# Determining the Success of Market Development Programs and the Continuing Role of Government

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**ABSTRACT**

Evaluating programs that are intended to bring about structural changes in the manufacture, stocking, promotion, sale, and use of energy efficiency products and services poses some interesting and unique challenges. These initiatives are largely government-led and implemented through either regulatory or legislative authority. Aside from the challenges of determining the success of such efforts and the relationship between program actions and market effects, there is the added challenge of knowing when and if government should discontinue its support for such efforts.

This paper develops an overarching policy framework to guide decision makers in determining the effectiveness of these program efforts and government's continuing role, if any, in supporting market development programs. This paper is based on the market development programs being implemented by the New York State Energy Research and Development Authority (NYSERDA) as the statewide administrator of New York's public benefits program, and past experiences of the authors.[1]

## Introduction

Long before the energy efficiency market is deemed "transformed," policy makers need to know whether government involvement is helping to bring about the desired market effects and delivering the intended benefits, beyond those that might otherwise be realized in private markets. A causal relationship between program efforts and measured impacts must be evident for government to continue supporting market development programs. To date, evaluators have successfully developed program logic models that identify indicators that can be used to assess the effects of market development initiatives. In addition, evaluators are able to deduce the longer-term effects of these efforts from the logic. Missing from the literature, however, is an overarching policy framework for viewing market "transformation" programs and assessing the interests and role of government in helping to establish markets for private goods and services.

Market development programs, as defined in this paper, refer to programs designed to help build a market infrastructure for the manufacture, distribution, and sale of energy efficiency products and services. We differentiate between market development and market transformation by viewing transformation as a state of being rather than a set of activities. Once market

[1] The views expressed in this paper are those of the authors and do not necessarily reflect the views of New York State Energy Research and Development Authority or policy makers in New York.

intervention has succeeded in the development of a new or altered market, and the market is self-sustaining, then the market is said to be transformed. Furthermore, once transformed, it is logical to conclude that government intervention is no longer necessary.

## Government Influence in Markets

Government's interest in energy efficiency in general, and technology development and deployment in particular, remains strong. Government's involvement in markets is often necessary to ensure public health and safety and to help overcome market barriers to more efficient resource allocation. This involvement typically occurs: (1) when markets operate exclusively, meaning that not all market participants have access to the services or benefits available in the marketplace; (2) when externalities are a by-product of the production of goods and services and market prices do not reflect the true cost of production; (3) when natural monopolies result in complacency and price fixing or other anti-competitive behavior; and (4) when consumers have limited knowledge and access to information to make informed decisions in their own best interests (Florida Tax Watch, March 1999).

During electric industry restructuring, government is encouraging market development by enacting new laws, providing financial incentives to encourage markets to develop, and streamlining regulations so they are fairer across-the-board to energy market participants and more relevant to and supportive of markets. New York, like many other states, supports energy efficiency public benefit programs that serve the State's residential and smaller commercial and industrial, and institutional customers. The purpose of New York's public benefits program is to ensure that electric industry restructuring (and ensuing competition) will benefit all ratepayers, including the State's most vulnerable customers and those that might otherwise not fully realize the benefits available from competition.

In many circumstances, markets operate efficiently on their own, particularly when private interests align well with the public interests. Private interests, however, are often misaligned with societal interests where energy efficiency and environmental issues are concerned. If private interests of generating excess profits from the sale of inferior consumer goods and consumption outweighs concern for a healthy environment, stable economy, or general improvement in economic well-being, there might exist a need for public policy programs to better align these ends. Market dysfunction can be viewed as a misalignment between the needs and interests of private markets and the needs and interests of society. Figure 1 illustrates the different goals of business and consumer sectors, and government's interest to serve the greater public good. Also shown, are some of the methods used by government to facilitate the development of private markets for public gain.

Technology development and transfer activities help develop products that are viewed by business to be too risky or not meeting short-term return-on-investment (ROI) requirements. Information and educational programs level the playing field between consumers (*i.e.*, the general public) and businesses (*i.e.*, the marketplace). Market support activities speed up a product's life-cycle so that market penetration is more quickly achieved. Collaboration allows different stakeholders to share valuable information. Government, acting as a facilitator, can bring parties together to provide accurate, timely, and objective information to both business and society to better align overarching societal needs and the healthy functioning of private markets.

## Examples of Goal Alignment

Three public policy initiatives are described below that provide a context for viewing government's role in creating and supporting market development and delivering public benefits. These examples highlight the need for, and impact of government's involvement. The three initiatives are the federal Head Start early childhood education program (non-energy example); the Tennessee Valley Authority; and general government procurement practices. Although these examples do not specifically display the role of government in public benefits programs relating to energy efficiency, the lessons learned from these examples provide a backdrop to support government endeavors in this area.

**The Head Start program.**[2] The overarching goal of Head Start is to increase the school readiness of young children in low-income families.[3] Head Start, and its sister program Early Head Start, are designed to serve children from birth to age five, pregnant women, and their families. The program began in 1965 with a national enrollment of 561,000. In 1998, Head Start had its highest annual enrollment ever with 822,316 enrollees. Between 1965 and 1998, Head Start appropriated over $4.35 billion of federal funding, serving a total of 17,714,000 children. The program offers a range of services to low-income children and families including early childhood development, nutrition, parent development, and assistance in medical, dental, and mental health.[4] Although the long-term benefits of the Heat Start program are often debated, most people agree that this population needed and continues to need this support, and that government directly developed the infrastructure necessary to meet this need (that is not being met by private markets).

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[2] Head Start is administered by the Head Start Bureau, the Administration on Children Youth and Families (ACYF), Administration for Children and Families (ACF), and Department of Health and Human Services (DHHS).

[3] Fifty-five percent of Head Start families have an annual income of less than $9,000 per year and 72.7% have annual incomes of less than $12,000.

[4] In 1998, 13 percent of the Head Start enrollment consisted of children with disabilities, (mental retardation, health impairments, visual handicaps, hearing impairments, emotional disturbance, speech and language impairments, orthopedic handicaps and learning disabilities).

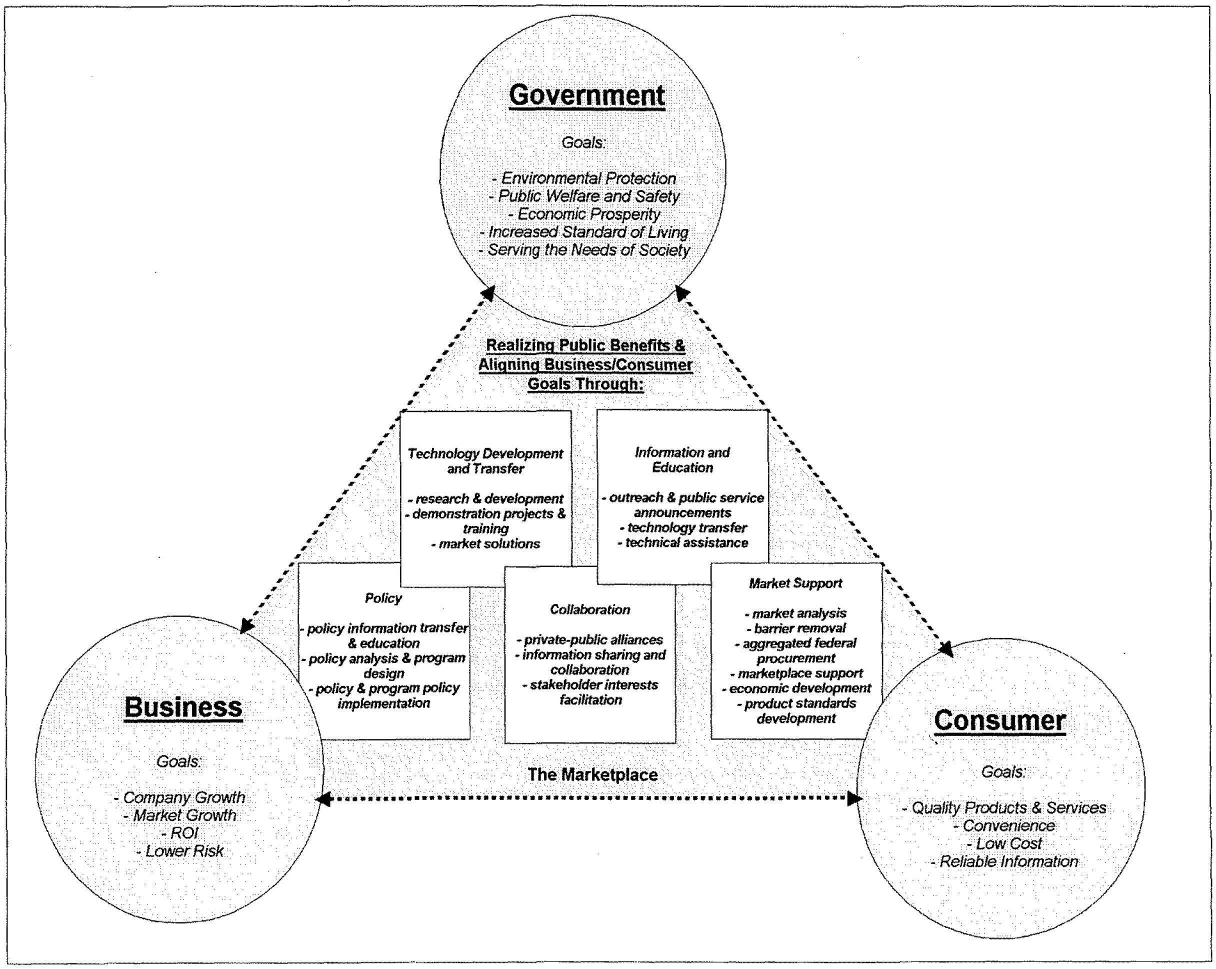


**Figure 1. Government Strategies for Aligning the Goals of the Public, Consumer, and Business Sectors** (Adapted from Pietruszkiewicz, 1999).

**The Tennessee Valley Authority.** The Tennessee Valley Authority (TVA), created in 1933, is another example of government intervention in markets. The TVA, conceived by Franklin D. Roosevelt, was formed to provide electricity, flood control, navigation, and to create jobs. The mission of the TVA was to develop the region economically through innovative strategies that improved the quality of life and the environment. A myriad of construction activities throughout the region (including hydroelectric dam construction, power plant construction, and river channeling) helped spur the introduction of several industries (looking for low-cost and reliable electricity), resulting in increased investment in the Tennessee Valley and making TVA one of the nation's major suppliers of electricity. The TVA has adapted and transformed during its 67 year history, helping to build the electric power market, create jobs, protect the environment (including air and water quality), and develop flood mitigation strategies. These benefits would not have materialized without government support.

**Coordinated procurement.** The federal government spends more than $70 billion a year to purchase supplies and equipment. Approximately 14 to 29% of this amount is spent on energy-related equipment and products (Casey-McCabe, 1994). Harris and Casey-McCabe noted that given the level of expenditures, government can influence markets by first, requiring all purchases to meet minimum energy efficiency criteria, shifting the mix of products manufactured and bringing down costs through increased volume, and second, helping create a market for new technologies that might not be widely available. For example, Executive Order 12845, signed in 1993, require that all federal agencies purchase computer equipment that meets the ENERGY STAR® standard for efficiency.

## The Nature of Energy Efficiency Policy

Government support for the development of energy efficiency markets has included: training and information, financial incentives to various market participants, and multi-media public awareness campaigns. The various strategies can be generalized as either push or pull strategies. While it is easier to conceptualize these strategies as they pertain to energy-efficient products, they also apply to energy efficiency services.

### Push and Pull Strategies

A push strategy is a sales-building strategy in which a producer promotes its product to market intermediaries (*i.e.*, wholesaler, retailer, etc.), who then promote it to customers. The up-stream and mid-stream market actors "push" the product through the supply chain and out to the end user. In terms of government's role in market development of energy-efficiency products and services, a push strategy is any effort by government to increase sales, stocking, or offering and promoting a product or service through up-stream or mid-stream market actors. Government market development programs employing a push strategy target distributors, vendors and retailers, often offering incentives to motivate them to sell more of the product.

A pull strategy is a sales-building strategy which focuses promotion efforts on the end-user, rather than market intermediaries. In the case of consumer products, the objective is to motivate consumers to ask retailers for the product. As a result, retailers will ask wholesalers for the product, and wholesalers will ask the manufacturer for the product. In effect, the initial consumer "pulls" the product through the marketing channel. In developing the market for energy efficiency products and services, government programs can employ consumer awareness campaigns as a pull strategy to inform end users of the product's benefits and increase demand.

The type of strategy deemed most appropriate (push or pull) depends largely on the product, the end user, and the mid-stream market actors and infrastructure. Pull strategies are most effectively employed to promote fairly commonplace products that consumers readily understand. Push strategies might prove more appropriate if the product is new or complex. With a push strategy, the mid-stream market actor is often a more effective means for explaining the product benefits to the customer. Push strategies involve heavy reliance on the sales force and distribution channel. In order for a push strategy to work in new product and service

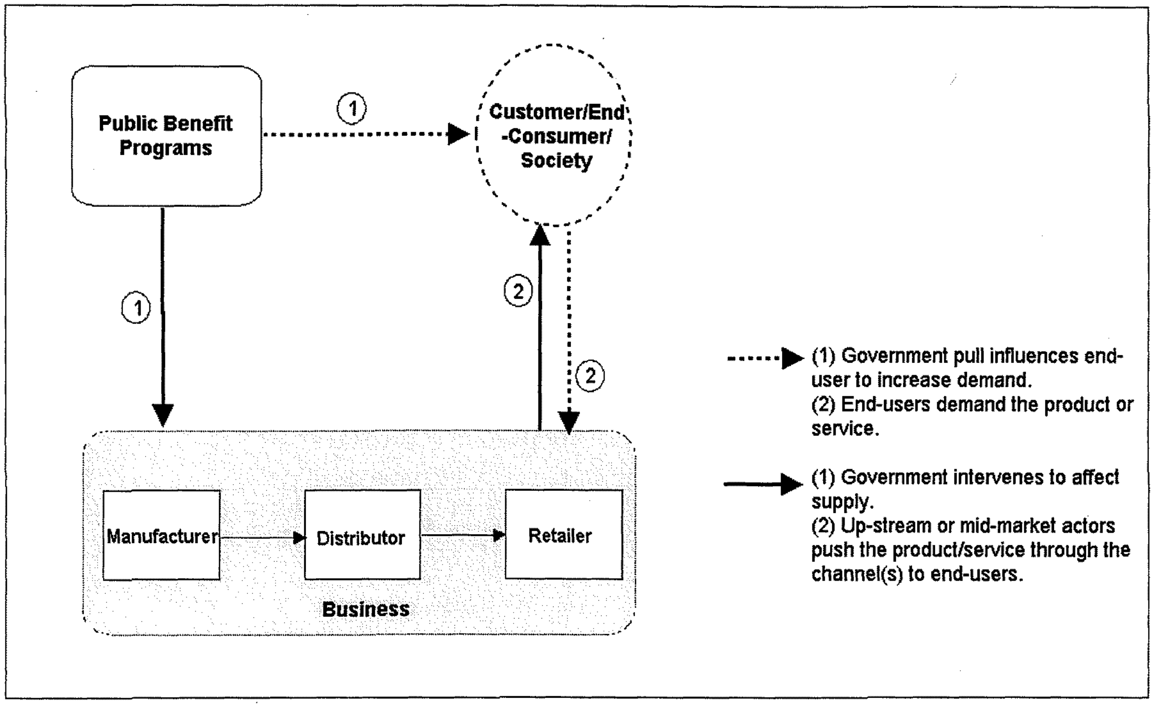


**Figure 2. Government's Use of Push and Pull Strategies**

markets, the program must work closely with mid-stream market actors to strengthen this infrastructure. However, regardless of the strategy selected, an understanding of the product, how consumers view it and make purchasing decisions, and how the mid-stream market functions is critical to implementing the strategy.

Figure 2 illustrates how the push and pull strategies operate in relation to public benefits programs. The dotted lines depict the government's role in increasing consumer awareness, and the customers' effect on the supply chain by demanding certain products or services. The solid lines show government's efforts to increase availability of certain products and services through intervening in the supply chain, and the supply chain participants' efforts to increase sales to end-users.

Table 1 lists common strategies used in energy efficiency market development. Incentives to mid-market actors represent a push strategy, whereas incentives to the end-user represent a pull strategy. Advertising campaigns and consumer education are common examples of pull strategies. Training targeted to service providers represents a push strategy because increased knowledge affords better customer service. Regulations and standards represent both a push and pull strategy: they represent a pull because consumers have certain higher expectations, and a push because consumers are provided with specific alternatives. Finally, coalition building, as in low-income aggregation of energy commodity purchases, is a customer-based action that represents a pull strategy. Two current NYSERDA initiatives are described below to illustrate different push and pull strategies.

**Table 1. Examples of Strategies in Energy Efficiency Market Development Programs.**

| | Targeted Market Actor | | |
|---|---|---|---|
| **Intervention Strategy** | **Mid-Market** | **End Consumer** | **Strategy Type** |
| Incentives | √ | | Push |
| Rebates (customer) | | √ | Pull |
| Mass Marketing | | √ | Pull |
| Consumer Education | | √ | Pull |
| Training/Outreach | √ | | Push |
| Qualification and Certification | √ | | Push |
| Regulations, Standards, Codes, and Guidelines | √ | √ | Push/Pull |
| Coalition Building (i.e. low-income aggregation) | | √ | Pull |

**New York's ENERGY STAR® Appliances and Lighting program.** NYSERDA's efforts to promote ENERGY STAR® products use both push and pull strategies. There are two interconnected parts to this effort: (1) a multi-media public awareness campaign; and (2) a mid-market partnership program. The goal of the ENERGY STAR® Public Awareness campaign is to convey the overarching personal, societal, and economic benefits of energy efficiency, and spur consumers to purchase energy-efficient household appliances. Television, radio and newspaper ads, billboards, mall kiosks; bus advertising, and telephone directory yellow page ads are all part of NYSERDA's pull strategy to increase demand and encourage the purchase of ENERGY STAR® products.

The goal of the mid-market ENERGY STAR® Appliances and Lighting program is to increase the supply, promotion, and sales of ENERGY STAR®-qualifying residential products such as dishwashers, clothes washers, refrigerators, room air conditioners, televisions, VCRs, lighting fixtures, and compact fluorescent bulbs. NYSERDA focuses on the mid-market actors (*i.e.*, retailers, contractors, remodelers, product vendors, etc.) that are capable of influencing customers' purchase decisions. This is largely a push strategy, designed to train and encourage mid-stream market participants to facilitate purchase of more ENERGY STAR® products.

In the case of NYSERDA's ENERGY STAR® efforts, it is appropriate to use both push and pull program strategies. The pull strategy is appropriate since the market for residential appliances, lighting and home electronics is mature, and the products are generally easily understood. The ENERGY STAR® label is an added product feature that is easy to observe, and it greatly simplifies the decision process for consumers. The push strategy is necessary, however, to ensure that consumers receive a consistent message at the point of purchase. Personal promotion is critical in the residential appliance market, and consumers are accustomed to talking to sales representatives and remodelers, and questioning them about the benefits and features of different products. It is important that sales personnel are able to carry the message that energy efficiency is cost-effective.

**New York's Low-Income Aggregation program.** During the transition to retail access and greater customer choice, low-income consumers are believed to be the most vulnerable and least likely to benefit from greater competition. Low-income consumers lack the buying power and demand of large commercial or industrial establishments and therefore, do not have the same access to lower prices. Low-income customers are often in arrears in bill payment, making them even less attractive to energy commodity providers.

In many states and regions, including New York State, government and non-profit entities have recognized the need to ensure that the low-income population can also benefit from the emergence of competition in energy markets. This need is being addressed by establishing aggregation programs that pool thousands of individual low-income customers together (and often group them with other end users) to get a better energy commodity price (and terms and conditions of sale) through bulk purchase. Aggregation programs have been established and have, in many cases, successfully provided fuel oil, natural gas, kerosene, and now electricity, to low-income customers at a reduced prices. Several aggregation programs also incorporate other services such as energy efficiency equipment or measures, educational materials, and billing. In effect, these programs aim to level the playing field and ensure that low-income customers have access to the same benefits as others energy consumers. NYSERDA is currently developing pilot aggregation projects to serve the low-income population in New York State.

Most aggregation efforts can be defined as a pull strategy. These programs inform the consumers of affordable energy alternatives thereby encouraging and empowering them to demand energy commodities in a different way. The consumer "pulls" bulk-purchased energy commodities through the distribution channel. The pull strategy works in this case because the commodities that are purchased under these arrangements are known and easily understood products that have been purchased by consumers for years. In regulated energy markets, it is simple to understand where one could purchase these commodities. Now that there are expanding options for purchasing energy commodities, aggregation efforts serve a similar purpose as advertising: they educate and inform consumers about new options for obtaining a well-known product.

## Discontinuation of Public Policy Programs

Given the limited funding available for public benefit programs and the competing needs of various groups, determining when to discontinue a public policy program is important for those wishing to justify continued government involvement, as well as to those who would argue that funds should be diverted to other uses. With regard to market development programs, the following outcomes would warrant discontinuation of a program:

- The program has achieved its objectives, based on pre-established market indicators and anticipated outcomes;
- Feedback is provided by consumers (and markets) indicating that the product or service being supported is not what is needed or wanted;

- A private provider or market actor sees the value in promoting the product or service, taking over the role that government had played;
- The program has failed to meet its objectives due to a flaw in the program logic, underlying conditions, or new events, that prevent the program from succeeding.

Each of these situations can be viewed in terms of aligning public interests and private interests.

**Claiming victory - alignment of public interests with private interests.** Market development programs use a variety of indicators to determine the progress made toward aligning public and private interests. The three key factors which determine program strategy, namely the product, the end-user, and the mid-stream market, need to be examined when determining the progress made by a market development program effort. Some of the key success indicators, as related to the three key factors, are listed in the Table 2.

**Table 2. Key Indicators for Evaluating the Success of Market Development Programs**

| Key Factor | Market Indicators |
|---|---|
| Product | – decrease in unit cost<br>– increase in unit sales and market share<br>– next generations of the targeted product are developed<br>– decrease in price premium of targeted product versus conventional products or competing products |
| End-user | – increase in customer awareness and understanding of the targeted product or service<br>– significant breadth and depth of customers |
| Mid-stream market | – increase in mid-market actor awareness and understanding of the targeted product or service<br>– increase in stocking or offering, and promotion of targeted product or service among existing providers<br>– increase in the number of targeted product or service providers<br>– significant breadth and depth of targeted mid-market actors |

Depending on the progress on the indicators listed in Table 2, program implementors might claim victory in transforming markets. As previous pointed out, however, this claim is analogous to the claim that the public has embraced the product or service that was being promoted and government intervention is no longer needed. A specific example might be when appliance retailers begin to advertise ENERGY STAR® appliances without advertising incentives currently being offered through the ENERGY STAR® Appliance and Lighting program.

**Negative feedback from the public - public and private interests not aligned.** When laying the groundwork for market development programs, government must act in the best interest of citizens and make justifiable public policy decisions. This is an exceedingly difficult job in the rapidly growing and changing sector of energy efficiency technologies and services. Sometimes, the decisions that are made in the best interest of the public become less favorable given new technology advancements, or new research and knowledge on a subject. These conditions represent situations in which government needs to be responsive to business and society as it reassess its programs and its role.

**Failure to produce desired impacts due to flaw in program execution - public interest activities and public good not aligned**. The indicators listed in Table 2 not only help gauge program success, but they can also help determine the lack of progress toward a given outcome. Market development often takes many years to take hold, and still more years for a market to reach a transformed state. However, continuous program monitoring can lead to the identification of program logic flaws, or false assumptions, producing results that are contrary to both public and private interests.

**Private sector interest - public good is aligned with interests of a specific organization or group.** Sometimes, government market development programs stimulate enough interest that the private sector takes over the activities that were previously performed by government. Profits are made and the public realizes the benefits from the products and services being offered.

## Conclusion

Public benefit programs related to energy efficiency are being implemented in over two dozen states. The purpose of these programs is to support utility restructuring and ease the transition to full electric retail competition by continuing to support energy efficiency, environmental protection, renewable resource development, and public benefit R&D. Knowing when competitive markets have been fully developed (or developed as well as they can be) and when government should consider discontinuing support for the public benefits programs is the critical issue addressed by this paper. Our investigation has led us to the following general conclusions:

1. Government intervention in market development is often necessary to align public and private interests, particularly in situations where private gain (benefit) is being realized at the expense of, or detriment to, general public well-being, or where markets are not allocating resources in the most efficient manner.

2. Public benefit programs, such as those described in this paper, promote greater well-being of society in general, and of our most vulnerable segments of society in particular. Ways can be found to promote both public and private interests with creative partnerships, wider dissemination of information, and targeted market development.

3. Continuous monitoring and evaluation of markets and market development activities is necessary to help determine the appropriateness and level of government involvement in markets.

4. The policy framework developed in this paper could serve as a guide or starting point for further discussion of how government views its role in market development.

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