The Annexe III Experts Group has selected three technology areas for further study: copiers, lighting, and wet appliances. The initial committee work of the Energy-Efficient Procurement Collaborative in the U.S. overlaps two of these three technologies, providing significant opportunities for information sharing and collaboration between these two efforts.

7. ACKNOWLEDGEMENTS

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8. ENDNOTES

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- 4. U.S. Bureau of Census, "1990 Census of Population and Housing, Population and Housing Unit Counts; Current Population Reports", p 27
- 5. Mail survey conducted by the New York State Energy Office under a Phase 1 grant for the Energy-Efficient Procurement Collaborative in April/May 1994. A follow-up phone survey was conducted in December 1994.
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- 8. Summary of several phone conversation with Brenda Longest of US Defense General Supply, Richmond, Virginia.
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