



# Circular Matters

## Recycling Market Development

Michigan Recycling Coalition  
Ann Arbor, MI  
May 16, 2019



# Recycling Market Development

- RMD in the US – A Look Back and a Look Forward
- What is RMD?
- History of RMD
- How to Approach RMD
- Key Principles of Successful RMD
- Current RMD Initiatives
- Today's Needs

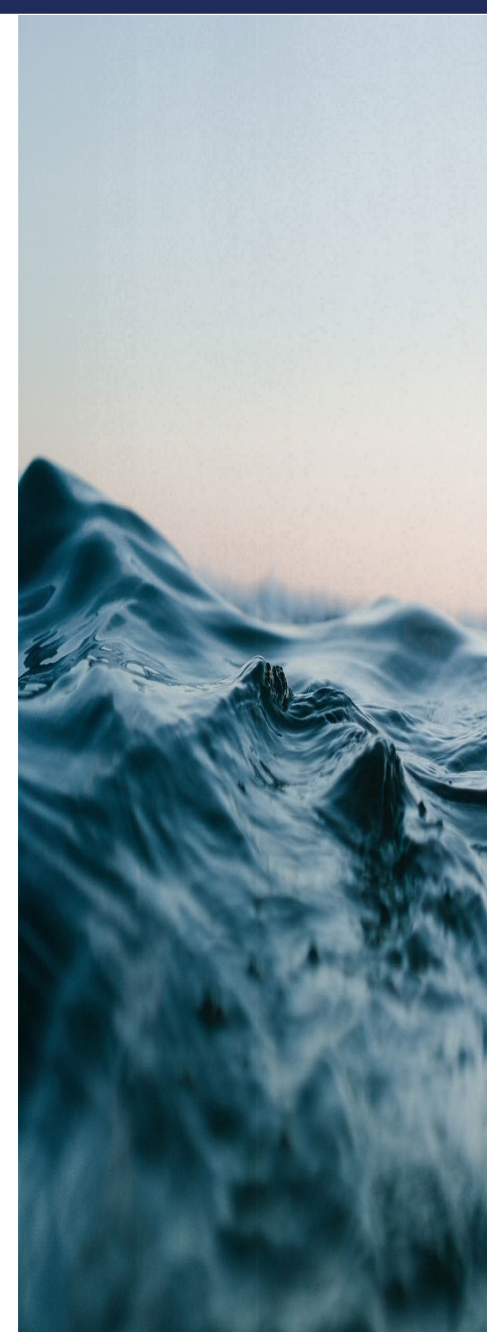
# RMD – A Look Back and a Look Forward

## RMD Working Paper and Creation of Database/Tools

- Goal – provide a resource for today's needs
- Partnered with More Recycling
- Funded by American Chemistry Council, Trex Company, Inc., Oregon DEQ
- Development of RMD history
- Overview of current market situation for recovered materials
- Online survey of state RMD contacts
- Follow-up and supplemental phone interviews
- Analysis, lessons learned, implications for future
- Development of tools/dbase – in progress



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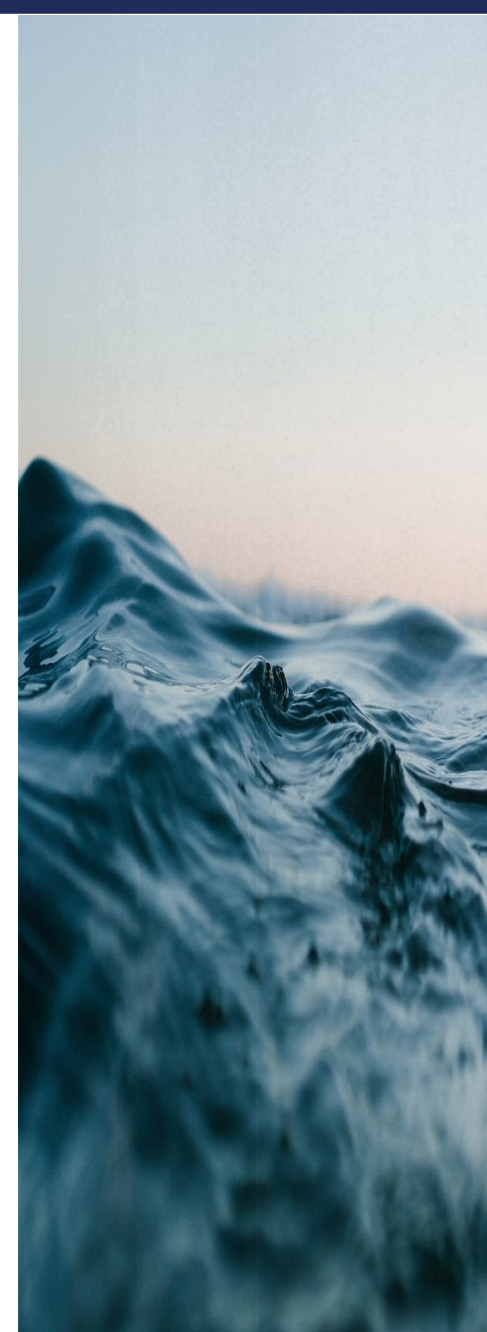


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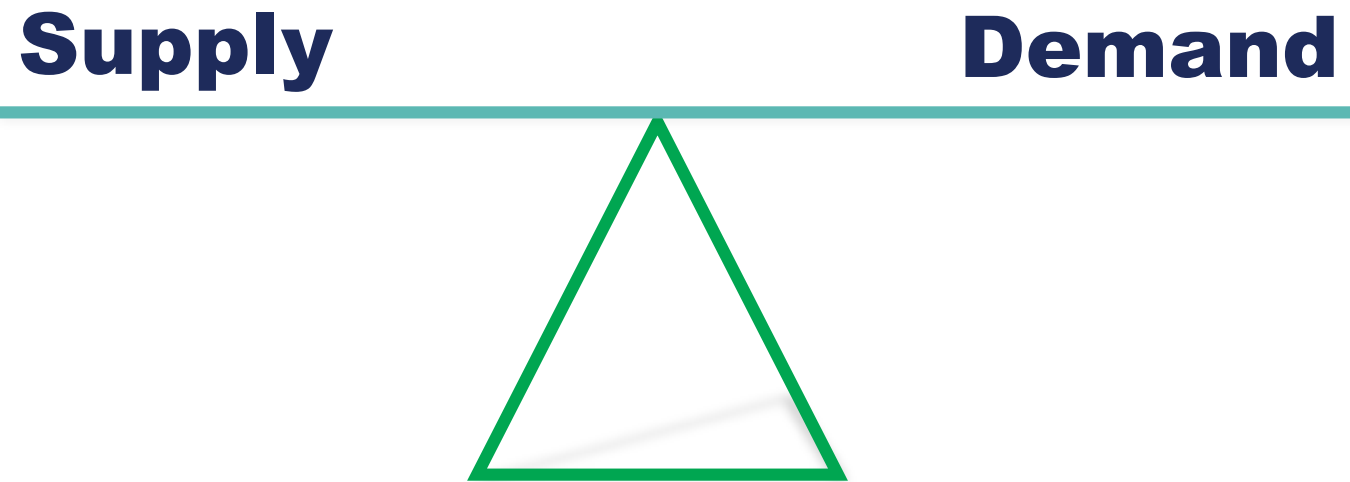
# RMD – The What

# What is Recycling Market Development?

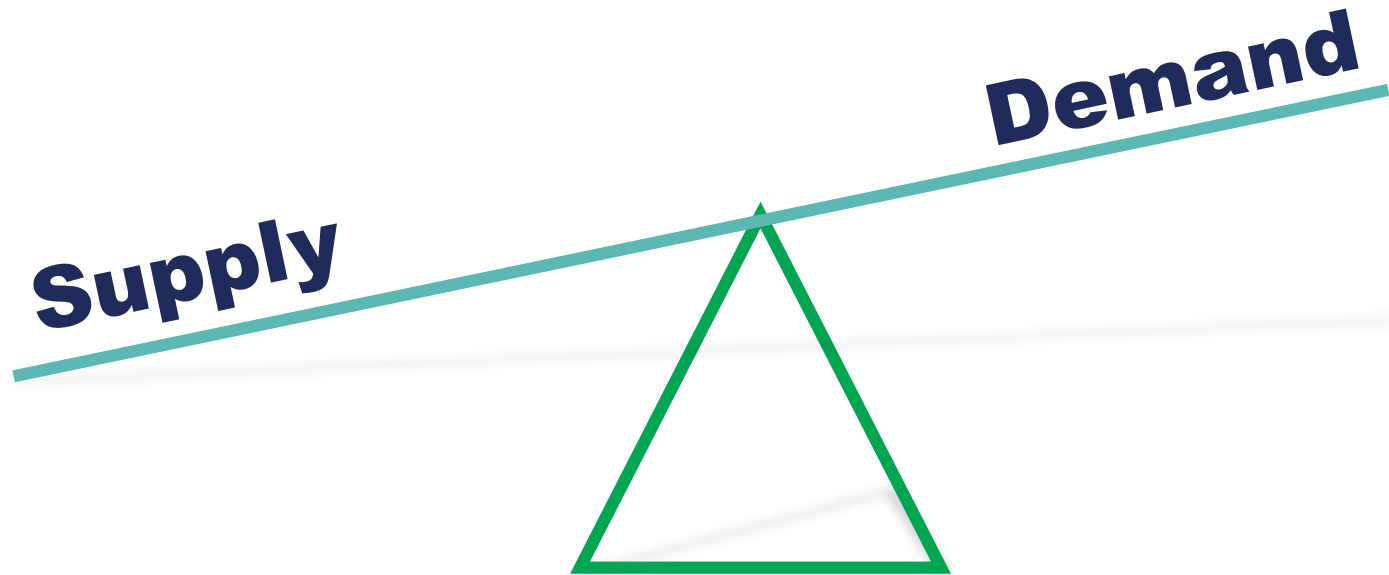
**Defined actions to enhance the economic vitality of the reuse/recycling industries**



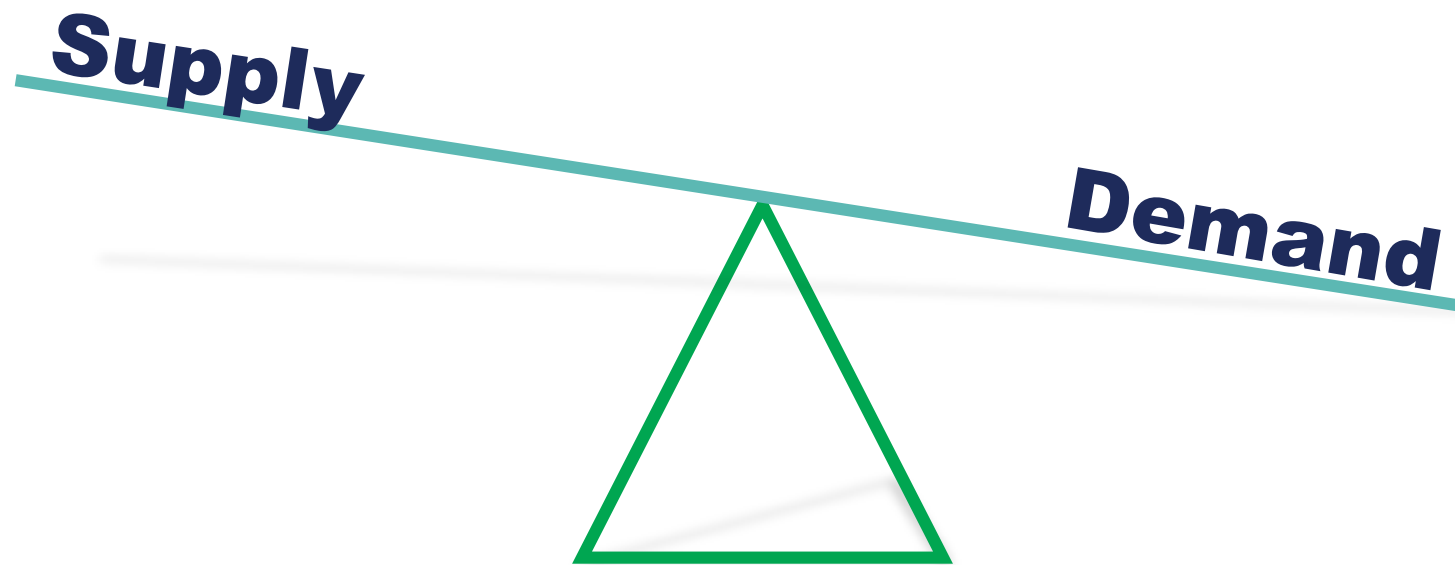
# In Other Words....



Not....



Or







**Today's  
Scenario....**

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# RMD – The History

# What Prompted Initial RMD Efforts?

- Recycling businesses often lacked business development knowledge, technology, assistance.
- Recycling businesses often perceived as risky.
- State and local governments needed ways to coordinate their activities and share information.
- Need for public-private partnerships to work cooperatively.
- Recycled products had not achieved widespread public acceptance.



# U.S. EPA Initiatives Paved the Way

- 1994 – Launched 3-year effort: “Recycling Means Business: EPA’s Recycling Market Development Strategy”
- Primary initiative: Jobs through Recycling Program (JTR)
  - Recycling/Reuse Business Assistance Centers (RBACs)
  - Recycling Economic Development Advocates (REDAs)
  - Recycling Technology Assistance Partnership (ReTAP)
  - Supported development of Chicago Board of Trade’s recyclable commodities trading system

Build institutional capacity for recycling  
market development



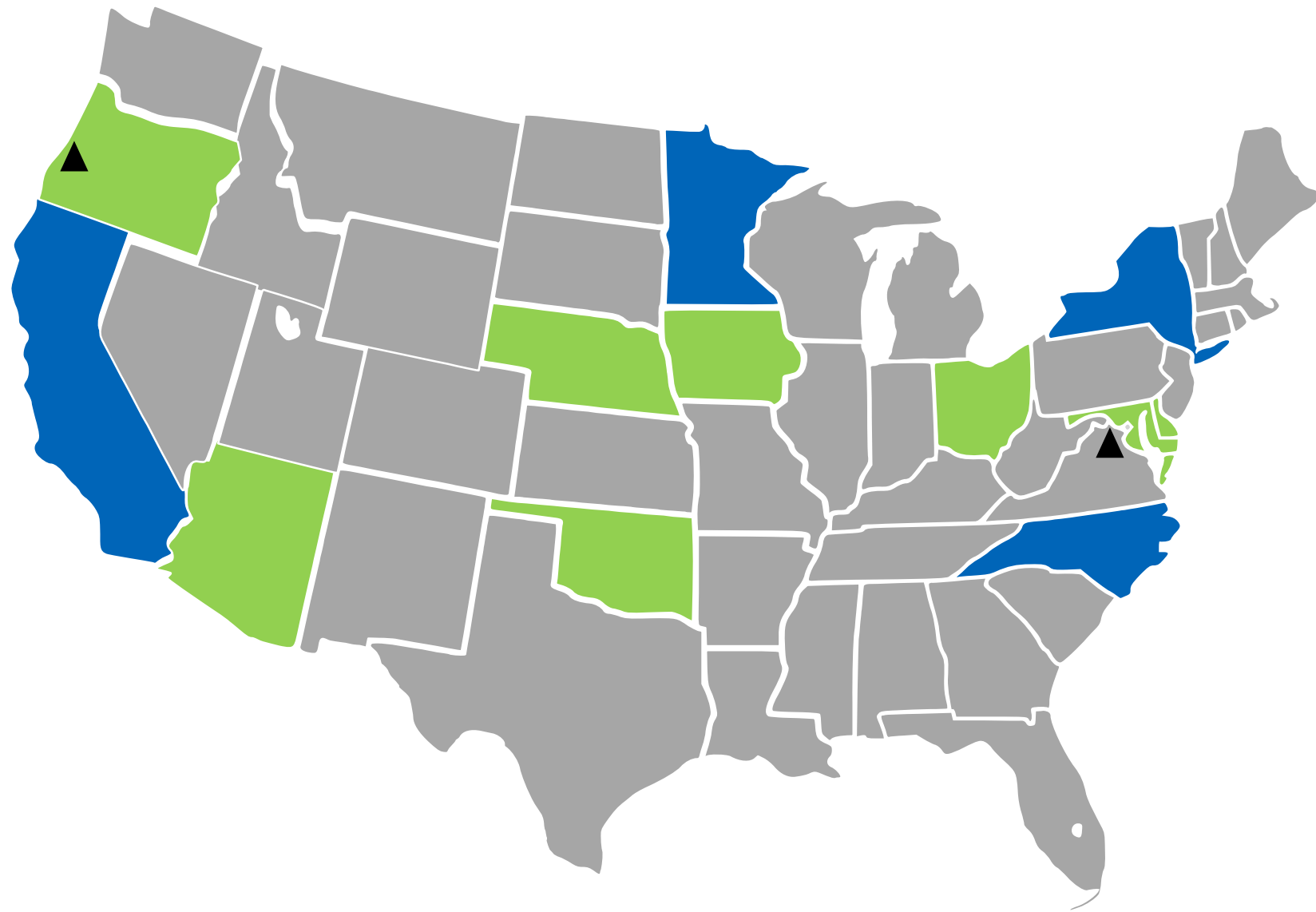
RBAC States



REDA States



Other ▲



# Initial RMD Efforts

## State Efforts

- Some state efforts as early as 1990/1991 – e.g., NC, WA, NY
- Over 18 states with recycling market development offices/programs
- Often environmental and economic agency involvement



A Green State Of Mind



## Recycling Means Jobs



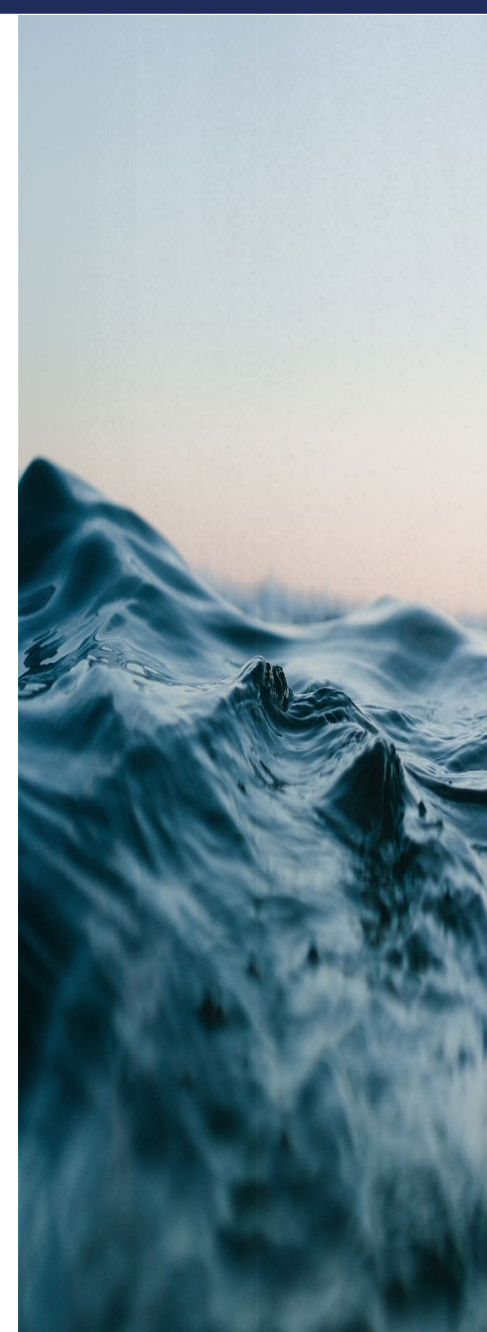
# Non-Profit Efforts

- Clean Washington Center
- Materials for the Future Foundation (California)
- Chelsea Center for Recycling and Economic Development (Massachusetts)
- Mid Atlantic Council of Recycling and Economic Development Officials (MACREDO)
- Mid-America Council for Recycling Officials (MACRO)
- **Pennsylvania Recycling Markets Center**
- **Southeast Recycling Market Development Council (SERDC)**
- **Northeast Recycling Council (NERC)**



# Success Story – Recycled Content Newsprint

- In two years, number of recycled ONP pulp mills doubled
- Production capacity increased by >280 percent (with additional capacity beyond that announced)
- U.S. demand for ONP increased from 7.28 million tons in 1993 to 11.12 million tons in 2006
- Factors that helped:
  - Many states involved in coordinated fashion
  - Input from industry
  - Mandatory goals, increased over time, announced in advance







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# RMD – The How

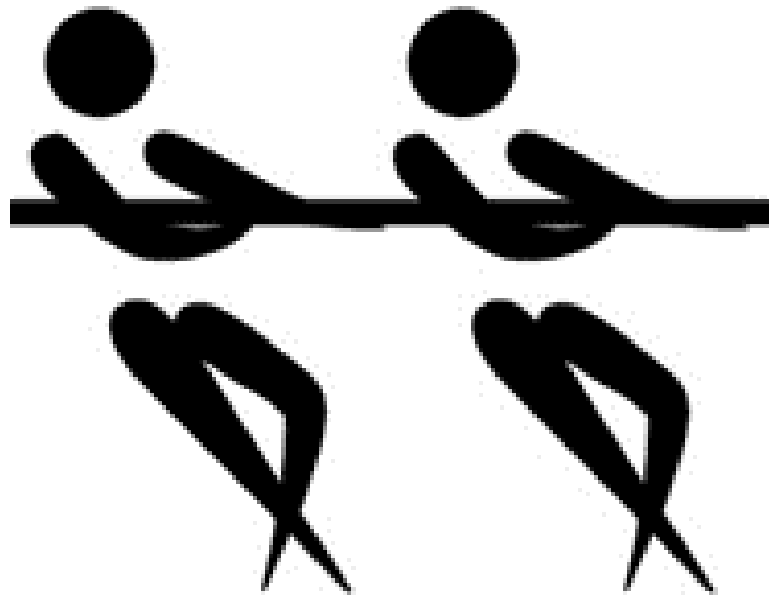
# Supply Push



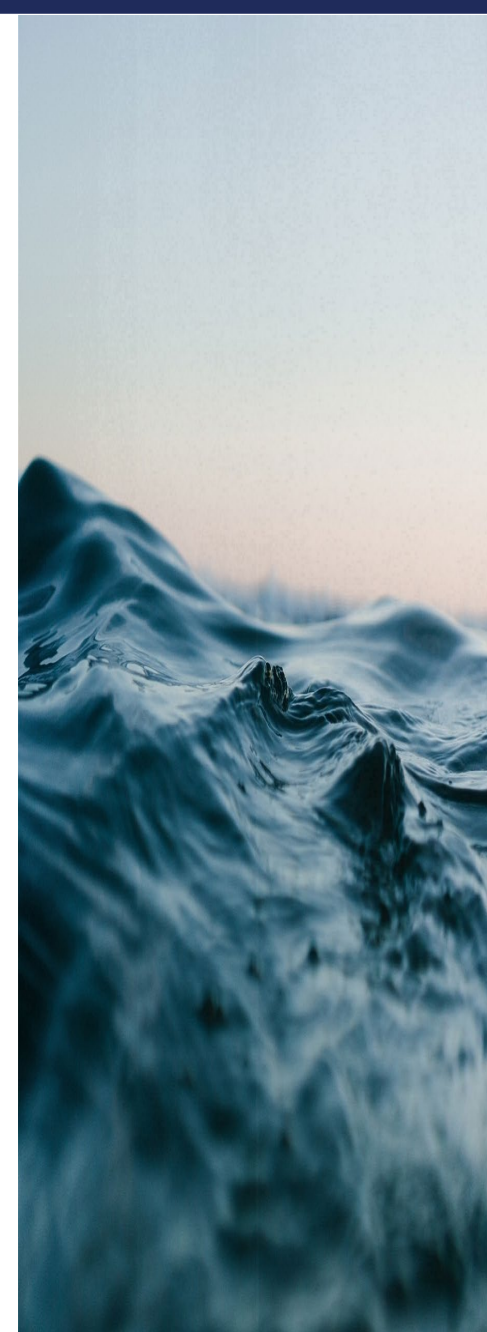
- Increase volume
- Enhance reliability
- Improve quality
- Enhance affordability



# Demand Pull



- Grow demand for recyclable materials and recycled content products

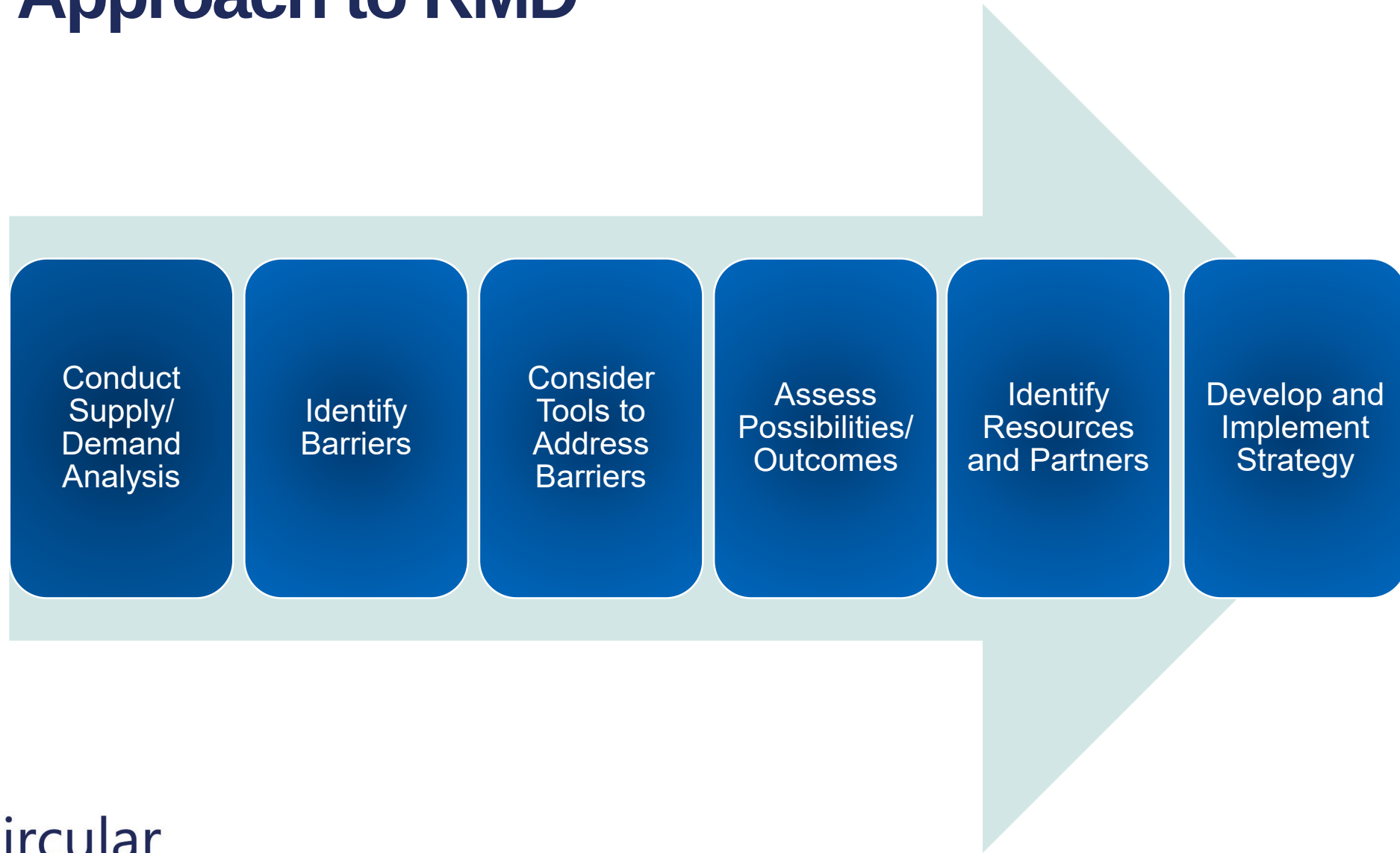


# Ways to Increase Demand

- Expand quantity of recovered materials consumed by existing businesses
- Convert feedstock
- Attract new businesses

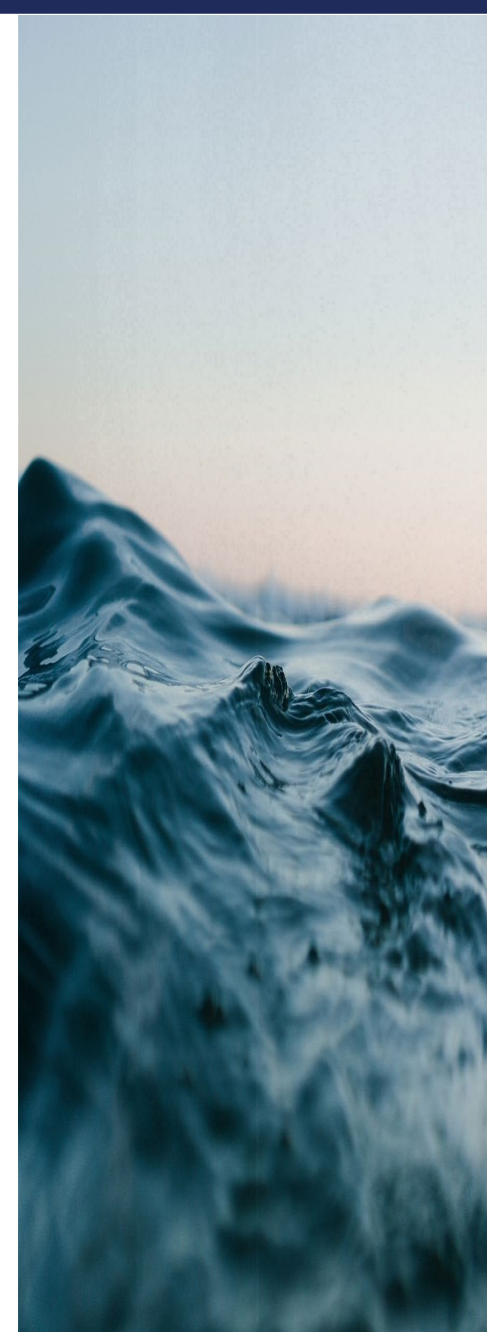


# Broad Approach to RMD



# Types of RMD Barriers

- Informational/Technical
- Risk/Uncertainty
- Mispricing (Economic Externalities)
- High Transaction Costs
- Challenges in Reaching Economies of Scale
- Unrestricted Nature of Information
- Regulatory



# Barriers Can be Material-Specific or Cross-Material



# Types of RMD Tools

- Information and Technical Assistance
- Finance/Funding
- Buy Recycled Programs and Policies
- Taxes, Fees, and Other Economic Incentives/Disincentives
- Regulations and Policies





# Tools to Address Specific Barriers

Barrier	Information and Technical Assistance	Buy Recycled	Finance & Funding	Regulations/ Policies
<b>Imperfect flow of information</b>	<ul style="list-style-type: none"> <li>▪ Recycling market directories</li> <li>▪ Waste exchanges</li> <li>▪ Technical studies</li> <li>▪ Business outreach</li> <li>▪ Conferences, facilitation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recycled products/vendor directory</li> <li>▪ Purchasing policies/ guidelines</li> <li>▪ Promotion to manufacturers, others</li> </ul>	<ul style="list-style-type: none"> <li>▪ Grants</li> <li>▪ Investment forum</li> <li>▪ Preparation of prospectus</li> <li>▪ Innovation competition</li> </ul>	<ul style="list-style-type: none"> <li>▪ Product labeling</li> <li>▪ Certification requirements</li> <li>▪ BUDs</li> </ul>

# Tools to Address Specific Barriers

Barrier	Information and Technical Assistance	Buy Recycled	Finance & Funding	Regulations/ Policies
<b>Uncertainty/ Risk Aversion</b>	<ul style="list-style-type: none"> <li>▪ Market projection Studies</li> <li>▪ Demonstration projects</li> <li>▪ Testing</li> <li>▪ Model contracts</li> <li>▪ Feedstock availability studies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Guaranteed purchases</li> <li>▪ Cooperative purchasing</li> <li>▪ Price preferences</li> </ul>	<ul style="list-style-type: none"> <li>▪ No/low interest loans</li> <li>▪ Loan guarantees</li> <li>▪ Bond financing</li> <li>▪ Equity financing</li> <li>▪ Risk-sharing via contract</li> <li>▪ Subsidies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Utilization requirements</li> <li>▪ Voluntary use agreements</li> <li>▪ Removal of overly restrictive regulations</li> </ul>

# Tools to Address Specific Barriers

Barrier	Information and Technical Assistance	Buy Recycled	Finance & Funding	Taxes, Fees, Other Incentives/ Disincentives	Regulations/ Policies
<b>Mispricing</b>	<ul style="list-style-type: none"> <li>Outreach, education</li> <li>GHG impact analysis</li> <li>LCA information</li> <li>Certification system</li> </ul>	<ul style="list-style-type: none"> <li>Bid and material specs</li> <li>Price preferences</li> </ul>	<ul style="list-style-type: none"> <li>No/low interest loans</li> <li>Grants</li> <li>Cost sharing</li> </ul>	<ul style="list-style-type: none"> <li>Tax credits</li> <li>Tax exemptions</li> <li>Incentive payments</li> <li>Taxes on virgin materials</li> <li>Carbon credits</li> <li>Permit fee waivers</li> </ul>	<ul style="list-style-type: none"> <li>Product labeling</li> <li>Utilization requirements requirements</li> <li>Voluntary use agreements</li> <li>BUDs</li> </ul>

# Tools to Address Specific Barriers

Barrier	Information and Technical Assistance	Buy Recycled	Finance & Funding	Regulations/ Policies
<b>High Transaction Costs</b>	<ul style="list-style-type: none"> <li>Market data</li> <li>Waste exchanges</li> <li>Recycling directories</li> </ul>	<ul style="list-style-type: none"> <li>Cooperative purchasing</li> </ul>	<ul style="list-style-type: none"> <li>No/low Interest Loans</li> <li>Grants</li> <li>Equity financing</li> <li>Royalty financing</li> <li>Subsidies</li> <li>risk-sharing via contract terms</li> </ul>	<ul style="list-style-type: none"> <li>Utilization requirements</li> <li>Voluntary use agreements</li> </ul>

# Tools to Address Specific Barriers

Barrier	Information and Technical Assistance	Buy Recycled	Finance & Funding	Taxes, Fees, Other Incentives	Regulations/ Policies
<b>Difficulties Reaching Economies of Scale</b>	<ul style="list-style-type: none"> <li>Recycled products directory</li> <li>Outreach, education</li> <li>Cooperative marketing</li> <li>Feedstock availability studies</li> <li>Business incubator support</li> </ul>	<ul style="list-style-type: none"> <li>Cooperative purchasing</li> <li>Guaranteed purchases</li> </ul>	<ul style="list-style-type: none"> <li>Grants</li> <li>Business incubator support</li> </ul>	<ul style="list-style-type: none"> <li>Tax credits</li> <li>Tax exemptions</li> <li>Incentive payments</li> <li>Permit fee waivers</li> </ul>	<ul style="list-style-type: none"> <li>Utilization requirements</li> <li>Contractual arrangements</li> <li>Voluntary use agreements</li> <li>Minimum recycled content policies</li> <li>Regionalization</li> </ul>

# Tools to Address Specific Barriers

Barrier	Information and Technical Assistance	Finance & Funding	Taxes, Fees, & Other Incentives	Regulations/ Policies
<b>Unrestricted Nature of Information</b>	<ul style="list-style-type: none"><li>Third-party data management</li></ul>	<ul style="list-style-type: none"><li>R&amp;D grants</li></ul>	<ul style="list-style-type: none"><li>R&amp;D tax credits</li></ul>	<ul style="list-style-type: none"><li>Patent protections</li><li>Public/private partnerships</li><li>Confidentiality guarantees</li></ul>

# Considerations to Weigh



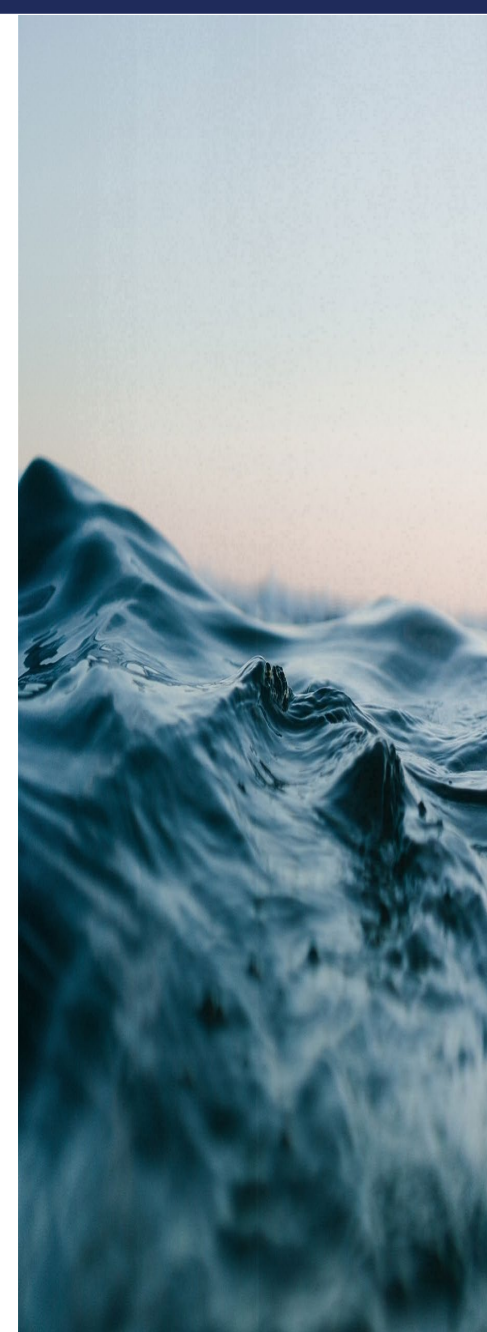
# RMD Programs Ideally Include...





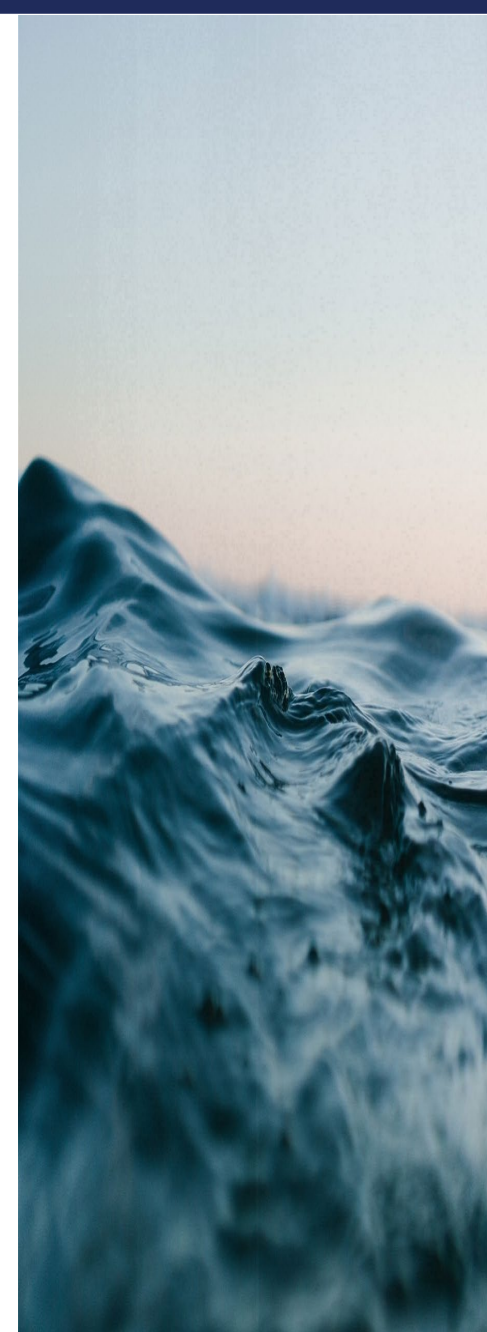
# Potential Role of Local Governments

- Work to improve availability/cost/quality of material supply
- Ensure processing is high quality (may be via contract terms)
- Provide favorable contract terms
- Provide zoning/tax incentives, permitting assistance, regulatory relief
- Buy recycled content products
- Take steps to mitigate financial uncertainty
- Help businesses identify sources of feedstock
- Assist with business plans
- Assist with developing local resource partnerships



# Potential Role of Private Sector

- Partner with gov't entities and NGOs to identify/address issues
- Partner with industry to share risk, cost share
- Support RMD initiatives
- Support policy mechanisms that advance the CE
- Commit to and buy recycled content feedstocks/products
- Design for recyclability
- Address global opportunities



# Potential Resources/Partners

- Recycling Economic Development Agencies
- State Environmental Agencies
- Colleges and Universities
- Departments of Commerce/Finance
- Other Businesses
- Industry Organizations/NGOs
- Regional Councils of Governments
- County/City Associations
- DOTs
- Central Services/Purchasing





# RMD – Critical to the Circular Economy



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# Key Principles for RMD

# What Works?

## Key Principles of RMD Strategies

**Needs  
Based**

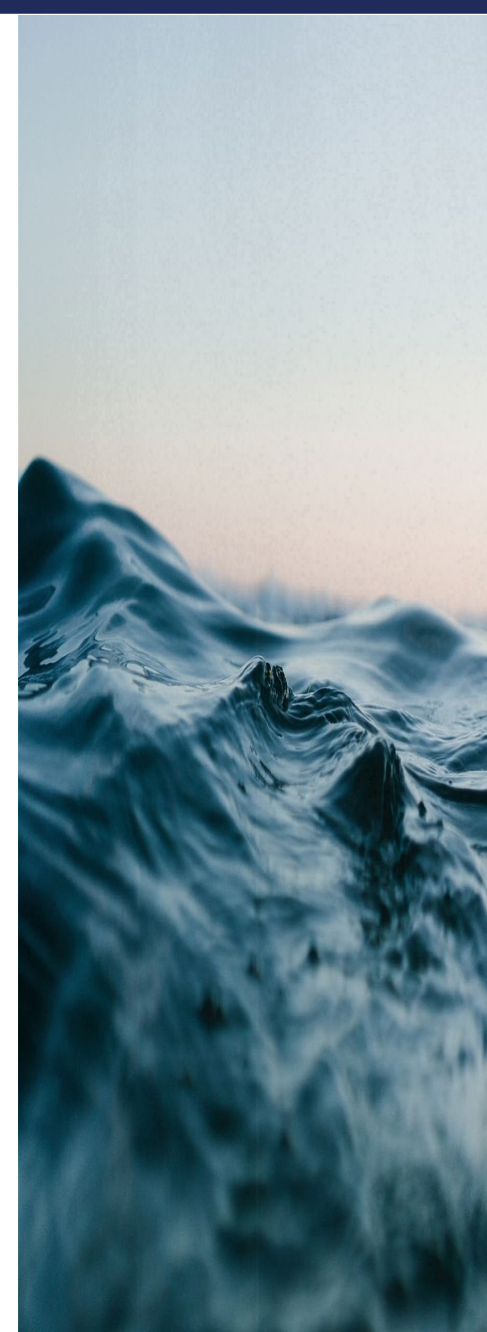
**Integrated  
Approach**

**Appropriate  
Scale**

**Right Tool  
for the Job**



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# Needs Based

- Aimed at overcoming key barriers
- Type of assistance actually needed (wouldn't happen without support)
- Importance of conducting a barrier assessment, supply/demand analysis, and involving stakeholders



# Integrated Approach

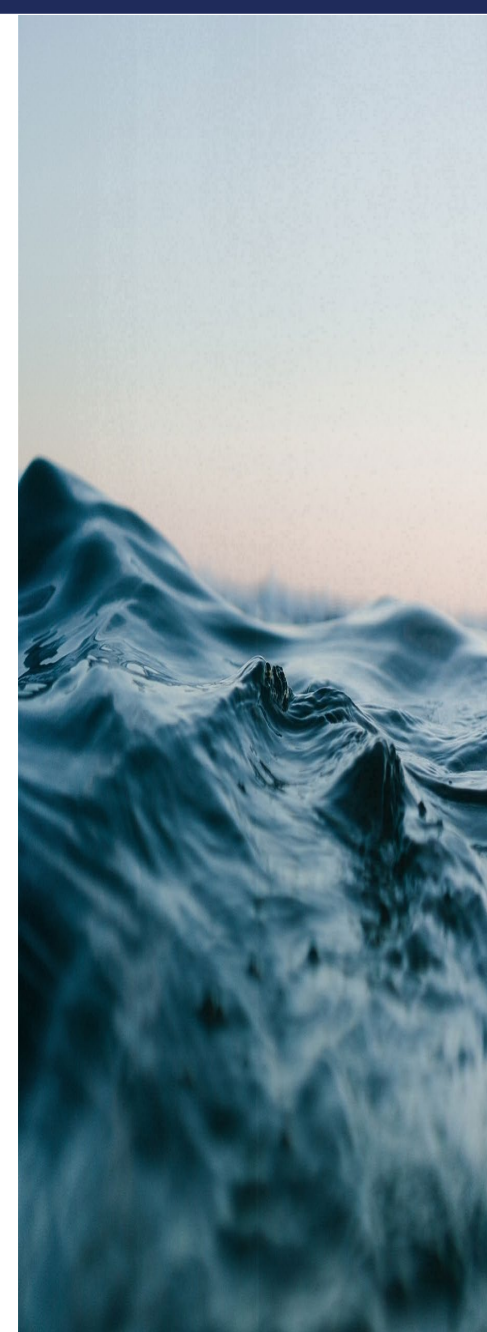
- Recognizes recycling is a system with many parts
- Addressing cross material barriers can be more effective than focusing on one commodity alone
- Be mindful of unanticipated impacts





# Appropriate Scale

- What works in urban areas may be different than in rural areas
- Regional approach may be most appropriate
- Grants, incentive payments – large enough to make a difference but not more than necessary
- Steer resources to scalable projects



# Right Tool for Job

- Money – A true need?
- Recycled Content – Will it move the needle?
- Buy Recycled – Will it increase demand?  
Enforceable?
- Equipment – Will sorted material have a home?



# Additional Tips

- Grants – specific criteria to steer \$ wisely
- Have a goal in mind – monitor progress
- Only invest in products people will buy
- Only implement the number of projects that can be well-monitored, staffed
- Subsidies – tricky, proceed with caution
- Protect revolving loan funds
- Develop an RMD strategic plan – revisit often
- Bring Economic Development people to the table



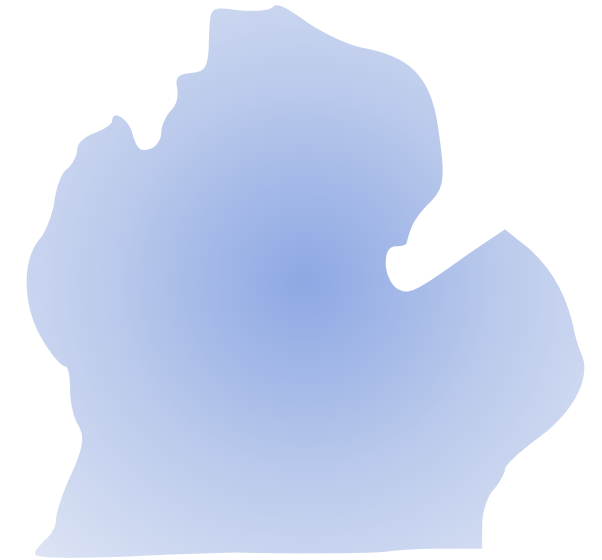


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# Current RMD Initiatives

# Michigan Initiatives

- ReSource – Promotes use of recovered materials
- Recycled Markets Directory
- ReSource Materials Marketplace
- Specialized Training
- Recycling Markets Profile
- Technical Assistance/Outreach
- Recycling Market Development Grants
- Private Activity Bond Financing
- Environmentally Preferable Purchasing
- Scrap Tire RMD Program



# Michigan – Scrap Tires

## Mackinac Island Project

- City of Mackinac Island will use crumb rubber and crushed glass for construction aggregate and engineered fill
- 10,000 lbs. of crumb rubber from scrap tires
- 88,000 lbs. + crushed glass
- Closed loop on island – avoid transport costs
- Public/private partnership with Renewable Infrastructure Solutions (RIS), C&M Rubber Technologies
- Grant - \$61,772



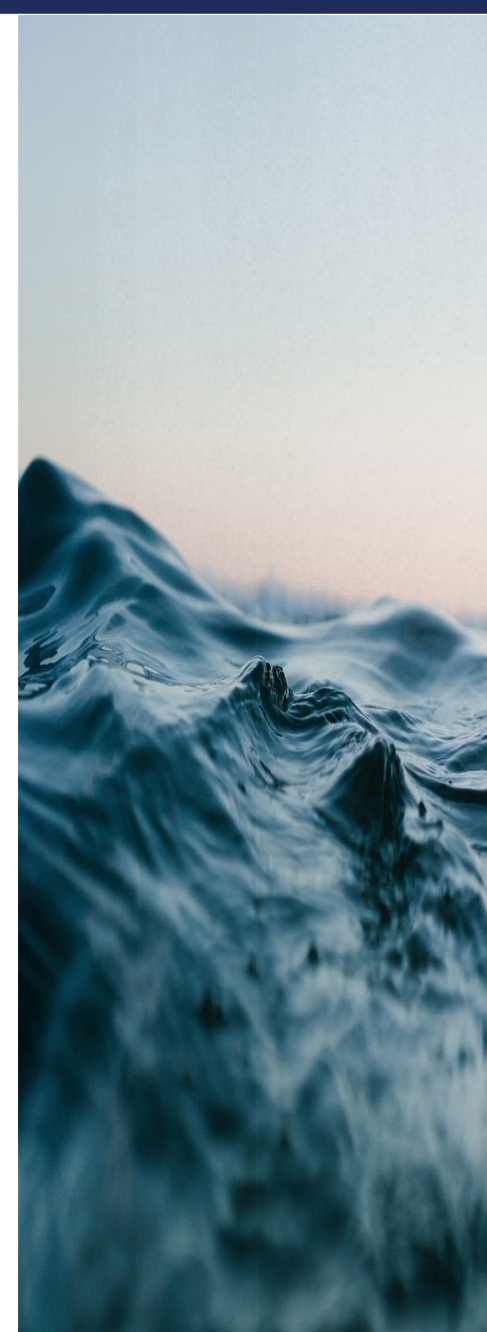
# California – Scrap Tires

## RMD

- RAC Program
  - Grants
  - Technical assistance
  - Product vendor information
  - Fact sheets, curriculum
- TDA Grant Program – civil engineering
- TDP Grant Program – for public entities to purchase products
- TIP – feedstock conversion



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# South Carolina – Ecomelida

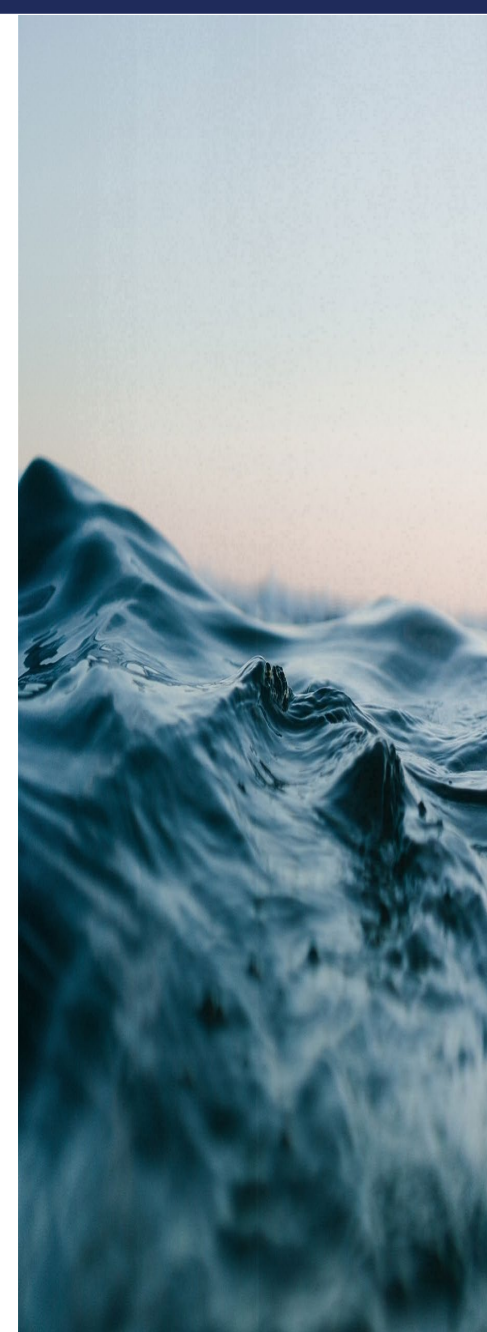
- SC DOC working with Ecomelida as they develop a pulp mill in SC
- DOC provides assistance with utilities, electric, water, permitting processes
- Will use cartons as feedstock – DOC introduces to brokers, MRFs
- Will provide: \$52 million investment, 200 jobs
- Will receive: Tax exemption on equipment, job development tax credits, property tax incentives





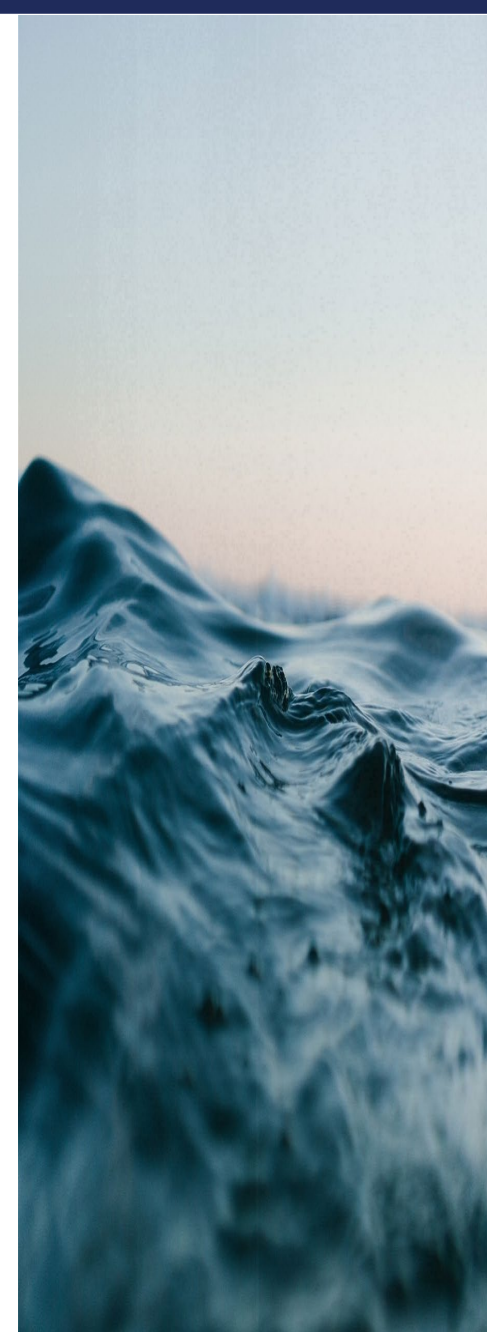
# Local Government Initiatives – King County, WA

- Sustainable Purchasing Program
  - Strong communication
  - Clear guidance documentation
  - Technical assistance
  - Periodic training
  - Keep up-to-date
- Link Up
  - Facilitate interaction among businesses, public agencies, other organizations
  - Focus on key materials



# Local Government Initiatives - Arizona Resource Innovation and Solutions Network (RISN) Incubator

- Initiative of Phoenix and ASU
- Niche business accelerator for waste-to-product innovation
- Goal – move a circular economy in the Phoenix area forward further and faster
- ASU and City provide resources and support
- Host design challenges/hacks
- Has helped 13 companies raise nearly \$3 million in capital and more than \$4 million in generated revenue
- Has helped create 43 full-time jobs and 43 internships



# Private-Sector Initiatives

- Ellen MacArthur Foundation New Plastics Economy
- ASTRX – The Recycling Partnership/SPC
- Closed Loop Partners
- Materials Recovery for the Future
- New End Markets Opportunities for Film (NEMO)
- Recycling Partnership
- SPC – How2Recycle; Design for Recycling
- Association for Plastics Recyclers (APR)
- The Carton Council
- Foodservice Packaging Institute
- Glass Recycling Coalition
- America Chemistry Council
- MRFF



[how2recycle.info](https://www.how2recycle.info)



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# What is Needed Today

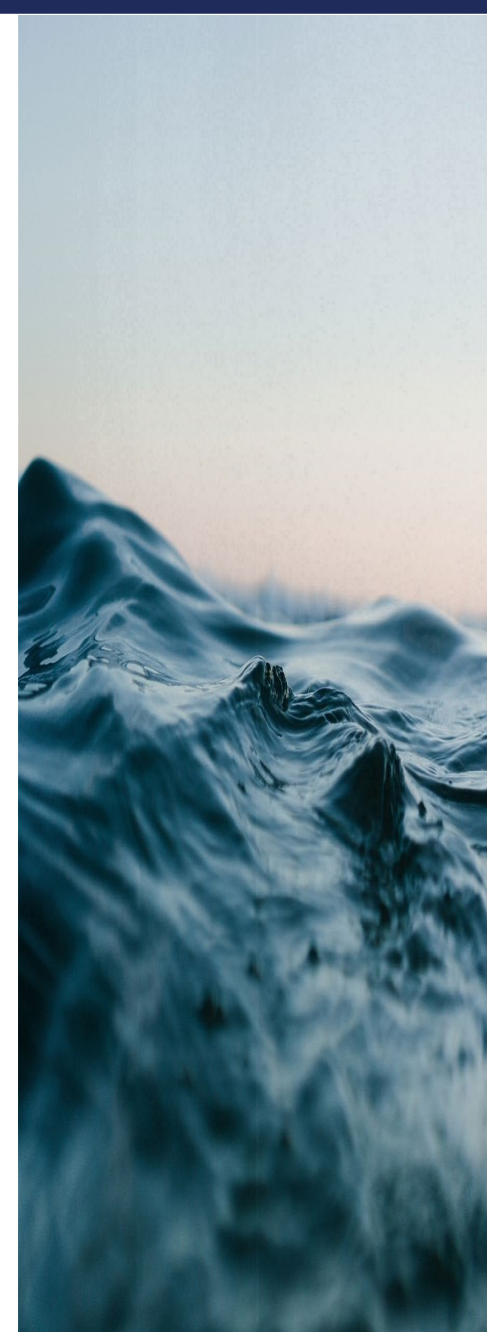
# Survey Backdrop – The Perfect Storm

- New, innovative packaging – lightweight, small, multi-layer
- Increased use of plastics in packaging
- Decline in demand for/use of ONP, glass
- Increased demand for OCC; supply affected by ecommerce
- Growth of single-stream recycling
- Decreased manufacturing in certain regions
- Decreased demand from China
- 13 states noted “heavy impact” and 28 “noticeable” from China National Sword – as of 9/21/18 (Source: Waste Dive)



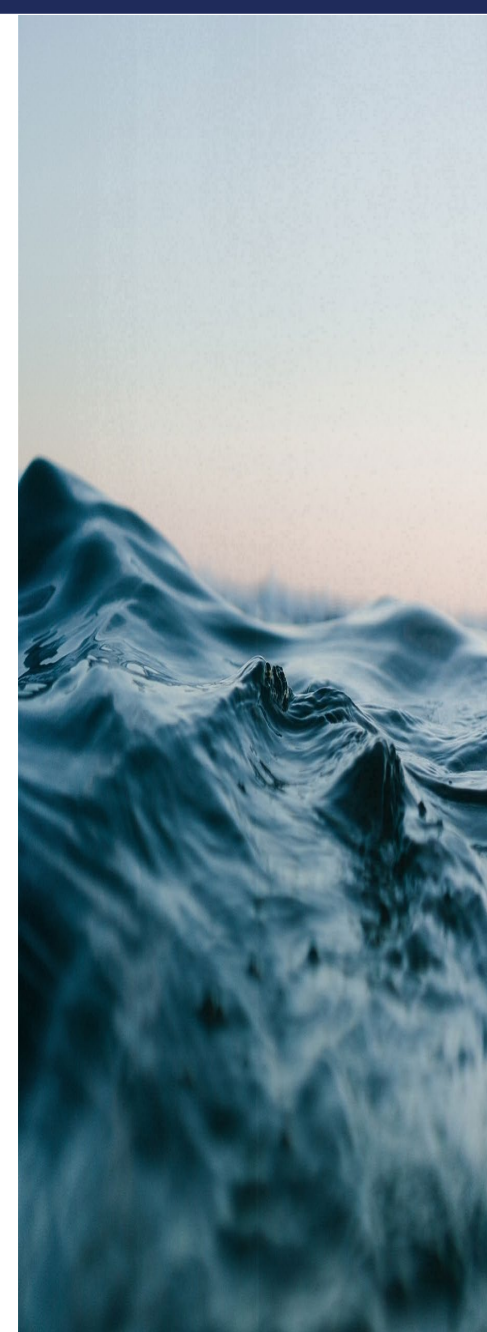
# Survey Results: Primary Current Needs

- Expand domestic markets for:
  - Container glass,
  - Plastics #3 – #7
  - Non-bottle PET
  - Film plastics
  - Residential mixed paper
- Reduce contamination/improve collection and processing
- Develop new infrastructure for newer packaging platforms, without impacting quality of other materials



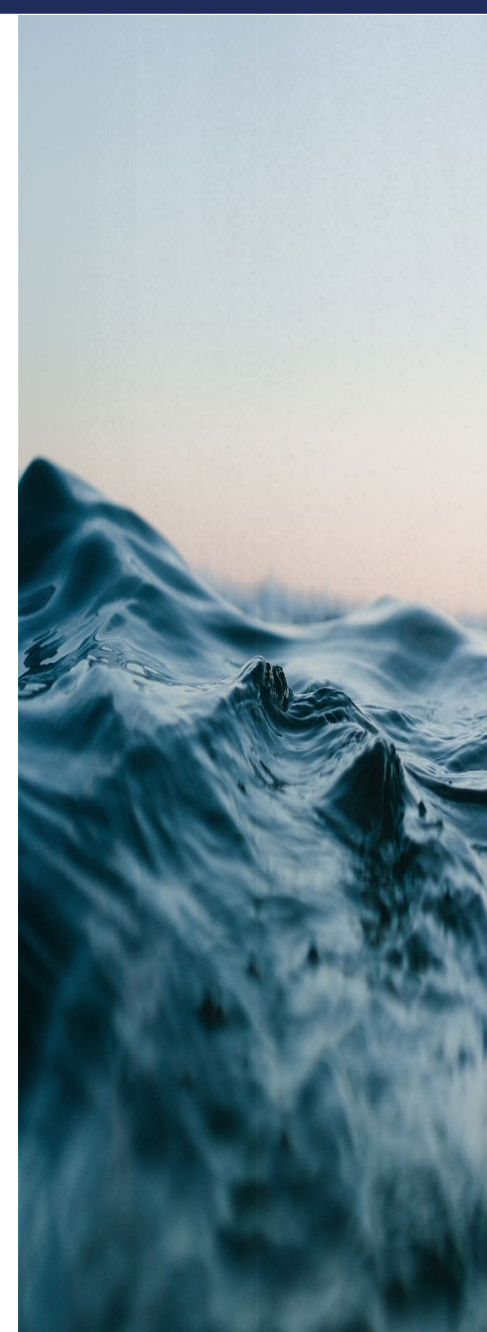
# Survey Results: Secondary Needs

- Help public understand that recycling isn't free
- Ensure MRFs are using appropriate technology
- Expand funding for RMD activities
- Convey benefits of recycling and developing domestic markets to decision makers
- Develop/disseminate information about outlets for secondary materials, including material flow, specifications, such that strategies for expanding markets can be better targeted



# What is Needed to Move Forward...

- Resources
- Political will
- Regional partnerships
- Collection and processing improvements
- Collaboration with economic development agencies/professionals, procurement professionals
- Develop a strategic recycling market development plan
- Improved logistics, especially in rural areas
- Stated goals, commitments, data, transparency
- Leverage corporate sustainability goals and supported initiatives to expand markets







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*Thank you!*

Susan Bush

401.782.6710

[sbush@circular-matters.com](mailto:sbush@circular-matters.com)

