Massachusetts Department of Environmental Protection (MassDEP)
Recycling Market Development Workgroup
April 7, 2022, 1:00 pm to 3:00 pm
Meeting Summary
Topic: Business Support and Economic Development Strategies

The meeting featured four breakout groups, each focused on different groups of recyclable materials:

1. **Packaging – all forms of packaging**
2. **Organics – food scraps and other organics**
3. **Construction & Bulky Materials – construction, furniture and other bulky materials, mattresses and household goods (including textiles)**
4. **Materials with New and Emerging Markets – such as solar panels and wind turbines**

Group 1 (Packaging) Notes

What are the barriers in developing these markets that could be improved through business support?

Packaging is challenging because of ever-changing materials, technology, layers of materials within packaging, and the continued flow of non-recyclable packaging in markets.

There are tricky conundrums and challenges. Education is key - knowing what to recycle, how to recycle and the motivation to recycle it. Massachusetts residents want to recycle. The bottle deposit can work, and containers are still being recycled even if they're not being redeemed. The MA Beverage Association wants to be part of the discussion. It mostly comes down to education and funding.

Q: The "chasing arrows" are confusing. What numbers are recyclable? We know plastic bags are recyclable, but is other plastic packaging ? Re: bottle deposits: would MassDEP consider having a place to take back all redeemables?
A: That's generally been the role of redemption centers. A number of those centers have closed in recent years and the redemption rate has gone down. Accessibility to these centers is a barrier.

Re: chasing arrows – for many of us, recycling is a passion, and/or our job. What about a person with less knowledge or passion for recycling? They won't go out of their way to figure out what to do with these materials.

For polystyrene, the barriers are collection and getting people to know it is recyclable. Some municipalities have started collecting it. Keeping it clean and in clear bags has worked, but not all municipalities are able to do that. It's a lightweight material, not MRF-ready, and needs a separate collection program.

People may be confused about polystyrene's recyclability since it's not something that goes in the blue bin – as opposed to beverage containers, which are recyclable; everyone knows they're recyclable.

Glass is a MRF-ready material, but the infrastructure for glass in MA has changed. Some municipalities have partnered as a collection point for glass.

Glass is heavy, costly to ship, difficult to manage and dangerous to work with. The value per ton is low, and we need some way to ship it because there is no processing facility in MA for things like insulation or bottling. Parag Tandon is working on a startup funded by National Science Foundation investigating more sustainable glass reuse and recycling. Since moving it kills the value in it, perhaps a mobile platform for processing would be an idea.

Urban Mining Industries is trying to bring a glass processing plant to MA and already has a plant in Connecticut that is making a concrete substitute (Pozzotive) using glass. Real estate issues and siting have made it difficult to bring a facility to MA. We want to collect and process glass locally. The MA DOT can use some materials. We're trying to educate the general population: putting glass into concrete has a smaller carbon footprint. The MA DOT standards have a big influence in use of materials.

Pouches and other packaging are not all bad - they are lightweight and save on carbon. For EPR to work, pouches may have to go to mono material or chemical recycling. Technology is coming along, but it's a matter of logistics and acceptance of chemical recycling. It's a chicken and egg scenario.

MassDEP has a limited amount of funding – how can that funding achieve the greatest growth for in-state markets?

Unclaimed deposits result in a lot of unclaimed nickels going to the General Fund. Could some of that be used for recycling? How do we grow the infrastructure to recycle packaging?

Some entities who have received Recycling Business Development Grants or SMRP grants from MassDEP have worked directly with municipalities on these projects.

MassDEP has offered waste reduction grants for non-profit or regional groups that work with a municipality. Grant monies have been cut, but we could see more of these in the future.

The $275 million infrastructure bill will include some money that can be used for recycling. Can this be used for things like getting more Recycling IQ kits to towns? MA Beverage Association would like to help communities get additional funding and come up with case studies.

What's the highest benefit to society/environment? Should a product be turned into new products? Is it carbon capture? Putting people to work in recycling? We have interlocking goals and need to think in terms of goals.

What other organizations should we partner with to support recycling businesses?

In the 1990s, MassDEP worked with the newspaper industry to increase recycled content. Could we work with the MA Retailers Association or a similar group to increase recyclable content in consumer product packaging? Or for online orders? And then does it have a place to go? A tube of toothpaste says it's easily recyclable, but is it?

Recyclopedia and Recycle Smart have been very helpful in educating people. We can always use more exposure. Partnerships with other organizations can help communicate these principles to larger groups and more people.

The Recycling Partnership, Closed Loop Fund, "Every Bottle Back" program and opportunities for public space recycling are important.

What program models in other states should we consider for Massachusetts?

North Carolina has a circular program that works; bars have to participate or their licenses could be revoked. South Carolina's program is tied to economic development. They have a great database. Rhode Island processes glass locally before sending to MRF.

Accelerators are needed. Look at Greentown Labs. It allows you to look at different solutions and evaluate quickly, and to optimize resources to test what is working and what isn't.

Group 2 (Organics) Notes

What are the barriers in developing these markets that could be improved through business support?

The quality of organics generated - the right material needs to go to the right market.

Quality and quantity impacts collection and aggregation infrastructure, and vice versa.

Education is a separate session, but lack of education presents a barrier to market development. Generators are not clear on how to separate, sort and identify what organic material can be diverted.

Aggregation cost: the cost of programs is a barrier to increasing volume that would prompt greater infrastructure development. The smaller the generator, for instance, the higher the cost of collection.

Lowering the Waste Ban threshold may help increase volume.

MassDEP has a limited amount of funding – how can that funding achieve the greatest growth for in-state markets?

Regulation helped increase diversion to compost. Working with organizations affected by contamination led to consolidated messages and actions.

RecyclingWorks in Massachusetts provides no-cost technical assistance to help businesses address challenges to waste management, including source separation, training employees, creating signage, etc.

Q: Does MassDEP track what percentage of funding goes to end site development vs. helping generators?
A: The two main programs to fund end site development are the Recycling Business Development Grant and Recycling Loan Fund. MassDEP has typically allocated about $1 million per year to RBDG grants, depending on demand. The Loan Fund is a revolving fund that typically has several million dollars available. Coming soon: A new Waste Reduction Innovation Grant Program with an additional $1 million budget.

There are labor issues, workforce issues.

Q: Many municipalities are starting to look at what they can do with organics diversion. Are funds available for the municipal sector to overcome early hurdles to get a program started?
A: MassDEP has the Recycling Dividends Program ($3-3.5 mil)
Comment: Maybe consider having services covered as well as equipment for municipalities.

Some funding has been focused on anaerobic digestion but has mostly been tech-neutral.

Q: Would MassDEP consider a rolling basis for RDBG grant?
A: Currently MassDEP likes to competitively look at the pool of applicants together and this is more efficient from program administration standpoint.

Q: Is there a web resource for food rescue grants? Sustainable Milton has members that volunteer to rescue food from local grocery stores and redistribute it, but all the running around is done out of pocket. We would love to support those volunteers with a grant if possible.
A: Municipalities like Hamilton and Hingham are doing municipal-wide composting. The MA Food Policy Council has brought together diverse food organizations. The MA Department of Agricultural Resources is a resource, as well as ReFed- https://refed.org/our-work/initiatives/catalytic-grant-fund/ on a national level.

Grants to support volunteers working to recover food.

To increase end user confidence in products like compost, the state could fund more testing (possibly U.S. Compositing Council Seal of Testing Assurance program).

What other organizations should we partner with to support recycling businesses?

Market information to faith-based communities: target leaders in organizations to help them understand how they can be helpful and develop marketing campaign so they can spread message.

U.S. Department of Energy.

Study and understand considerations for compost vs. anaerobic digestion and educate on this.

Partner with organizations for education. For instance, a food convention in Boston had nothing about organics waste ban change; restaurants are ignorant of change coming in November.

What program models in other states should we consider for Massachusetts?

Q: The State of Missouri allows for lenders to take a first position on equipment so organic recyclers could purchase equipment that costs more than the grant. Has Massachusetts thought of doing the same?

A: Many entities apply for the Recycling Loan Fund and also receive grants from MassDEP
https://www.bdcnewengland.com/programs/massachusetts-recycling-loan-fund/

Group 3 (Construction & Bulky Materials) Notes

What are the barriers in developing these markets that could be improved through business support?

Technology, on-site storage (space limitations), education and workforce development.

The Vinyl Sustainability Council wants to recycle vinyl. There's a big demand, but we need more supply. The challenge is with logistics and matching supply and demand. It would be ideal to collect vinyl directly from the job site, but that is difficult to do. Lots of PVC ends up at C&D sites: how do we get it from the C&D site so we can collect and recycle it? Council would love to partner w/ C&D facilities.

What local vendors accept vinyl material? Can we explore vinyl reuse as opposed to just recycling? The City of Boston has heard there is limited time to manage demolition materials on a job site because of MassDEP permitting requirement to complete demolition within a certain number of days. This might constrain collection of usable materials. Storage is also an issue – is there a way to facilitate making use of vacant space in the city for storage of these materials?

Return is a model for vinyl recycling. Does not have to be pristine clean; the issue is storage and aggregating the material efficiently in one place to get to the recyclers on time.

The barrier is education – many contractors are unaware of the options. MassDEP should help educate both residential and commercial contractors. Create an umbrella policy: focus on recycling first but then expanding to reuse and reducing waste.

There are limitations based on type of facility and equipment, the size of operation and ability to pull materials from the waste stream. The majority of C&D separation is done by hand – workforce limitations.

Agree that education is key. Pull away from mandates (Waste Bans) because we don't see the technology coming to advance how facilities are separating.

Q: Is there any way to develop carpet recycling infrastructure in the state?
A: The challenge is that most carpet manufacturers and recyclers are in the southeast part of the US so it is hard to get carpet materials down there.

MassDEP has a limited amount of funding – how can that funding achieve the greatest growth of in-state markets?

Grant programs are helpful – can MassDEP expand on this; can MassDEP be the coordinator of an internship program to expose people to the field? Also facilitate more networking?

Utilize the RecyclingWorks in Massachusetts website – we can add to the database. RecyclingWorks also offers free technical assistance and offers resources for anyone looking for support.

Robotics can be applied to sorting – new tech and equipment. Can we look to grants to help companies invest in these things which will help workforce issues?

Q: RBDG grants have given a lot of funding out to C&D facilities that mostly has to do with process enhancements. Why isn't this funding generating more markets in MA to reuse material? What could MassDEP do to make RBDG create more market development?
A: Reuse projects are eligible for RBDG grants. Across the board, MassDEP have been hearing that a major challenge is supply and demand and storage. Also technology, outreach and education, and funding.

More networking to raise awareness – specifically for waste haulers and others in this space. Just so they are aware of what the recycling and reuse options are available.

C&D facilities would welcome funding and new technology.

Improve waste ban enforcement on materials that are the worst for landfills and combustion facilities and expand that list.

Ramp up C&D separation requirements.

What other organizations should we partner with to support recycling businesses?

The Center for EcoTechnology has done some work on deconstruction with building developers; there is no mandate but they are finding that some developers are interested.

Waste bans incentivize municipalities to recycle: if a waste ban item is in their load, they will be rejected from a MSW facility. C&D works differently as they accept mixed loads – would it work for these facilities to reject loads?

Q: What is happening in MA for textile recycling – specifically for polyester and cellulose materials?
A: MassDEP recently met with a company called Accelerating Circularity that is working on a pilot program for textile recycling blends. They are fiberizing the textiles and taking materials down to cellulose, also chemical recycling and infrared textile sorting to identify resin type easily so they can be sorted and create feedstock for operations. Brands are stepping up and getting involved as well to demonstrate they are being sustainable and reducing climate footprint.

Make contractors more aware of Waste Bans.

Make haulers aware of resources like The Great Exchange before disposal.

Only way to move these materials is to develop markets – spend money to develop markets and they will come. One idea is to require DOT to use recycled content materials in their roads and infrastructure in the state.

Work w/ higher education institutions (maybe MIT?) – possibly find grad students that will help with some of these ideas mentioned on the call.

What program models in other states should we consider for Massachusetts?

Discussed workforce development program in Springfield. This has a lot of potential to be connected to reuse industry. There are training programs for women, such as a window repair and restoration program. Endless supply of windows that could be reused instead of moving out of state to NY and PA because commercial demolition cannot go to reuse in MA because of the potential for lead paint.

Save lumber by de-leading facilities i.e. EPA strategy. A challenge is the ability to store large quantities of lumber – if we can do this, we can create more jobs. We just need a location (a DOT site?). Also need a de-leading processing system.

Group 4 (Materials with New and Emerging Markets) Notes

What are the barriers in developing these markets that could be improved through business support?

Funding for start-ups.

Product stewardship: it's important for manufacturers to be responsible for products they create. The focus is on getting household trash to zero waste while there are bigger issues that are not being addressed right now (likes solar panels, wind turbines, etc.)

Creating demand for recycled materials.

Pulling out the values of the materials (solar panels/wind turbines/EV batteries)

Transportation and hauling of heavy materials like solar panels.

Clean Seas said they face some challenges and an unclear regulatory pathway. They want to access plastic that is pushed to contamination at MRFs because there are no markets for it, but it could still have value. MRFs need to see economic incentives to pull these "nonrecyclable" plastics out of the solid waste stream and keep them out of landfills/incinerators.

We could better identify nonrecyclable plastics and should put resources and innovations into that research to see what can be made with them.

It would be great to hear the experiences of folks that are already working to recycle these items to hear firsthand of the problems, barriers keeping them from moving forward and expanding everywhere, whether it is investment, regulations, etc.

MassDEP has a limited amount of funding – how can that funding achieve the greatest growth of in-state markets?

It depends on the material and the maturity of the market, but overall, technical assistance, seed funding, or assistance getting to markets would be most helpful.

We need to identify who is already recycling or processing these materials – are they in Massachusetts? If not, are there new businesses that want to start in the state that can be given grants to start?

MassDEP has a $1 million innovation grant program that hasn't yet rolled out.

Technical assistance is important for businesses that are going after new ways of recycling. They need guidance from advisors or consultants for either the business or technology side of it.

A successful funding model would be to give grants to programs that try to achieve a sustainable economic model – for a few years, while they develop a self-sustaining cycle. Seed money can go a long way. Focus should be to develop the demand and the supply for the demand.

A stipend for experts to deliver knowledge to the workforce development industry.

What other organizations should we partner with to support recycling businesses?

New and emerging businesses that are using models like a simple storefront that wants to sell 90 percent of items made with recycled materials.

If we are asking manufacturers about their plans for end-of-life of products, we should start to ask those questions of every installer of solar panels, wind turbines, and large battery arrays. One thought is to make them submit an end-of-life plan before installation. Demand that they have a plan so they are incentivized to invest money into these plans.

There should be meetings where manufacturers of products that require post-use management sit down with those that deal with managing it. Previous meetings like this have been productive. Different parts of the recycling chain should meet each other.

MassDEP is working on a solar White Paper that is a product of discussions with solar panel installers and academic research.

Must build connections between communities, transportation, and recyclers, for a full circular economy that is self-sustaining.

Transportation and hauling are often overlooked when thinking about markets. Solar panels and wind turbines are large and difficult to transport, so focusing on transportation while thinking about markets and technology is important to ensure these materials are transported safely to recycler/processors.

The Chelsea Center partnered with universities to look at new ways to divert recyclable materials and work with manufacturers, giving technical assistance to any that wanted to use recycled materials.

We don't utilize university research capacity as much as we should.

MassDEP is working with MIT and shoe manufacturers on an action plan for the circularity of the shoe waste stream and agreed that there should be more collaborations like this in the future, and more mentoring opportunities.

UMass Lowell has one of the top plastics engineering departments - this can be a good opportunity.

The university fiscal year and MassDEP Fiscal year does not match, need to marry these two.

MassDEP can partner with federally funded innovation centers – the Advanced Functional Fabrics of America is one example that is local. Should bring together universities, private businesses in a cooperative model to harness innovation and even sponsor it. Innovation could be out there but needs seed money and the right people to move forward.

Startups are the future – they need funding. We could hold special waste-related events to bring together people from across the industry and pitch ideas.

Utilize business accelerators and start-ups: Black Soldier Fly, Greentown Labs, Mass Venture.

What program models in other states should we consider for Massachusetts?

We need to build end-of-life management into state contracts.

It would be good to add advanced disposal fees where the money goes to research and development to research alternative disposal methods.

The Chelsea Center created a directory of testing labs for the recycling industry across the country. This document could be updated to include testing labs that can be helpful for new materials that were not prevalent years ago.

South Carolina's economic development offices include one recycling industry expert and one economic development expert that was funded by the EPA years ago, to assist companies in finding partners: one that has the material and one that would use the end product.

Schools and restaurants: there is a group that pays the difference between the cost of reusables and single-use plastics for restaurants and schools, and that this is an example of work that could be replicated here.

For municipalities, solar panels costs thousands to install but hundreds of thousands to clean it up years later. A waste ban would push recycling and if we listen to solar businesses that say the panels are good for 20 years, then we have time to develop recyclers.

Solar panels could be a waste ban item because waste bans are catalysts for markets. Further ideas for solar panels: an advance disposal fee that goes to R&D, testing labs for recycling materials, collaboration with academic institutions and non-profits.