

# Principles of Approach – The Role of State Government in Recycling Market Development

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In this section, principles of approach for recycling market development in Pennsylvania are outlined. These were developed, initially, by members of the R.W. Beck project team, based upon knowledge regarding factors that contribute to the effectiveness of recycling market development efforts underway in other states. Pennsylvania-specific programmatic recommendations will be based on these principles of approach.

***Given the nature of the U.S. and global economy, the marketplace is the primary, and preferred, mechanism for allocating resources (e.g., secondary materials, recycled products, labor, capital, and equipment). The role of state government in promoting market development is to identify and address inefficiencies in the marketplace.*** The Commonwealth of Pennsylvania does not seek to replace markets, but to make markets work better and to encourage recyclable materials suppliers, processors, and end users to be more effective players in the marketplace. Types of inefficiencies in secondary materials markets that the Commonwealth will work to address include:

- **Imperfect flow of information** – Market players may make inappropriate decisions because of a lack of information, lack of access to existing information, or misinformation. For example, a manufacturer may not know that secondary feedstock can be substituted for virgin feedstock without negative consequences; a seller and potential buyer of secondary materials may not know of each other’s existence; and an entrepreneur, economic developer, or venture capitalist may not fully appreciate the profit potential of a new recycling business.
- **Uncertainty about future market conditions** – Unknowns regarding the quantity, price and quality of secondary material supplies, about the demand for secondary materials and recycled products, and about forthcoming regulations and their impacts on markets can inhibit investment in recycling collection, processing or manufacturing capacity.
- **Risk aversion** – Financial investors of venture capital and debt finance have a wide range of choices regarding the types of businesses in which to invest. Some investors may decide to avoid investing in certain recycling businesses, with a perception that they are too risky, even if the investors are adequately compensated for the risk. Recycling business development is then inhibited by a lack of capital.
- **Mispricing of materials and products due to undervaluing public benefits and/or costs** – In efficient markets, the prices of goods fully reflect the costs and benefits to society. However, in the real world, prices usually reflect only the costs and benefits to the buyer and seller. The benefits of recycling that accrue to the public, e.g., conservation of resources, reduced pollution, and avoided landfill costs, are not incorporated into the price, leading to prices for secondary materials that are priced below their true value. In addition, there are certain costs of recycling, for example, the unpaid labor provided by residents in source separating waste, that are not reflected in the price they receive for their efforts. Mispricing

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of secondary materials and recycled products (reflecting what economists call “externalities”) can constrain both supply and demand. In addition, mispricing of primary materials, by failing to internalize associated environmental and resource depletion costs and the impact of virgin subsidies, makes it more difficult for secondary materials to compete against primary materials in the marketplace. Likewise, failure to incorporate the associated environmental and resource depletion costs in the price of waste disposal services, such as landfilling, can inhibit recovery of secondary materials which affects the price of secondary materials supply.

- Inability to reach economies of scale –New recycled products often are manufactured in small production runs, reflecting low initial demand. However, small production runs can result in high per unit costs, which can keep demand low. If demand (or supply of input materials, in instances where insufficient feedstock is limiting production) were to grow, runs can get larger and per unit costs would fall, which would further stimulate demand.
- High transaction costs – Each transaction in the marketplace carries a certain cost, which may be low or high. Transaction costs can include information search time and expense (e.g., to find qualified buyers, assess market conditions, locate materials with suitable characteristics), legal and regulatory activities (e.g., obtaining permits, drawing up contracts), and transportation time and expense (of materials and people). In efficient markets, transaction costs do not prevent transactions from occurring. However, in the real world, high transaction costs can scuttle deals; market actors may decide that costs of carrying out the transactions exceed the likely benefits. For instance, a business may decide that the cost of delaying production in order to obtain environmental permits is too high, that long-haul trucking rates are too high to justify a deal, or that the time and funds needed to research markets are too high to consider developing a new product.
- Unrestricted nature of technical information – Technical innovation can lead to new levels of recycling activity through developing new recycled products and new collection, processing and manufacturing technologies. However, despite the protections of the patent system, technology development can be inhibited if it is thought that competitors can replicate innovations at low cost. Technical information is a “public good,” that is, it is inexpensive or free to obtain and use unless well hidden from competitors or guarded by legal protections. In addition, because of this, many companies are unwilling to share technical information.

***The policy and program tools designed and implemented by the Commonwealth should address specific identified market inefficiencies.*** Categories of tools that are available include:

- Information – Providing market players with information, e.g., market assessments and related data, recycling business directories, technical information and assistance, opportunity analysis, procurement training, consumer education, referrals to appropriate resources such as state and local economic developers.
- Facilitation – Bringing market players together, e.g., through stakeholder forums, linking of specific suppliers and end users, materials exchanges.
- Financial assistance – Using financial incentives to influence market behavior, e.g., through the availability of grants, investments (loans, equity), and tax incentives to encourage certain behaviors, and the imposition of taxes and fees to discourage others.

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- Buy recycled programs – Using the State's procurement system to increase purchases of recycled products, using such tools as price preferences, set-asides, material and bid specifications, voluntary agreements, and best value contracts, cooperative purchasing, as well as working to influence the purchasing practices of other organizations.
- Regulation – Establishing rules and policies that require certain actions concerning secondary materials and prohibit others; examples of regulatory tools include recycled content requirements, landfill bans, and bottle bills.

Each category of market development tools is appropriate for addressing certain types of market inefficiencies. Examples of market development tools by type of inefficiency are provided in Table 1. Strategies can be developed that reflect a combination of tools selected and designed to address specific market inefficiencies.

***When a market inefficiency can be addressed by one of several tools, state government should utilize the most cost-effective tool.*** In comparing tool options, information and facilitation should be given due consideration, as they often are the most cost-effective and flexible. A financing (e.g., grants and loans) program or regulatory approach should be chosen only if it is clear that other tools would not be as cost-effective.

***In addition, state government should leverage existing public and private sector programs and other resources in making appropriate use of existing tools as well as in creating new tools.*** State government should establish criteria to determine when providing services is appropriate and should provide direct services (e.g., loans, technical assistance) to particular market segments in instances in which the private sector is unable or unwilling to provide such services at affordable cost to that market segment, and would not respond to new incentives to do so.

## Components of a Recycling Market Development System in Pennsylvania

To maximize the impact on the State's recycling rate, and on economic development, the foundation of Pennsylvania's market development effort should be to build its capacity to identify and address market inefficiencies as they appear over time. More specifically, the State ideally should have in place:

- A ***market intelligence system*** that enables state recycling market development personnel and other key stakeholders to stay abreast of market conditions and trends for the full range of recyclable materials currently targeted by state recycling legislation and programs, as well as other recyclable materials that may play an increasingly important role in future recycling activities.
- An ongoing ***strategic planning effort*** that identifies and determines means to address market opportunities and challenges;
- ***Market development tools and staff***, with adequate funding, to address the identified opportunities and challenges;
- Means for ***evaluating*** the impacts of programmatic efforts, and adjusting strategies and tools accordingly; and

- A mechanism for ongoing *communication, consensus and coordination* among pertinent agencies and organizations in order to effectively guide and manage the above.

## Overall Goal of a State Recycling Market Development Effort

The primary aim of a Pennsylvania recycling market development effort should be to increase the use of Pennsylvania-generated secondary materials in product manufacturing.

While the focus of state-led recycling market development efforts should be on the use of such materials by existing, start-up, and recruited Pennsylvania businesses, it also is appropriate to take advantage of opportunities for export of Pennsylvania-generated secondary materials that cannot be cost-effectively consumed in the state. In addition, in general, recycling market development efforts should seek to improve economic development conditions in Pennsylvania through:

- Increasing the competitiveness of the state's industries,
- Taking advantage of economic development programs associated with brownfields and enterprise zones,
- Reducing unemployment, and
- Creating improved job opportunities for Pennsylvania workers.

## Approach

The approach to achieving the primary goal of recycling market development is two-pronged in nature. The first prong is a set of general (cross-material) strategies that expand the state's capacity to promote recycling market development. The second prong is a set of strategies that are material-specific in nature.

***General strategies should be employed that seek to put in place tools and resources that can identify and respond to market development opportunities across a wide range of materials.*** These strategies are largely “demand-pull” in nature – that is, they seek to stimulate demand for secondary materials. The rationale for this approach is as follows:

- Market development success is most likely to occur if numerous and diversified market development opportunities are encouraged and supported.
- The State cannot proactively identify and pursue all market development opportunities, though it certainly can pursue some.
- The State can put the tools in place that stimulate firms and entrepreneurs to utilize secondary materials and expand recycling products manufacturing on their own initiative, whether or not they ever seek assistance from the State.

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**Table 1 - Examples of Market Development Tools Listed by Type of Market Inefficiency**

Market Inefficiency	Market Development Tools					
	Information & Tech. Assistance	Buy Recycled	Direct Finance	Grants	Taxes and Fees	Regulation
<i>Imperfect Flow of Information</i>	Market Data, Recycling Directories, Waste Exchanges, Business Outreach, Procurement Training, Newsletters, Best Practices Guidance	Directory of Recycled Product Vendors; Purchasing Policies and Guidelines; Promotion to Consumers, Retailers and Manufacturers	Loans & Loan Guarantees, Bond Financing, Equity Financing, Royalty Financing	Grants to Local Governments and Nonprofit Organizations		Product Labeling, Recycled Content Requirements
<i>Uncertainty About Future Markets</i>	Market Studies/Projections, Demonstration Projects, Testing, Model Contracts	Set-asides, Guaranteed Purchases, Cooperative Purchasing	Loans & Loan Guarantees, Bond Financing, Equity Financing, Royalty Financing			Utilization Requirements
<i>Mispricing due to Undervaluing Public Benefits and Costs</i>	Outreach, Education	Bid & Material Specs, Price Preferences	Low Interest Loans, All Below	Grants to Local Governments and Nonprofit Organizations	Tax Credits, Tax Exemptions, Rebates, Tax on Virgin Materials	Utilization Requirements, Voluntary Use Agreements
<i>High Transaction Costs</i>	Market Data, Recycling Directories, Waste Exchanges	Cooperative Purchasing	Loan Programs, Equity Programs, Royalty Financing	Grants to Local Governments and Nonprofit Organizations		
<i>Difficulty Reaching Economies of Scale</i>	Recycled Products Directory, Outreach, Education	Set-asides, Guaranteed Purchases, Cooperative Purchasing		Grants to Influence Materials Throughput	Tax Credits, Tax Exemptions, Rebates, Tax on Virgin Materials	Voluntary Agreements
<i>Aversion to Risk</i>	Accurate Market Data		Loans and Loan Guarantees, Bond Financing, Equity Financing, Royalty Financing			
<i>Unrestricted Nature of Information</i>	Outreach, Education			Research Grants	R&D Tax Credits	

***For the most part, the suggested cross-material strategies should combine “wholesale” and “retail” efforts.*** Wholesale efforts provide large numbers of market players with access to a wide variety of resources (informational, financial, technical, personnel and otherwise). Retail efforts involve one-on-one service to individual clients. Wholesale efforts involve providing standardized products (e.g., a guide to resources or access to a data base) not customized to individual clients, and serving as the intermediary for retail services provided by other organizations. A recycling market development agency can serve as a wholesaler by facilitating client access to services provided by organizations such as business development agencies, universities, and consulting firms. Conversely, these other organizations can guide clients to services provided by recycling market development agencies.

A combination of wholesale and retail services is important. Wholesale services are more efficient than retail in reaching a wide audience. Retail services are more effective than wholesale in providing the type of service needed by a particular client. Wholesale services also are effective mechanisms for screening out clients with low prospects for success, allowing retail services to focus on ones with a greater probability of success.

***Material-specific strategies are an important adjunct to the cross-material strategies. State efforts in identifying and realizing a small number of material-specific strategies should supplement, not dominate, its efforts to encourage markets at large to use more Pennsylvania-generated secondary materials.*** Markets for secondary materials in Pennsylvania are quite diverse and cover a large number of commodities and grades. While there are some strategies that can address barriers affecting the marketability of secondary materials in general, as discussed above, some market development opportunities are material-specific in nature, and require a material-specific approach. The public sector has neither the resources nor the skills to successfully address all of the ever-changing market inefficiencies and opportunities for over 50 recyclable commodity grades and markets for thousands of various recycled products. Consequently, it is important that material-specific recycling market development efforts in Pennsylvania be focused on implementing strategies that have the greatest potential to aid the State in maximizing recycling. Criteria to be utilized in selecting material-specific opportunities meriting state attention include:

- A sufficient supply of the recyclable material can be obtained with the quality required;
- Use of the recyclable material to make a recycled product has technical feasibility;
- Pennsylvania-based firms that would produce the recycled product have some competitive advantage in selling that product;
- Sufficient demand exists for the recycled product to allow the producer to make a profit;
- Major challenges (e.g., technical, economic) to the implementation of the opportunity can be identified, have not been addressed by the market working alone, and have the potential to be overcome through state intervention;
- Realization of the market opportunity has the potential to result in tangible additional diversion of MSW; and
- Realization of the market opportunity has potential economic benefits, for example, job creation/retention, increased competitiveness, and increased entrepreneurship.

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In its attempt to effectively influence markets, Pennsylvania should enhance its capacity to identify and react to important material-specific opportunities and challenges as they arise. In particular, the State should develop its ability to react in a timely fashion to unexpected opportunities that businesses bring to its attention. The timeframe for business decision-making typically is far shorter than the traditional timeframe for government action; to be effective, the State must narrow this gap. Pennsylvania recycling market developers should strive to become as fast, creative, and entrepreneurial as the recycling businesses they work to develop.