PROJECT PURPOSE – Establishing a Framework for CO Recycling Markets Analysis

- Goal – analyze key issues for recycling & economic development to inform scope for follow-on statewide study
- Not trying to solve markets / development question, but ID:
  - Fruitful for actionable recommendations / Bang for the buck
  - Analyze previous research to inform next study
  - Test / focus on 3 materials

LITERATURE REVIEW

- 70+ studies accumulated and reviewed; Most not useful and many dated
- Assessed based on actionable market studies, promoting remanufacturing; measurement

PROJECT ACTIVITIES

- Literature Review – strategies & interview leads
  - 10 years of studies and white papers
- Expert Interviews – State Development programs, industry, investors, market experts
- Subject matter experts in state/community recycling market development
- Survey – State feedback; some national input
  - Detailed information on supply / demand by material; barriers, potential, and market opportunities
- Stakeholder meeting – State and national experts / discussion and opportunities
  - Explore regional material-specific barriers, opportunities, and considerations toward CO market development
- Analysis, Phase 2 scope, and Recommendations

SWANA Conference Steamboat Springs, 9/15/17

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Lisa A. Skumatz, Ph.D., SERA; Michael Santulli, SERA; Marjie Griek, Pearl Consulting; Mickey Barry, Angel of Shavano; Advisor: Jerry Powell

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SITING: Strategies – Technical Assistance Services
  - Site selection, site development, siting assistance
  - Conducting community meetings / workshops

PRIM: Strategies – Technical Assistance Services
  - Financial assistance / loans; site assessment

OUTR: Strategies – Outreach
  - Promote market growth, opportunities and engagement of recycling markets for products
  - Marketing / outreach activities

TRK: Strategies – Technical Assistance Services
  - Financial assistance / loans; site assessment
  - Conducting community meetings / workshops

MARK: Strategies – Technical Assistance Services
  - Site selection, site development, siting assistance
  - Conducting community meetings / workshops

TA: Strategies – Technical Assistance Services
  - Site selection, site development, siting assistance
  - Conducting community meetings / workshops

MATCH: Strategies – Technical Assistance Services
  - Financial assistance / loans; site assessment

FAME: Strategies – Information & Research (proximate and/or economic)
  - Markets & Tonnage Research - market conditions, trends, opportunities, gaps, demographics, waste streams, material use, available materials, barriers to use / supply, stakeholder, economics
  - Economic Analysis - siting, project economics, site and system economics, infrastructure availability, barriers, gaps, capacity, funding
  - Research on financing options, services, and customer service
  - Regional economic development contacts, programs

ADVOC: Strategies – Advocacy
  - To increase recycling access, economics, and priority needs
  - Infrastructure / siting, government grant assistance
  - Financial incentives / funding for recycling facilities
  - To increase recycling access, economics, and priority needs
  - To increase recycling access, economics, and priority needs

AFF: Strategies – Assistance
  - To increase supply of recycling materials / products
  - External / local / state / federal
  - To increase recycling access, economics, and priority needs
  - Direct financial incentives / funding for recycling facilities

Sub: Strategies – Outreach
  - Strategic outreach / marketing / partnerships
  - Marketing / advertising
  - Marketing / advertising

OUTR: Strategies – Outreach
  - Promote market growth, opportunities and engagement of recycling markets for products
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MARKET DEV’P & MATERIAL EXPERT INTERVIEWS

>20 Interviewees:

- Industries recently locating to State: (why / how working)
- States and cities with market development activities (design, success, tips)
- Recycling businesses (business model, opportunities / barriers, expansion, helpful strategies)
- Material-specific & other (Bottle bill non-profit for glass, EPA region, joint marketing organizations, other).

MARKET DEV’P & MATERIAL EXPERT INTERVIEWS

State-Local Assistance

- Phoenix: resource park- joint city/college venture; had land and enterprise fund / ability to enter into long term contracts
- Austin: resource park – land, enterprise fund, low lease prices, access to materials, reduced transportation costs; looking for businesses supporting community values; cost city tens of millions
- PA: recycling markets center – economic development program. Existing mfg base helped; start-up funds from state.
- SC: Aggressively recruit businesses (in other states!); married up with broader state business development; target firms that build on existing industries; started building fund in 1992;
- NC: Dedicated staff, build up supply network(s), regular messaging to legislators that recycling is a dynamic part of the economy
- MN: dedicated staff, add SOME value while in state for job creation / find the part of the value stream you can affect, help steer businesses thru process

MARKET DEV’P & MATERIAL EXPERT INTERVIEWS

Joint / Cooperative Groups

- OR: Oregon Beverage Recycling Cooperative – nonprofit statewide collection / processing. Grown steadily over time, becoming vertically integrated; moving beyond bottle bill processing.
- ME: State broker of recycled materials. Not working very well resource park – land, enterprise fund, low lease prices, access to materials, reduced transportation costs; looking for businesses supporting community values; cost city tens of millions
- Northeast Resource Recovery Assoc: collects and markets for 3 states. Processed glass aggregate (mobile crusher), competing with foreign markets
- EPA4: Collaborations between state DEQs and Economic development agencies; and then industry and building interest from politically influential people and organizations
- Plastics: an agency buys plastic and then finds a use and market for it.
- CO: Small Mfg AdvantEDGE program – within CO SBDC and other agencies (Denver WTC, MEP, NIST, others) signed MOU to assist small mfg. Leverages state and local funding with small contribution from mfg; industry experts for coaching, consultation, and / or training.
- Investors: prefer tax credits; looking for ROI; foundations a better source.

MARKET DEV’P & MATERIAL EXPERT INTERVIEWS

COLORADO SURVEY

- Responses from collection, processing, organics, manufacturers, and others.
  - Materials come from local collection, rest of state, and Utah
  - Reasonable distances for inputs are shorter than outputs, which may be shipped hundreds of miles. Influences include commodity price, freight rates, volumes needed for daily operations, and product demand.
  - Majority of attendees had local or out-of-state relationships and contracts to improve economics

- Recyclables and business:
  - Reasonable distances for inputs are shorter than outputs, which may be shipped hundreds of miles. Influences include commodity price, freight rates, volumes needed for daily operations, and product demand.
  - Majority of attendees had local or out-of-state relationships and contracts to improve economics

- Obstacles to use: high price, low quality, weak economy
- Barriers to expansion: Lack of capital / high capital requirements; government regulation; markets; low ROI
- Drivers for expansion: service to customers / distinguish
COLORADO SURVEY

Financing / Business
- Financing sources include angel capital, private equity, company / parent company investment, foreign investors, local bank, grant, contracts, self-funding/personal/family.
- Financiers look for potential for growth, ability to pay debt, ROI (5-8%), margins, Debt-to-income ratios, profitability, character, inventory/supply, repeat client orders, proprietary processes

Pros/Cons for Colorado Investment

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td>Established / willing market</td>
<td>Small population base</td>
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<td>Disposable income; growth</td>
<td>Distances: island surrounded by prairie</td>
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<td>Enviro mindset</td>
<td>Regulatory issues</td>
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<tr>
<td>Demand for recyc products</td>
<td>Universities unwilling to partner with</td>
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<td>Close to customers &amp; raw materials</td>
<td>innovators</td>
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<td>Some big cities nearby</td>
<td>NIMBY</td>
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<td></td>
<td>Bad freight rates</td>
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<td>Escalating costs</td>
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<td>Access to quality materials</td>
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COLORADO SURVEY

Regulatory issues
- Solid waste manageable
- Local government asleep at the wheel / state more responsive. Local variations a problem
- Siting a facility is difficult. Low landfill tip fees a substantial issue
- Air/Water – helps recycling, support from state.
- Difficult land use regs / zoning / permitting. Title 5 permit / air emissions limits
- New technologies don't fit into "boxes". Soil labeling requirements treat it as chemical
- Water quality concerns; waste water / storm water limits
- General: "Weld fewer truck emission limits", "slow in Durango", "Denver difficult", "business friendly areas get business"

Preferred strategies – very useful / overall useful:
- Financial assistance – 61% / 82% (top)
- Advocacy – 53% / 72% (2nd)
- Outreach & Marketing – 47% / 80% (3rd)
- Networking / connections somewhat useful;
- Technical assistance least useful

STAKEHOLDER MEETING

Full day facilitated meeting - Attendees:
- Non-profit / rural; Bottlers, Metal manufacturers; Haulers,
- Materials: Plastics / glass / metal; paper indirect
- Jerry Powell – national expert

Focus to identify key barriers and opportunities for recycling market development to create closed-loop economies in CO
- Understanding CO; tasks and materials for next study; research gaps; important contacts for next stage; priority option / implementation plan elements

Examined status and location of industry throughout state / updated based on attendee feedback (maps)

STAKEHOLDER MEETING

National expert (Powell):
- Key to integrate recycling market development as critical priority in state economic development plan
- Recycled product procurement
- Academic involvement (School of Mines) may be useful
- Financing usually well-received
- Public funds / private innovation and intellectual property issues
- Rural cooperatives are useful / helpful in improving economics
STAKEHOLDER MEETING

Discussion issues:

- Glass – transportation cost problem; consider contracts for grinding in rural areas; consider bottle bills; glass not generally leaving state.
- Plastic: CO hasn’t engaged to find out their needs; &2 established markets; containers imported
- Metals: Freight is a black hole in CO / cheaper to ship out of state than import back into Rockies. Scrap deficit – have to source 40% out of state; not enough raw material for the 5 active shredders
- Other industries: include paper as market indicator and to provide value in shipping (including white); also discussed tires, compost, paint, materials with large quantities.

Barriers noted

- Low LF Tip fee
- Industry low tech even with CO tech industry
- New technology faces regulations
- Home rules

ID’d strengths /weaknesses of strategies & outlined key research questions for next study

SUMMARY & RECOMMENDATIONS

Recycling can be a job creator, save energy / GHG, but needs USE, not just collection.

Prefer to avoid high transportation cost – use locally

At least “improve” the product before it leaves the state to create jobs

Wish to:

- Attract new businesses using recycled content
- Expand use of recycled content by existing firms
- Encouraging substitution of recycled for virgin in existing firms
- Three tiers of material-specific recommendations and overarching

Developed the key elements of a Phase 2 scope of work as well

RECOMMENDATIONS – TIER 1: GLASS & PLASTICS

EXISTING IN-STATE END USERS FOR GLASS; MORE LIMITED PLASTIC;
INCREASE DEMAND AND SUPPLY IN-STATE

GLASS
- Consider separate glass collection curbside or drop-off bunkers
- Introduce legislation for residential glass diversion (bottle bill)
- Pass ordinances / programs / incentives increasing com’l glass
- Develop shared mobile processing for better transport cost-effectiveness
- Explore niche market development opportunities; including whole-bottle / reuse and washing opportunities (given in-state breweines)

PLASTIC
- Examine whether collection changes (or more uniformity) can improve material integrity; or if processing / sorting technologies can reduce contamination for better use
- Examine potential for growth, few existing firms
- Assess data on sources by material type to match new users with supply
- Investigate barriers / incentives for existing virgin plastic processors to use recycled; ID support system and/or relative cost of new / expanded plastics fabricating facilities relative to paper and metal

RECOMMENDATIONS – TIER 2: PAPER

POTENTIAL FOR SMALL-INVESTMENT SPECIALTY PRODUCTS; NEEDS NEW INDUSTRY RESEARCH

PAPER
- Examine data on sources by paper product to match new demand with supply sources
- Encourage University research on new local uses
- Work with Green Building Industry on standards development and new products
- Identify / assist local small-scale niche products using paper (insulation, etc.)
- Investigate if aggregation can improve potential
**RECOMMENDATIONS – TIER 3: METALS**

**ROBUST COLLECTION & PROCESSING; HIGH CAPITAL COST TO ENTRY; ADDRESSES SPECIFIC BARRIERS**

**METALS**
- Fairly mature collection & processing
- Explore opportunities for more in-state material - existing end market could use it
- Conduct transport cost research to ID barriers, improve status quo
- Engage to help existing businesses thrive
- Art metal working unlikely large or highly job-creating

**RECOMMENDATIONS – OVERARCHING**

**SUCCESS STRATEGIES FROM OTHER STATES & “OUT OF BOX” CONCEPTS MENU FOR RESEARCH**

- Hire dedicated staff; Identify grant funding
- Introduce concierge approach (including permitting)
- Develop detailed Info packets / contacts
- ID large-scale state purchases & Develop industry to make them in-state (prison / schools purchases, etc.)
- Explore virgin material substitution for local industries
- Adopt purchasing requirements; closed loop purchasing
- Introduce programs to support Innovation
- Identify leveraging opportunities from vertical integration
- Consider mobile / shared solutions for economies / efficiencies
- Investigate cooperative market value-adds
- Engage decision-makers with job creation info; legislator updates

**SUMMARY AND NEXT STEPS / MOST FEASIBLE**

**No “Magic Bullets” for development; long-term influence over large-scale economics is hard to maintain**
- Some high cost items are not demonstrably highly successful
- Some states and strategies are quite successful, but part structure / links and part effective personnel
- Some states have been aggressive and successful, but had backing at state level – coordination with economic development department

**CPDHE taking a slightly different tack than planned / unlikely to pursue Phase 2 as originally planned.**
- CDPHE met with PPABAC, OEDIT, the Solid Waste Program, to explore options.

**SUMMARY AND NEXT STEPS / MOST FEASIBLE**

**Likely moving in 2 directions:**
1. Complete a markets analysis for compost and possibly C&D. Examine current state of the markets; ID gaps for RREO focus for growth
2. Exploring public-private concept that Michigan is looking into – Recycle By Design. Includes
   - a grassroots business incubator,
   - provides technical assistance to secure funding and navigate regulatory framework
   - using RREO dollars to leverage additional private investment to spur innovative new end-markets -- perhaps focused on plastic, glass, and paper

**Hoping this will lead to some new and sustainable end-markets with grassroots focus.**
- Multiple groups in each region in Colorado would compete for the best end-market concept that meets the needs of their region.
- The technical support that the model provides would be incredibly valuable.
- Complements OEDIT’s current programs and aligns with Phase 1 recommendations.
THANK YOU!!
Comments & Questions?

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