Summary Report

Stakeholder Meeting #2 – Summary Report

September 30, 2021 9:00AM – 2:30PM

The following is a summary report for the Stakeholder Meeting #2 held September 30, 2021.

A. Stakeholder Meeting #2 Introductions

Michelle Leonard, Senior Vice President with SCS Engineers (SCS) welcomed all participants and introduced the rest of the project consultant team (Christine Collier and Jeff Phillips with SCS and Karen Luken with Economic Environmental Solutions International). Michelle then welcomed Amie Davidson, Bureau Chief of Land Quality for the Iowa Department of Natural Resources (DNR).

Amie welcomed everyone and thanked them for their interest and participation as it is imperative to have the ideas and views of those that are engaged with the production, transportation, consumption, and end-of-life management of our materials. Amie stated that Iowa's current policies focus on end-of-life management of materials and do not readily address upstream management practices. This Sustainable Materials Management (SMM) (SMM) – Vision for Iowa project is in its early stages and Amie encouraged participants to remain engaged and continue to voice their opinions representing their various backgrounds and experiences.

The project consultant team reviewed the Stakeholder Meeting #2 agenda. The agenda and slides for the entire Stakeholder Meeting #2 are located in Attachment A.

The project consultant team then provided a brief review of what SMM means, the SMM – Vision for Iowa project, and a summary of the activities that have occurred since the previous Stakeholder Meeting #1 held on March 25, 2021.

B. SMM – Vision for Iowa Background

What is SMM?

SMM is an approach to producing, using and reusing materials most productively through their entire life cycles. An SMM approach represents a change in how our society thinks about the use of natural resources and environmental protection. SMM represents a transition from primarily focusing on managing materials at the end of life to considering how we manage materials throughout their entire life cycle. The two graphics below represent a traditional waste management hierarchy and an SMM approach.

Figure 1 – Typical Waste Management Hierarchy

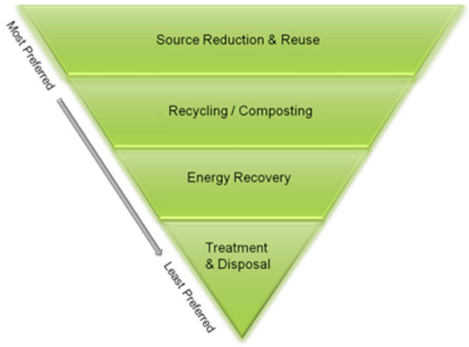


Figure 2 – SMM Approach

SMM – Vision for Iowa

Phase I - Summary:

The DNR initiated the SMM – Vision for Iowa project in 2018 by holding several facilitated stakeholder strategic planning sessions across Iowa. The results of these stakeholder strategic planning sessions indicated that stakeholders strongly believed that transitioning Iowa to an SMM approach was very important. The results also indicated that stakeholders understood that transitioning to an SMM approach in Iowa would be challenging.

Phase II - Summary:

This is the current phase of the SMM – Vision for Iowa project.

Building upon the stakeholder consensus from Phase I, Phase II is working with a broad group of stakeholders representing a variety of institutions, organizations, industries and material management facilities to identify and prioritize specific materials and suggest strategies to transition towards an SMM approach.

During the Stakeholder Meeting #1 held March 25, 2021, the Stakeholders selected the following material categories for evaluation towards an SMM approach:

- Organics and Fibers
- Plastics
- Renewable Energy Equipment
- Construction and Demolition Debris

The project consultant team established these as the four Subcommittee groups. They then worked to recruit individuals to serve on the Subcommittee groups. Individuals representing various institutions, organizations, industries, and material management specialists were identified and invited to participate.

Phase II is planned to have a total of 32 Subcommittee meetings and four Stakeholder Meetings. The Subcommittee's meet to identify and prioritize specific materials and suggest strategies for possible SMM transition. The Subcommittee's then present these suggested strategies and timelines to the Stakeholders. The Stakeholders provide on-going guidance to the Subcommittees and consider and endorse suggested strategies and timelines.

During the first Subcommittee meetings held June 9 and 10, 2021 each Subcommittee identified and prioritized specific material types for evaluation of transitioning towards an SMM approach. These selected materials are identified below by the primary material categories (i.e., Subcommittee Group):

- Organics and Fibers
  - Edible Food
  - Pre-Consumer Spoiled Food
  - Compostable Paper, Food, and Yard Waste
- Plastics
  - Single-Use PET Water Bottles
  - Plastic Film and Bags
  - Polystyrene (Styrofoam™)
- Renewable Energy Equipment
  - Wind Turbine Blades
  - Solar Panels
  - Batteries
- Construction and Demolition Debris
  - Interior Building Components
  - Roofing Materials
  - Drywall, Plaster and Gypsum Board
  - Treated and Untreated Wood

Phase III - Summary:

Phase III will focus on building upon the results of the previous phases and working to implement the suggested strategies and timelines.

C. Subcommittee Status Presentations

The following is a summary of the information presented for each of the four Subcommittees. The full Stakeholder Meeting #2 slides are located in Attachment A.

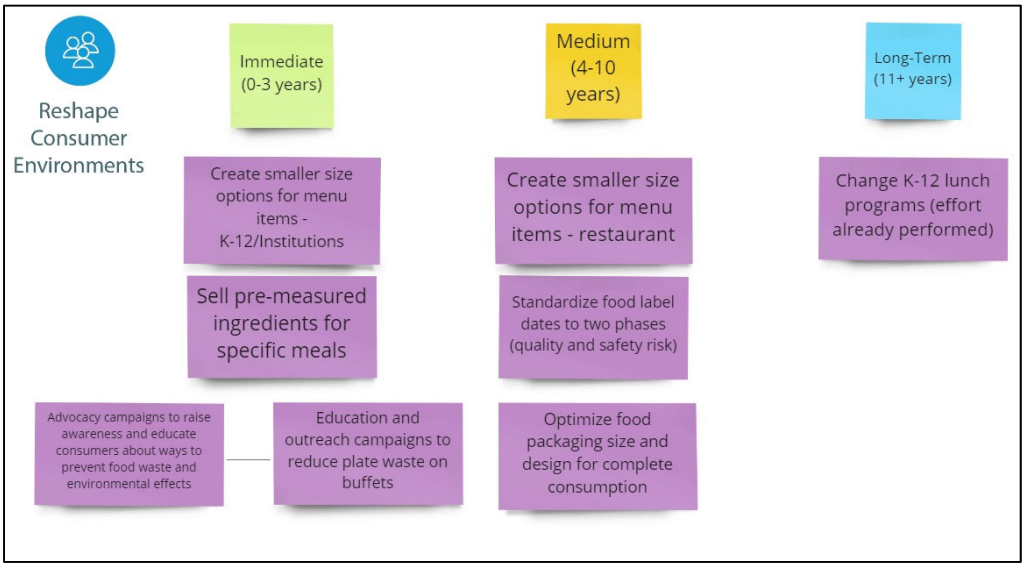
Organics and Fibers

The project consultant team reviewed the specific materials that the Subcommittee members identified to focus on for evaluation of transitioning to an SMM approach. These include the following:

- Edible Food
- Pre-Consumer Spoiled Food
- Compostable Paper, Post-Consumer Food, and Yard Waste

The project consultant team then presented a summary of potential strategy categories identified in the ReFED[1] *Road Map to 2030* report and State of Washington *Use Food Well* plan that focuses on strategies to minimize food waste. The strategies in these documents were discussed during the Subcommittee meetings. The Subcommittee primarily focused on consumer and end-of life management as they reviewed and discussed potential strategies. It was discussed that the Organics and Fibers Subcommittee will likely split into two separate Subcommittees, with one group focusing on identifying and evaluating upstream management strategies and the other group focusing on consumer and end-of-life final management strategies. The results of the suggested strategies and timelines are identified in the figures below.

Figure 3 - Reshape Consumer Environments – Suggested Strategies and Timeline



[1] ReFED is a national nonprofit working to end food loss and waste across the food system by advancing data-driven solutions to the problem.

Figure 4 – Strengthen Food Rescue – Suggested Strategies and Timeline

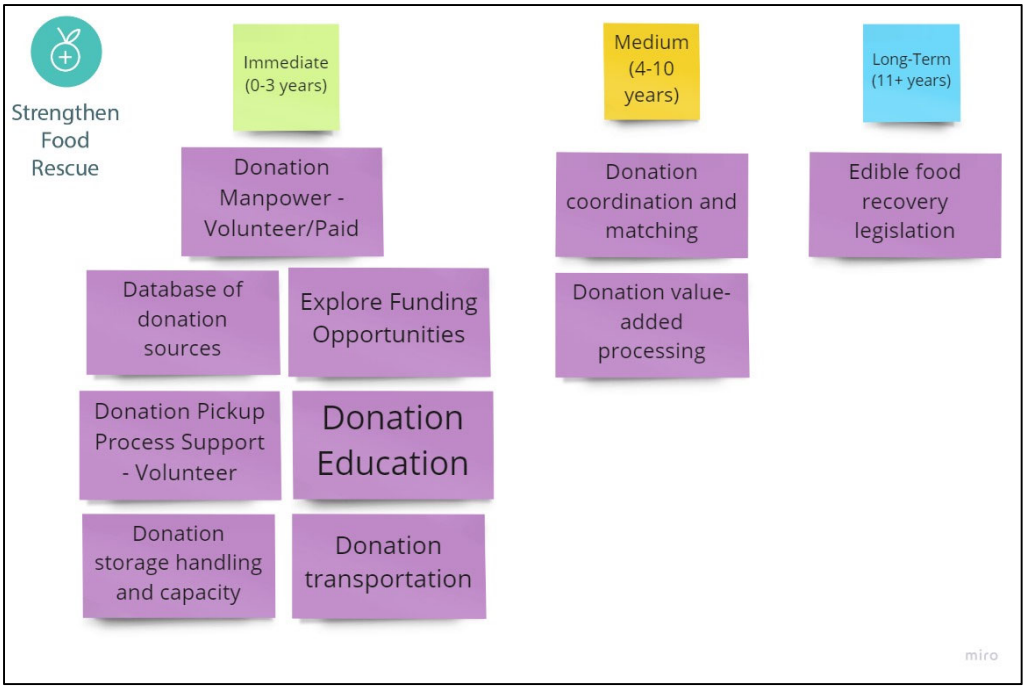
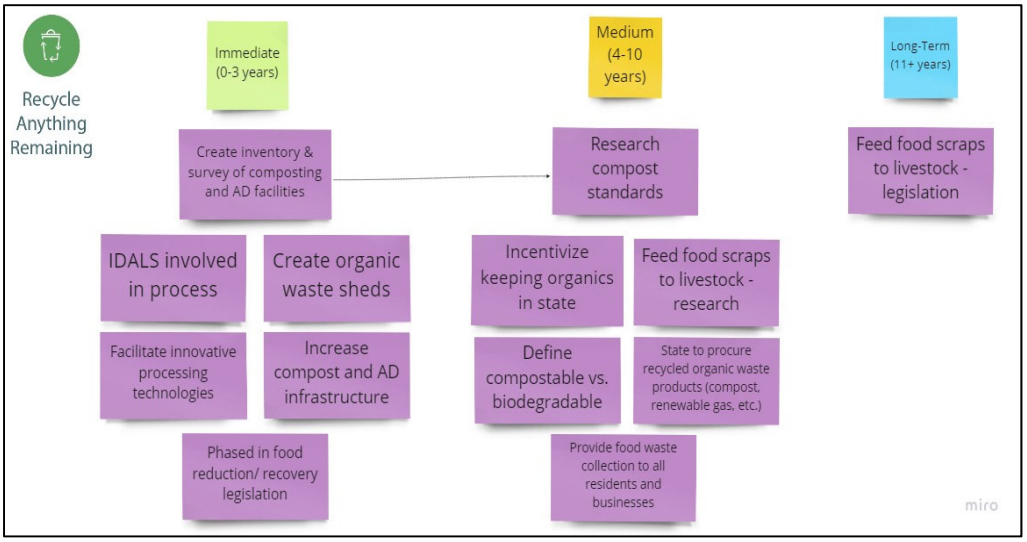


Figure 5 – Increase Iowa Composting/Digestion – Suggested Strategies and Timeline



The following are comments and or questions from Stakeholders:

- I would suggest we create weight/volume inventory and survey of composting material for residential and commercial generators.
- Can you elaborate on how many other states have implemented "feed good scraps to livestock - legislation" and which states?
    - Minnesota has established legislation.
    - Leftovers for Livestock: A Legal Guide for Using Food Scraps as Animal Feed (August 2016) is a good source for status of state regulations.

Plastics

The project consultant team reviewed the specific materials that the Subcommittee members identified to focus on for evaluation of transitioning to an SMM approach. These include the following:

- Single-Use PET Water Bottles
- Plastic Film and Bags
- Polystyrene (Styrofoam™)

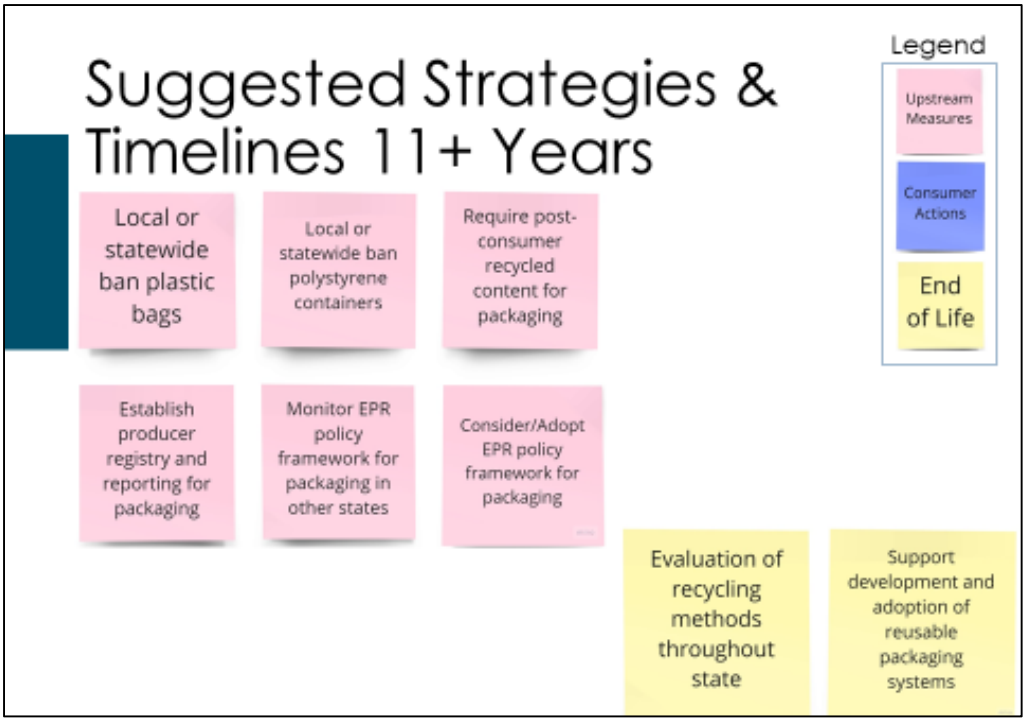
The project consultant team presented descriptions of each of these identified materials and summarized the results of life cycle analyses (LCA) research.

The project consultant team and Bryce Stalcup, Plastics Subcommittee Chair presented the suggested strategies and timelines identified by the Subcommittee members. These suggested strategies and timelines are divided between upstream, consumer, and end of life categories. The results of the suggested strategies and timelines are identified in the figures below.

Figure 6 – Plastics 0 – 3 Years Suggested Strategies and Timeline

Figure 7 – Plastics 4 – 10 Years Suggested Strategies and Timeline

Figure 8 – Plastics 11+ Years Suggested Strategies and Timeline



The following are comments and/or questions from Stakeholders:

- What LCAs results were presented?
    - The project consultant team will provide the LCAs reviewed.

Renewable Energy Equipment

The project consultant team reviewed the specific materials that the Subcommittee members identified to focus on for evaluation of transitioning to an SMM approach. These include the following:

- Wind Turbine Blades
- Solar Panels
- Batteries

The project consultant team presented a summary of the renewable energy market in Iowa as well as information from other states and countries regarding how the materials from this industry are being managed using an SMM approach. It was stated that the renewable energy market is expanding and changing rapidly. While the renewable energy equipment materials may not present a significant management concern now, it is important to observe the industry and consider strategies that will manage the equipment from this industry using a more SMM approach. Evaluating potential strategies and timelines for managing renewable energy equipment materials is a proactive approach and will help

identify SMM solutions for when significant materials may reach their expected end of life usefulness (approximately 20-40 years).

Steve Guyer, Renewable Energy Equipment Subcommittee Chair, presented the Subcommittee's suggested strategies for consideration over the next five years which are as follows:

- Encourage policies that foster research for technologies to solve some of the end-of-life material management challenges.
- We need to encourage, to the extent that we can, solutions that drive businesses and solutions to move to Iowa.
- Consider re-establishing and expanding the renewable energy tax credit.
- Public education is important to help promote the benefits of renewable energy.

Steve stated that all outcomes of this project's process must be fair and equitable to all utility customers. Steve also stated that each customer manages their renewable energy equipment differently (i.e., large utilities, cooperative utilities, commercial entities, residential systems, etc.) based on their desired return on investment, demands from customers, and size and complexity of the system.

The following are comments and/or questions from Stakeholders:

- We are now recycling windmill blades in Marengo, Iowa. They are being shredded and sent to Green America in Buffalo, Iowa and the shredded blades are being metered into the kiln for cement manufacturing.
- What were the business association reactions concerning solar panel manufacturer extended producer responsibility legislation passed in the state Washington?
    - The project consultant team will work to reach out to business associations, media outlets, and/or legislators and provide information resources to the Stakeholders.
- The Electric Power Research Institute (EPRI), a non-profit research organization that focuses on energy issues, is also conducting extensive research on renewable waste recovery. Alliant Energy is participating in this research in an advisory capacity.
- Several manufacturers of wind turbine blades have recently announced that they are producing 100 percent recyclable blades. This is a rapidly changing industry and they are addressing the issue of materials prior to becoming a significant waste issue.

<u>Construction and Demolition Debris (C&D)</u>

The project consultant team reviewed the specific materials that the Subcommittee members identified to focus on for evaluation of transitioning to an SMM approach. These include the following:

- Interior Building Components
- Roofing Materials
- Drywall, Plaster and Gypsum Board
- Treated and Untreated Wood

The project consulting team presented examples of C&D management programs in Iowa and a summary of LCA research results for targeted C&D materials.

Brian Seals, C&D Debris Subcommittee Chair presented the suggested strategies and timelines identified by the Subcommittee members and are divided between upstream, consumer, and end of life categories. These are illustrated in the three figures below.

Figure 9 – C&D Debris 0 – 3 Years Suggested Strategies and Timeline

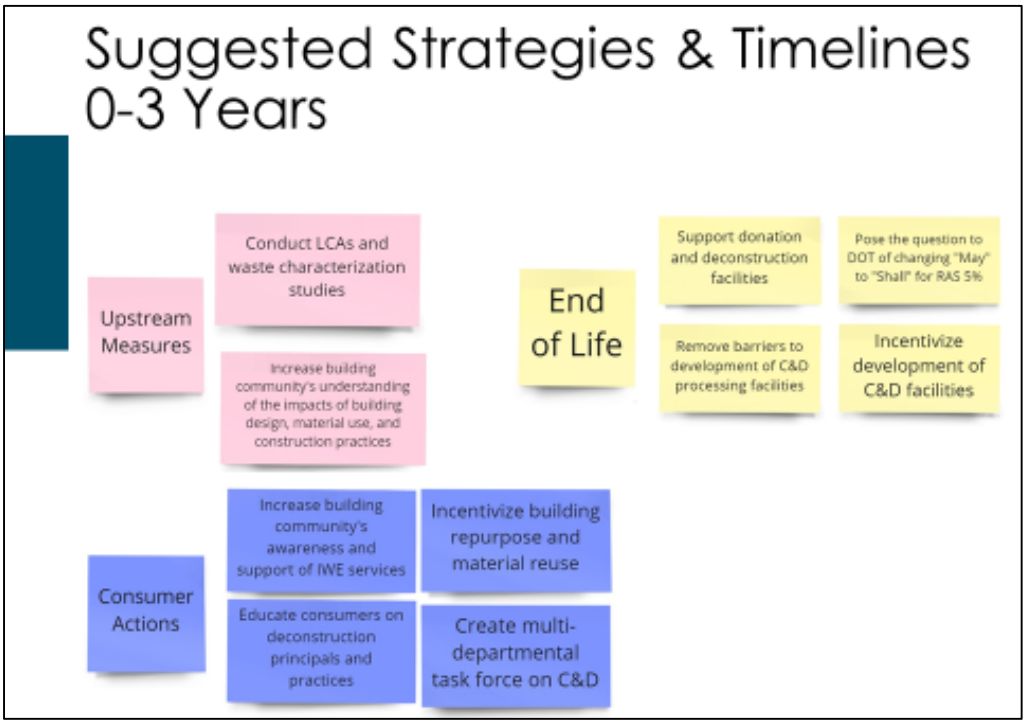


Figure 10 – C&D Debris 4 – 10 Years Suggested Strategies and Timeline

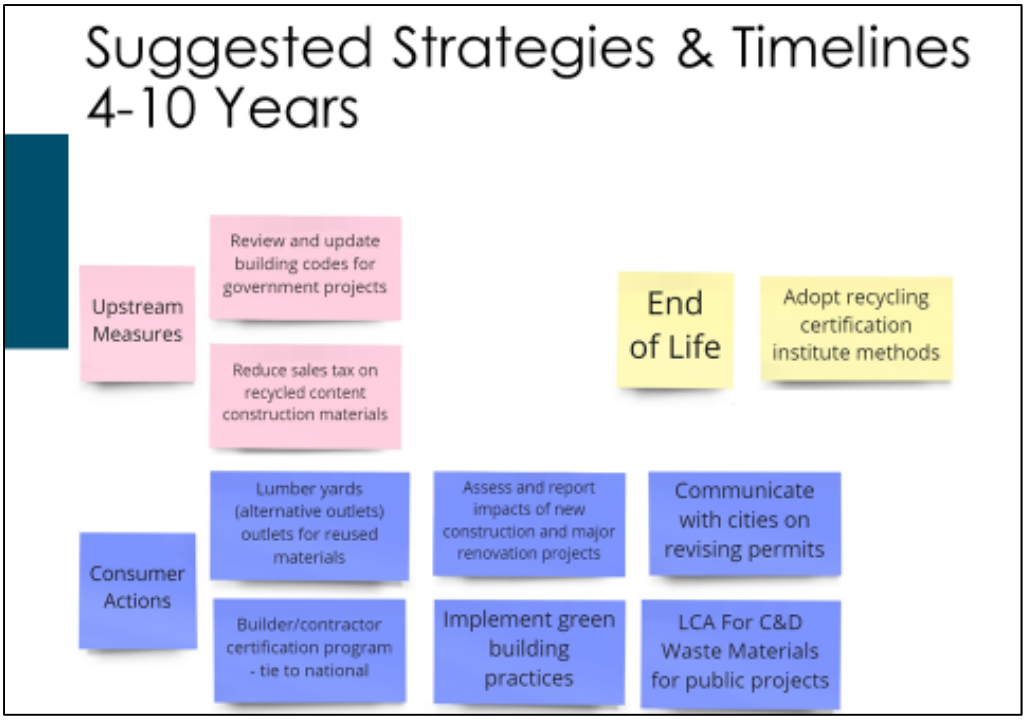


Figure 11 – C&D Debris 11+Years Suggested Strategies and Timeline

The following are comments and/or questions from Stakeholders:

- The Iowa Economic Development Authority (IEDA) recently funded development of designs for an affordable home to address issues such as efficient design, reducing material waste, improving home performance, accessibility and universal design, shortening construction time, reducing construction costs, etc. Research and demonstration are forthcoming on integration of innovative technologies to improve the design process as well as the manufacturing process (digitalization, 3D printing. etc.). These efforts address future construction at this time. Still need to tackle challenge of rehabilitating/reusing/recycling current building stock.
- Collaboration between consumers "wants" and "actions" is important.
- What are some examples of cities revising building permits to support green building practices?
    - Ordinances and permits could provide resources, clarification, and incentives for designers and builders to incorporate recycled content into their building materials, select materials based on the amount of waste they generate, renovate existing infrastructure versus building new, support deconstruction activities, follow practices promoted by Leadership in Energy and Environmental Design (LEED) programs, and more.

D. Breakout Sessions

The project consultant team welcomed Stakeholders back from lunch and summarized the Breakout session process. The project consultant team asked Stakeholder participants to consider the following questions for discussion in the breakout sessions:

- Does anyone have any questions from the morning presentation?
- Are there any strategies that require additional clarification or discussion?
- Are there any new strategies that we should consider?
- If yes, are they short-, medium-, or long-term?
- Does anyone want to adjust the proposed implementation schedule?
- Are there any proposed strategies that anyone can NOT live with?

During the first Breakout session, participants were able to attend either the Organics and Fibers Subcommittee session or the Plastics Subcommittee session. The second Breakout session allowed participants the opportunity to attend either the Renewable Energy Equipment Subcommittee session or the Construction and Demolition Debris Subcommittee session. Each Breakout session lasted approximately 45 minutes. A summary of the discussions in these Breakout sessions is listed below for each Subcommittee.

Organics and Fibers Subcommittee – Breakout Session

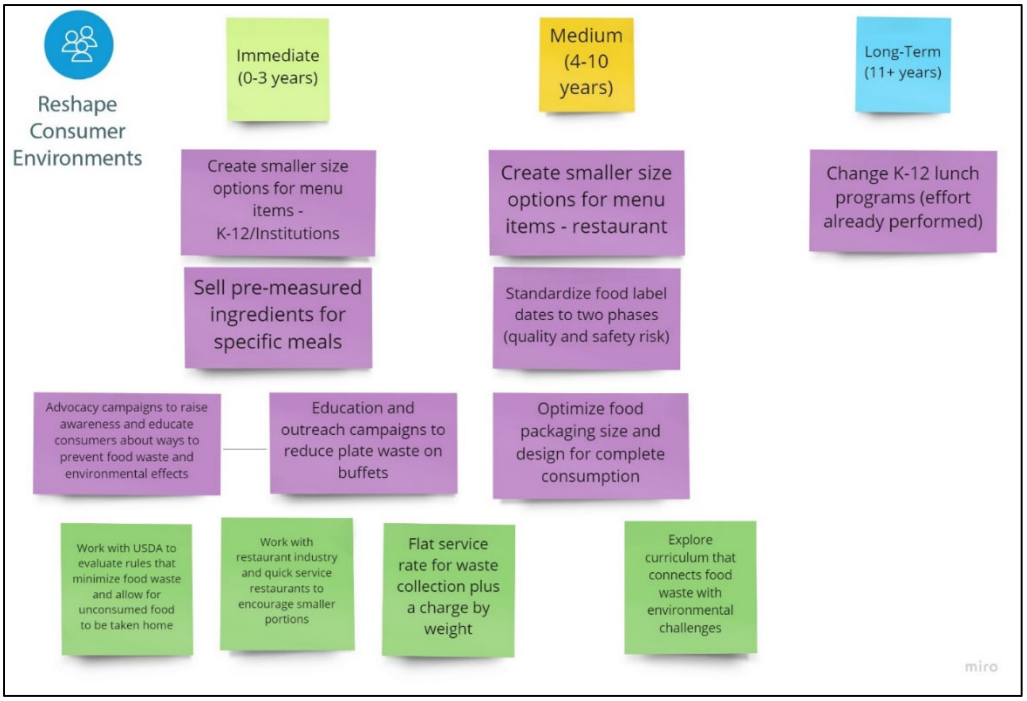
The project consultant team quickly summarized the suggested strategies and timelines that were presented in the morning. It was then opened up for participants to ask questions and provide comments.

The following are comments and/or questions from Stakeholders:

- Lower the prices for half orders in restaurants to minimize food waste.
- Profitability goes up when food waste goes up at quick service restaurants. Consumers don't want the last food item. So quick service restaurants are encouraged to keep filling the food display up to encourage purchasing.
- Just like the energy industry charges a flat rate as well as a use rate, perhaps the waste industry could consider a similar model. Would love to see the waste industry provide a hybrid option per pull and by weight.
    - Some commercial waste haulers do have the ability to weigh individual containers. We will look into how many of our commercial collection vehicles have these abilities and what it costs to install and maintain these tools.
    - Capturing container weight may help the industry consider charging customers a set rate fee for specific materials rather than just a single flat rate for commingled waste.
- The Dubuque Metropolitan Area Solid Waste Agency created a curriculum for their school district which included topics about organic management and minimizing food wastes.
    - School district instructional schedules are already very busy and providing additional curriculum is not a valid education/outreach approach for large scale implementation. Also, some topics have become very politically charged (i.e., climate change) and are difficult conversations to have with students and/or include in lesson plans.
- MEANS Database (in talking about database of donation sources) is an existing resource.
- Food Rescue Hero is another program that helps establish and manage food generation and donation information.
- It all comes back to money. Drive the generation fee (at the point of collection) and charge the generator by what they generate and how they are diverting materials. Charge people more that are not participating in waste diversion programs/services to help incentive participation in diversion programs.
- Mandatory organics residential collections will be implemented in Hennepin County in Minnesota. The question is what level of participation will you get?

The project consultant team facilitated a review and discussion of the suggested strategies and timelines that were previously presented. The Breakout Session participants provided comments and recommended changes. The figure below illustrates the changes recommended by the Breakout Session participants. This figure is also located in Attachment B of this report.

Figure 12 – Organics and Fibers – Modified Suggested Strategies and Timelines



Note: Green notes represent new strategies identified.

Plastics Subcommittee – Breakout Session

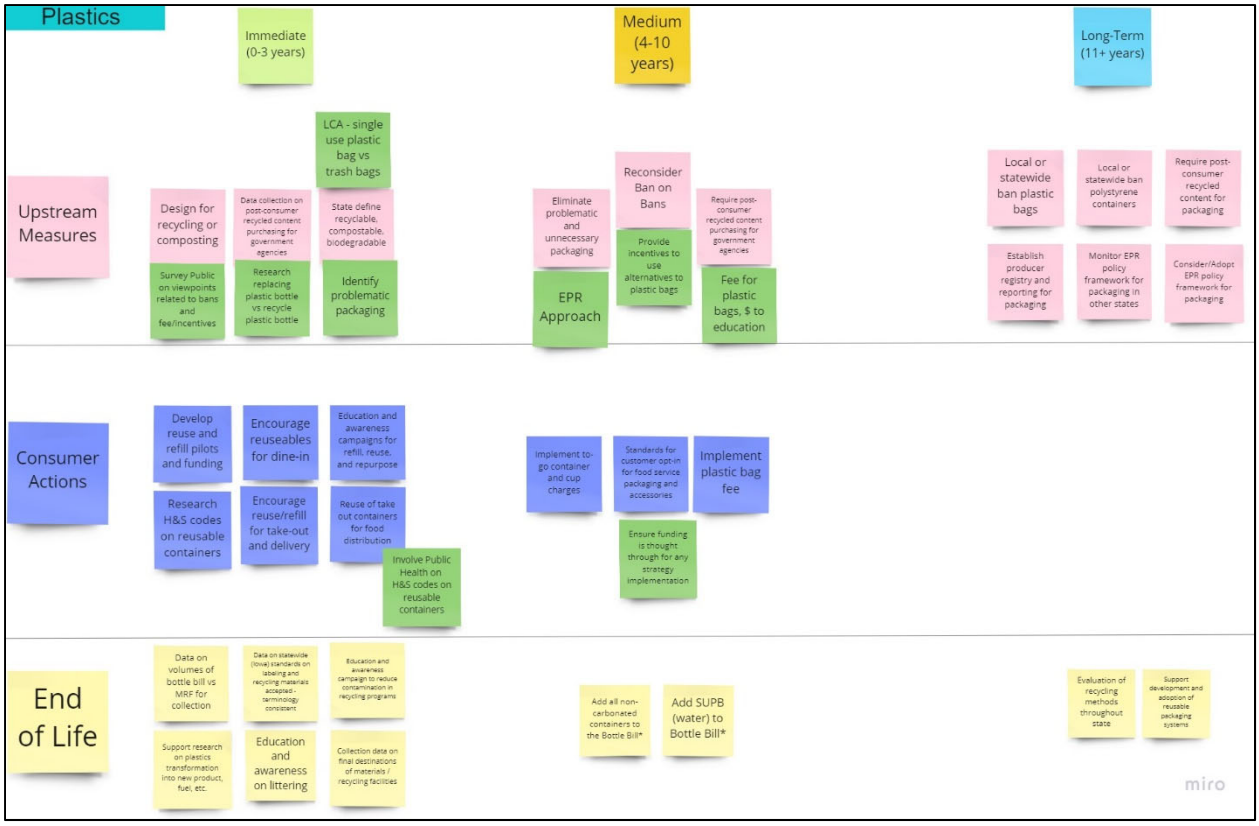
The project consultant team quickly summarized the suggested strategies and timelines that were presented in the morning. It was then opened up for participants to ask question and provide comments.

The following are comments and or questions from Stakeholders:

- We should keep the "ban on bans". Individual businesses on their own can elect to not use plastic bags or charge a small fee to customers that want to use a plastic bag.
- Bans or restrictions on products is not practical.
- It would be better if the goal was to replace the bottle instead of finding additional methods to capture and recycle more plastic bottles.
- Allocating space for additional collection services can be a challenge to many businesses. Additionally, finding collection service providers for specific services can also be challenging.

The project consultant team facilitated a review and discussion of the suggested strategies and timelines that were previously presented. The Breakout Session participants provided comments and recommended changes. The figure below illustrates the changes recommended by the Breakout Session participants. This figure is also located in Attachment B of this report.

Figure 13 – Plastics – Modified Suggested Strategies and Timelines



Note: Green notes represent new strategies identified.

Renewable Energy Equipment Subcommittee – Breakout Session

The project consultant team quickly summarized the suggested strategies and timelines that were presented in the morning. It was then opened up for participants to ask question and provide comments.

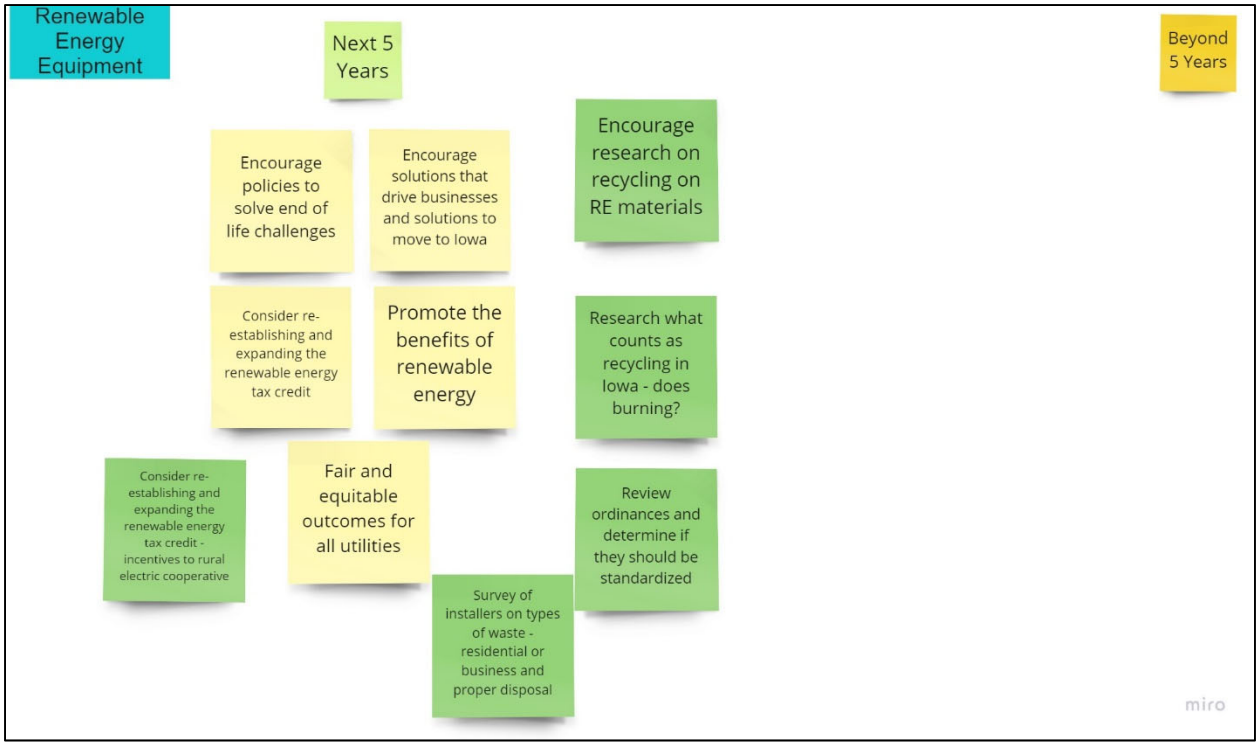
The following are comments and or questions from Stakeholders:

- While portions of the solar panels are recyclable, where do the more difficult to recycle items (i.e., heavy metals) end up? We need to be sure we account for how these are managed and where they end up.
    - While solar panels may have heavy metals in them, they are in small quantities and the manufacturers are already working on ways to phase out the use of heavy metals. Recyclers are working to capture and treat heavy metals that are removed during the recycling process.
- Currently, the closest solar panel recycler is located in Wisconsin.
- Constraints on grid capacity does not allow rural areas to take advantage of renewable energy credits. This is especially true for rural co-op utilities.

- Rural electric utilities are not able to take advantage of renewable tax credits because of the financial structure in place at the Federal level.
- Counties are developing and requiring decommissioning plans for solar and wind energy infrastructure. These requirements differ from county to county and may even select different entities that are responsible for managing the decommissioning.
    - The Iowa Environmental Council, Great Plains Institute, Rural Initiative, and the Environmental Law Center have produced documents related to utility scale energy. These could provide a template for uniform ordinances based on these guidance documents.
- We have heard that people wanting to recycle their solar panels are having difficulty finding installers that are willing to or knowledgeable about providing recycling services.
    - Discussion concerning how the uninstalled materials are considered commercial or (if removed from a residential building) residential. Further discussion and research is needed to clarify this item.
- Does Iowa have definitions for what constitutes recycling? For instance, if windmill turbine blades are incinerated at a cement kiln would this be considered recycling?
    - Yes. According to the Iowa waste management hierarchy.
- Iowa needs to continue to encourage ways to find solutions for the recycling of renewable energy equipment.

The project consultant team facilitated a review and discussion of the suggested strategies and timelines that were previously presented. The Breakout Session participants provided comments and recommended changes. The figure below illustrates the changes recommended by the Breakout Session participants. This figure is also located in Attachment B of this report.

Figure 14 – Renewable Energy Equipment – Modified Suggested Strategies and Timelines



Note: Green notes represent new strategies identified.

Construction and Demolition Debris – Breakout Session

The project consultant team quickly summarized the suggested strategies and timelines that were presented in the morning. It was then opened up for participants to ask question and provide comments.

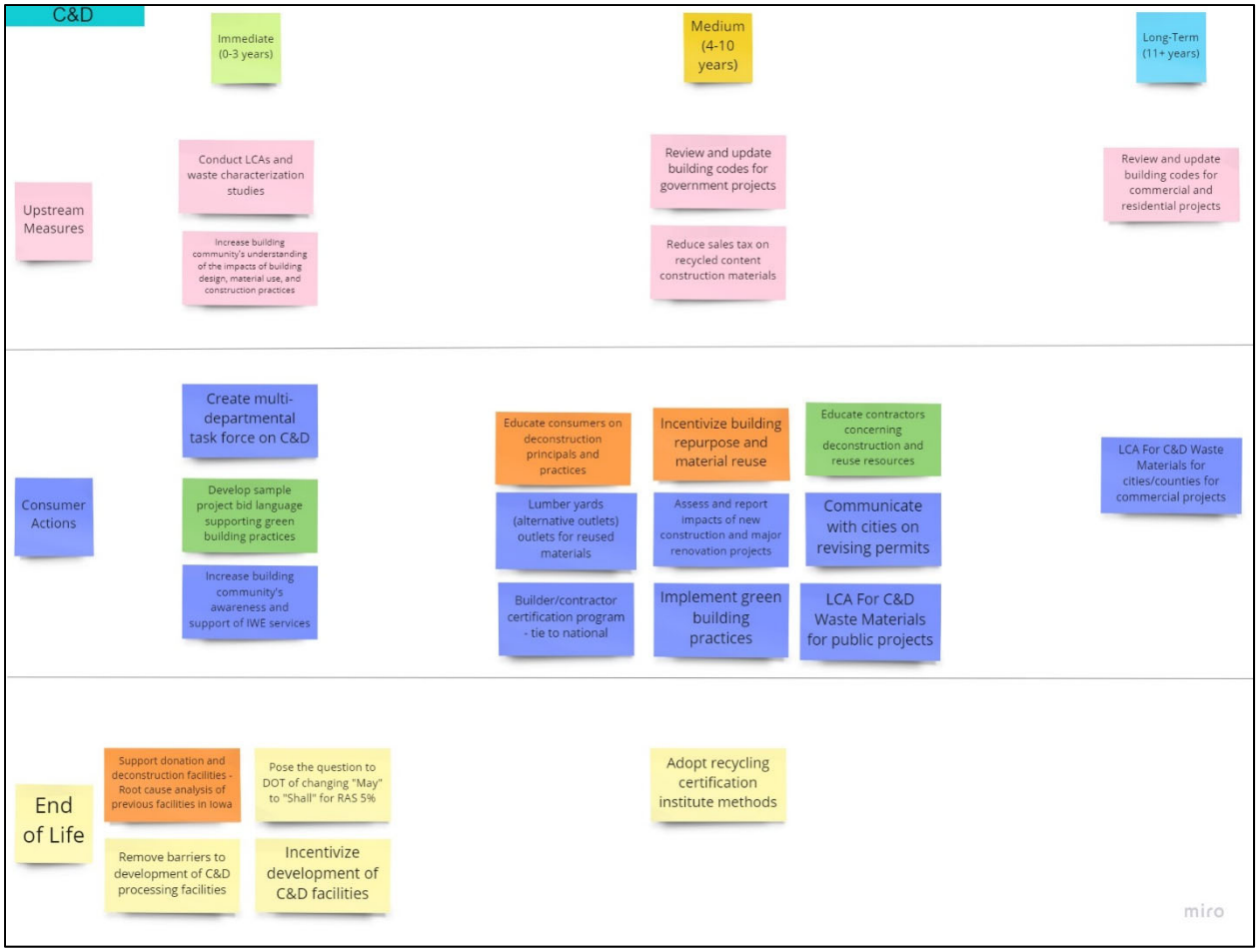
The following are comments and or questions from Stakeholders:

- Cedar Rapids and Dubuque had an incentive program to train contractors on green construction practices. These programs weren't as successful as anticipated, primarily due to the low disposal fees assessed at landfills for C&D waste. Disposal rates were already fairly low, and the decreased tipping fees to incentivize participation in diversion were not enough for contractors to change their practices. Contractors felt that separating the materials and managing them separately wasn't cost effective. Also – There is hesitation for people to want to reuse materials from other houses in their new house. The consumer wants new materials not materials from someone else's building.
- The project should look into the Dubuque Green Building initiative/program.
- Are there already waste characterization studies done for C&D?
    - Yes. California performed targeted waste characterization studies and used these results to establish ordinances and policies.

    - The project consultant team will research existing waste characterization results that targeted C&D materials and try to apply that information to Iowa.
    - As a disposal facility, we don't know the type of C&D we are receiving. We categorize it all as one "C&D" category.
    - Few LFs separate these C&D materials to weigh them individually. Perhaps we can ask Iowa disposal facilities if they have any specific C&D data or a different way of tracking the types of C&D waste they manage.
- Rock quarries that crush rock or materials just being reused immediately aren't tracked as being generated because it isn't coming across the LF scale. It would provide a better picture of what we generate, divert for reuse or recycling, and dispose of in Iowa.
- Other than a particular project that is going after LEED certification, are their other planning resources to help a project incorporate green initiatives?
    - Unsure. The project should reach out to representatives of the Iowa Chapter of the US Green Building Council (USGBC).
- The impact to communities of color should be taken into account with this project. Some of the materials that are being generated in or are going to (for processing and/or end of life) are likely ending up in areas occupied by communities of color. Solutions to material management (i.e., recycling processing, etc.) should consider and engage with the communities where these facilities are located.

The project consultant team facilitated a review and discussion of the suggested strategies and timelines that were previously presented. The Breakout Session participants provided comments and recommended changes. The figure below illustrates the changes recommended by the Breakout Session participants. This figure is also located in Attachment B of this report.

Figure 15 – Construction and Demolition Debris – Modified Suggested Strategies and Timelines



Note: Green notes represent new strategies identified. Orange notes represents strategies that modified (i.e., text change or timeline change) from the original identified strategy.

E. Wrap Up and Next Steps

The project consultant team presented a summary of the discussions for each Subcommittee and showed any modifications to existing suggested strategies and timelines.

The project consulting team thanked the Subcommittee members for their work and for all those that participated in the Stakeholder meeting. The information collected today will help guide each Subcommittee when they reconvene to further prioritize materials, strategies, and timelines. The project plans to have two additional Stakeholder meetings to allow individuals an opportunity to help review suggested strategies and timelines developed by the Subcommittees and continue to provide project guidance.

Jennifer Wright, Financial and Businesses Assistance Supervisor also thanked everyone for their comments and participation. Jennifer stated that participation is crucial for our success in our abilities to evaluate and identify strategies to transition to an SMM approach.

F. Stakeholder Meeting #1 Materials & Data

- Attachment A – Stakeholder Meeting #2 Agenda and Presentation Slides
- Attachment B – Modified Suggested Strategies and Timelines
- Attachment C – Registration Information and Meeting Attendee Information

ATTACHMENT A

STAKEHOLDER MEETING #2 AGENDA AND PRESENTATION SLIDES

AGENDA

Stakeholder Meeting #2

September 30, 2021 (9:00 AM – 2:30 PM)

AGENDA ITEMS:

Introductions (15 Min)

A. Stakeholders, Staff and Consultants
B. Meeting Expectations

Subcommittee Updates (150 Min*)

A. Organics & Fibers
B. Plastics
C. Renewable Energy Equipment
D. Construction & Demolition Materials
E. Initial Discussion and Breakout Selection

Lunch Break (45 Min)

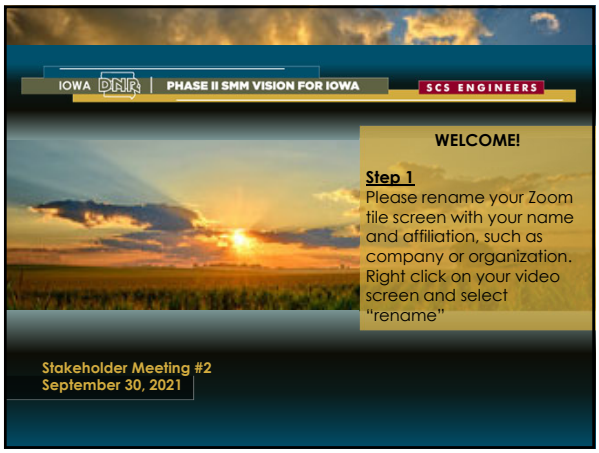
Breakout Sessions (95 Min*)

A. Breakout #1
   1. Organics & Fibers
   2. Plastics
B. Breakout #2
   1. Renewable Energy Equipment
   2. Construction & Demolition Materials

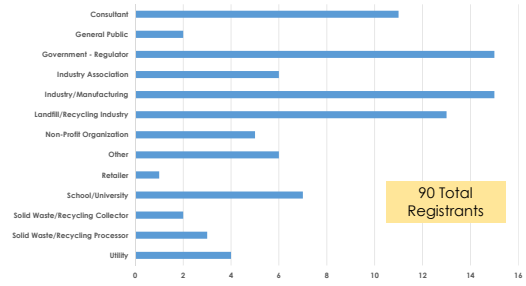
Next Steps (25 Min)

A. Summary of Breakout Sessions
B. Discussion on Next Steps

*Note: Breaks will be taken in these sessions as needed.



Stakeholder Meeting #2 Registrations



IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Agenda

- **Introduction and Meeting Expectations**
- **Subcommittee Updates**
  - Organics and Fibers
  - Plastics
  - Renewable Energy Equipment
  - Construction and Demolition Debris
- **Stakeholder Q&A and Discussion**
- **LUNCH BREAK (*45-min*)**
- **Breakout Session #1**
  - Organics and Fibers
  - Plastics
- **Breakout Session #2**
  - Renewable Energy Equipment
  - Construction and Demolition Debris
- **Summary and Next Steps**

Breaks will be taken throughout the presentations as needed

IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

What is SMM?

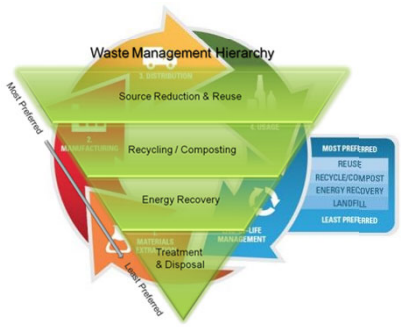
"Sustainable materials management is an approach to using and reusing materials most productively throughout their entire life cycles"

It represents a change in how our society thinks about the use of natural resources and environmental protection

Source: USEPA

IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Iowa Transitioning from ISWM to SMM



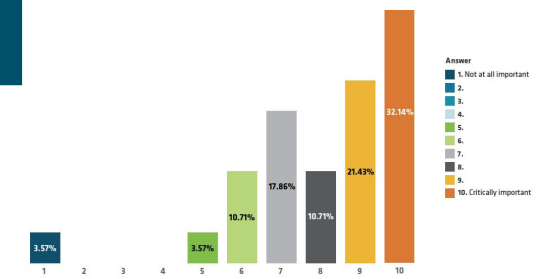
Project Phases

Phase I (Completed): What is SMM and should we do it?

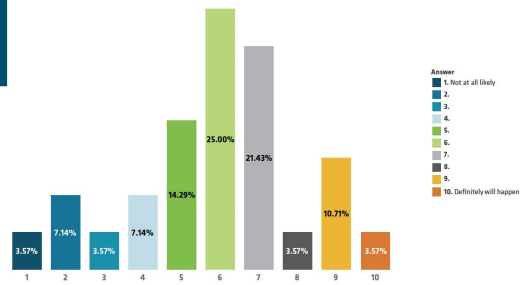
Phase II (Active): Prioritization and timing of what we should do and how we should accomplish it

Phase III (Future): Ongoing Implementation

Phase I (Completed) SMM Importance Results



Phase I (Completed) Feasibility Results



Phase II Process

Select specific material types within each category

Define and prioritize specific strategies
- Legislation
- Policies
- Programs
- Infrastructure

Identify implementation timeline, responsible party, funding measures, and performance metrics

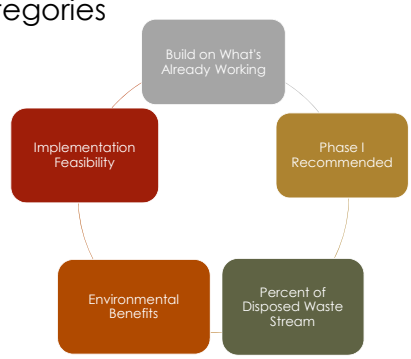
Stakeholder Group Role

Provide various perspectives on how SMM can be adopted and implemented in Iowa

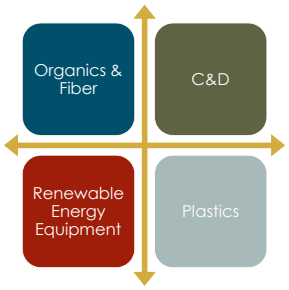
Provide on-going guidance to subcommittees

Consider and endorse subcommittee suggested strategies and timelines

Criteria for Selection of Materials Categories



Material Categories Selected By Stakeholders



Subcommittee Presentations

- Organics & Fibers
- Plastics
- Renewable Energy Equipment
- Construction & Demolition Debris

Subcommittee Members Thank You!

Name	Representing
Aaron Holt	Iowa Restaurant Association
Alan Schumacher	Quincy Recycle Paper/Iowa Recycling Association
Aubrey Alvarez	Eat Greater Des Moines
Beth MacKenzie	University of Iowa
Doyle Smith	City of Cedar Falls
Jennifer Jordan	City of Iowa City Landfill and Recycling Center
Jennifer Trent	Iowa Waste Reduction Center
Jon Koch	City of Muscatine
Karen Rodekamp	ISU Dining, Iowa State University
Kathy Morris	Waste Commission of Scott County
Michelle Hurd	Iowa Grocery Industry Association
Rich Stephens	Archer Daniels Midland Company
Scott Amendt	GreenRU, LLC & Chamness Technology, Inc.

Materials

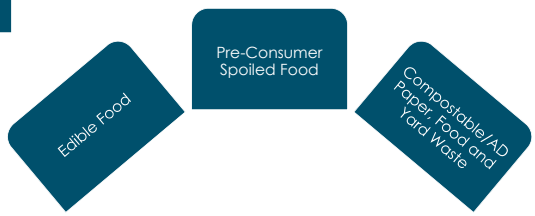
Organics

- Yard trimmings
- Agricultural waste
- Edible food
- Pre-consumer spoiled food
- Post-consumer food scraps
- Biosolids
- Manure

Fibers

- Office paper
- Newspaper
- Magazines
- Corrugated cardboard
- Packaging
- Fiberboard
- Junk mail

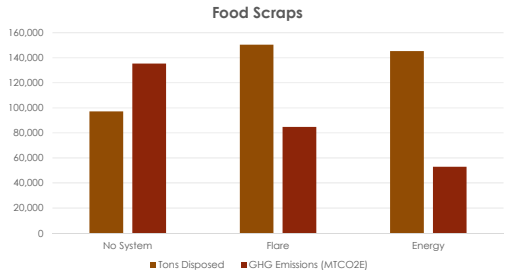
Material Types Selected



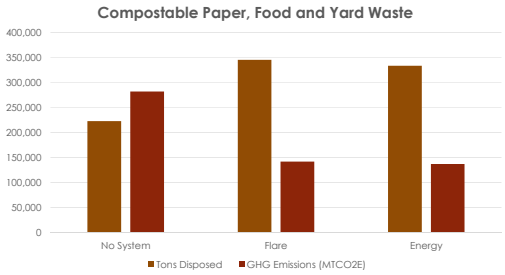
Food and GHG Emissions

- Food accounts for 10-30% of a household's carbon footprint, typically a higher portion in lower-income households
- Production accounts for 68% of food emissions, while transportation accounts for 5%
- Food production emissions consist mainly of CO_2, N_2O, and CH_4, which result primarily from agricultural practices
- Meat products have larger carbon footprints per calorie than grain or vegetable products

Iowa Impacts



Iowa Impacts



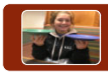
ReFED *Road Map to 2030*

Subcommittee Suggested Strategies & Timelines

Upstream

Consumer/End-Of-Life Final Management

Iowa Education and Outreach Examples

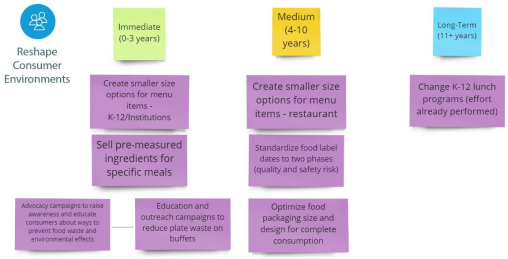

ISU Dinning Hall Plate Pilot

Municipal & Solid Waste Agency Food Waste Reduction Education Campaigns


Iowa Waste Reduction Center & Iowa Waste Exchange Food Waste & Prevention Services

State Education Campaigns

Reshape Consumer Environments



Edible Food Recovery

Iowa Edible Food Recovery

Both Iowa State University and Drake University; as well as hundreds of other universities in 46 states around the country utilize the Food Recovery Network

The Food Recovery Network is a student led program on campuses that aims to fight food waste and end hunger in America

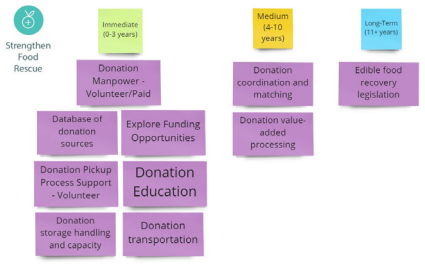
Once out of the dining halls, FRN has over 300 partners nationwide where they deliver their unused food to be served to the public

National Food Reduction and Recovery

State of Washington

- Support national date labeling standards
- Strengthen Good Samaritan Law
- Increase markets for lower-grade produce
- State grant funding for food waste prevention, rescue, and recovery
- Infrastructure investment in schools
- Mapping food system flows
- Improve donation transportation
- Community food hubs
- Develop an emergency food distribution plan for Washington Schools
- 20-minute seated lunch minimum in Washington schools
- Recess before lunch in Washington schools

Suggested Strategies & Timelines Strengthen Food Recovery



Iowa Composting/AD

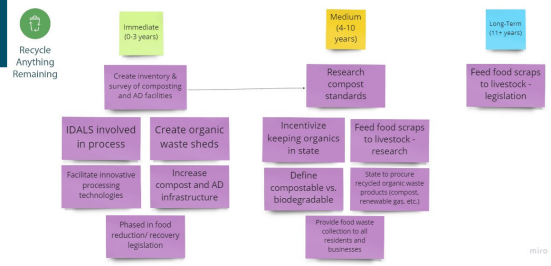
Iowa Permitted Compost Facilities

- Cedar Rapids/Linn County Solid Waste Agency Composting Facility
- Chamness Technologies Solid Waste Composting Facility
- City of Davenport Sludge Composting Facility

Iowa Permitted Compost Facilities

- City of Iowa City Sanitary Landfill
- Clinton County Sanitary Landfill

Suggested Strategies & Timelines Increase Iowa Composting /Digestion



Subcommittee Members Thank You!

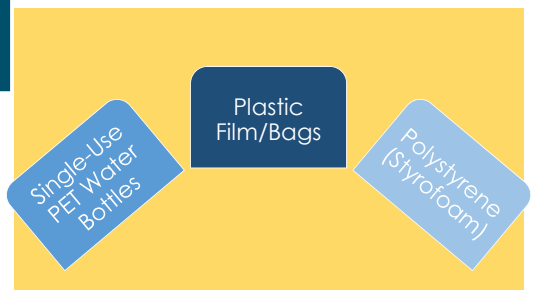
Name	Representing
Bryce Stalcup	Waste Commission of Scott County
Harlan Buxbaum	Dee Zee, Inc.
Jennifer Horner	That's Not Trash, LLC
Joe Bolick	Iowa Waste Reduction Center
Julie Ketchum	Waste Management
Merry Rankin	Iowa State University
Michele Boney	West Liberty Foods
Mick Barry	Mid America Recycling
Nicole Crain	Iowa Association of Business and Industry
Scott Vander Sluis	Van's Sanitation and Recycling
Sue Waters	Plastics Recycling of Iowa Falls, Inc.
Troy Willard	Can Shed LLC/ Iowa Recycling Association

Material Types

Plastics

- Rigid containers/bottles
- Other Single-Use Products
  - Food service ware
  - Straws
  - Plastic Bags
- Packaging
  - Styrofoam
  - Film

Material Types Selected



Single-Use PET Water Bottles

- **single-use plastics** are goods that are made primarily from fossil fuel–based chemicals (petrochemicals) and are meant to be disposed of right after **use**—often, in mere minutes

Plastic Film/Bags

- Plastic bags are made out of "film," or thin flexible sheets of plastic
- Plastic film is typically defined as any plastic less than 10 mil thick.
- The majority of plastic films are made from polyethylene resin and are recyclable if the material is clean and dry and facilities are able to process it

Expanded Polystyrene Foam

- Styrofoam is a Dow Chemical Co. trademark
- AKA: Closed-cell extruded polystyrene, Expanded Polystyrene Foam (EPS)
- Plastic #6
- Non-biodegradable
- Limited Recyclability

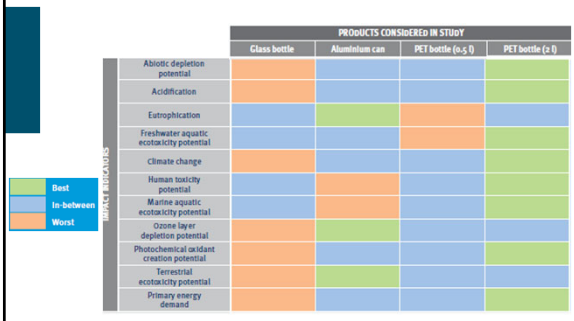
Background-Plastics

Plastics in the environment	Iowa Beverage Container Control Law "Bottle Bill"	Existing Iowa Plastics Industry	Plastics Alternatives
• 18 % of disposed waste stream • Increased use for packaging and single-use products • China National Sword • Markets for #1,2 • Limited markets for #3-7	• All carbonated and alcoholic containers • $0.05/container • 71% recycled annually	• Processing, manufacturing, marketing • Employs 14,000 people • 23rd in national employment • $4.1billion annual shipments (1% of nation) • 16 plastics manufacturers • Post-consumer processing and recycling	• No existing manufacturers • Two organizations conducting bioplastics research

Existing Activities in Iowa

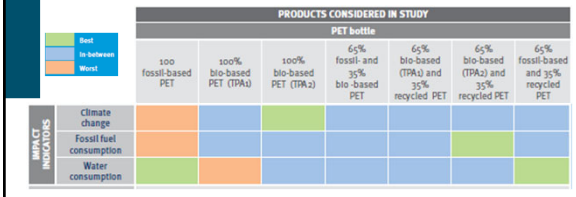
Research and Development	Recycling Companies	Laws and Regulations
• Iowa State University • DOE Grants • Center for Bioplastics and Biocomposites • Institute for Cooperative Upcycling of Plastics • Iowa Corn Promotion Board Patent for MEG	• Quincy Recycling • Plastics Recycling of Iowa Falls • Power Plastic Recycling • Mid America Recycling • Recycling Inc. • Cedar Falls • Atlas Molded Products • Foam Fabricators	• No Plastic Bag Bans • Advanced Plastic Recycling

Single-Use Plastic Bottles & Other Containers



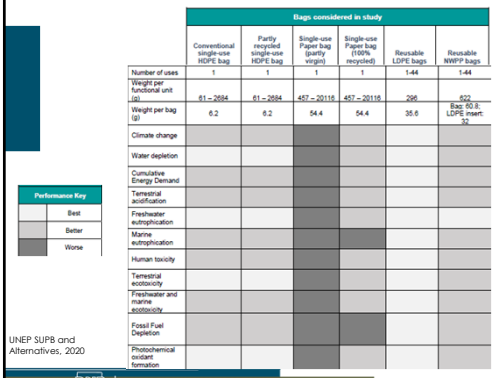
UNEP Plastic Bottles Report 2020

Bottles Made of Virgin fossil, Recycled Fossil, and/or Virgin Bio-Based PET



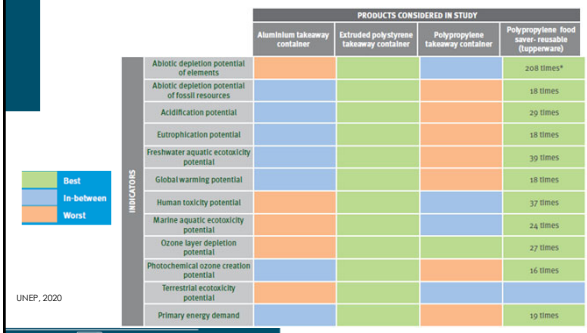
UNEP Plastic Bottles Report 2020

Single Use Plastic Bags and Alternatives



UNEP SUPB and Alternatives, 2020

Takeaway Food Containers Single-Use and Reusable



UNEP, 2020

Clamshell Containers

UNEP, 2020

Upstream Strategies

- Design for recycling or composting
- Eliminate problematic and unnecessary packaging
- Require post-consumer recycled content for packaging
- Adopt EPR policy framework for packaging
- Establish producer registry and reporting for packaging
- Ban polystyrene containers
- Ban plastic bags

Consumer-Based Strategies

- Implement standard for customer opt-in for foodservice packaging and accessories
- Encourage reusables for dine-In
- Encourage reuse/Refill for take-out and delivery
- Develop reuse and refill pilots and funding
- Provide education and awareness campaigns for refill, reuse, repurpose
- Implement to-go container and cup charges
- Implement plastic bag fee

IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

End-of-Life Strategies

- Provide education and awareness campaigns on contamination in recycling
- Provide education and awareness on littering
- Collect data on final destinations of materials/recycling facilities
- Support development and adoption of reusable packaging systems
- Add single-use plastic bottles to Bottle Bill
- Add all non-carbonated containers to Bottle Bill

IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Suggested Strategies & Timelines 0-3 Years

Legend: Upstream Measures; Consumer Actions; End of Life

- Design for recycling or composting
- Data collection on post-consumer recycled content purchasing for government agencies
- State define recyclable, compostable, biodegradable
- Develop reuse and refill pilots and funding
- Encourage reuseables for dine-in
- Education and awareness campaigns for refill, reuse, and repurpose
- Data on volumes of bottle bill vs MRF for collection
- Data on statewide (Iowa) standards on labeling and recycling materials accepted - terminology consistent
- Education and awareness campaign to reduce contamination in recycling programs
- Research H&S codes on reusable containers
- Encourage reuse/refill for take-out and delivery
- Reuse of take out containers for food distribution
- Support research on plastics transformation into new product, fuel, etc.
- Education and awareness on littering
- Collection data on final destinations of materials / recycling facilities

IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Suggested Strategies & Timelines 4-10 Years

Legend: Upstream Measures; Consumer Actions; End of Life

- Eliminate problematic and unnecessary packaging
- Reconsider Ban on Bans
- Require post-consumer recycled content purchasing for government agencies
- Implement to-go container and cup charges
- Standards for customer opt-in for food service packaging and accessories
- Implement plastic bag fee
- Add all non-carbonated containers to the Bottle Bill*
- Add SUPB (water) to Bottle Bill*

IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Suggested Strategies & Timelines 11+ Years

Legend: Upstream Measures; Consumer Actions; End of Life

- Local or statewide ban plastic bags
- Local or statewide ban polystyrene containers
- Require post-consumer recycled content for packaging
- Establish producer registry and reporting for packaging
- Monitor EPR policy framework for packaging in other states
- Consider/Adopt EPR policy framework for packaging
- Evaluation of recycling methods throughout state
- Support development and adoption of reusable packaging systems

IOWA DNR | PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Subcommittee Members Thank You!

Name	Representing
Brad Hartkopf	Iowa Association of Business and Industry
Chaz Allen	Iowa Utility Association
Dan Nickey	Iowa Waste Reduction Center
Dustin Miller	American Clean Power Association
Jeff Maxted	Alliant Energy
Jenny Coughlin	MidAmerican Energy Company
Jerry Brown	Collins Aerospace
Joshua Syhlman	TPI Composites
Kenneth Sulma	Iowa Utilities Board
Mary Wittry	Carroll County Solid Waste Management Commission
Rick Hurt	South Central Iowa Solid Waste Association
Sally Buck	Valmont Industries, Inc., Coatings Division
Shelene Codner	Region XII Council of Governments - Iowa Waste Exchange
Shelly Peterson	Iowa Economic Development Authority
Steve Guyer	Iowa Environmental Council

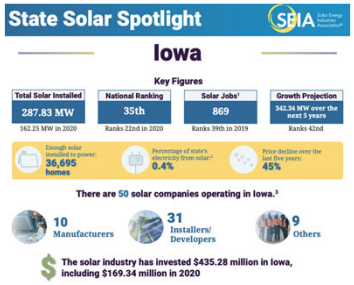
Category Material Types

Renewable Energy Equipment

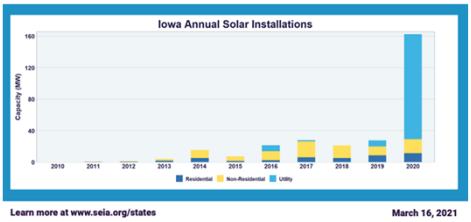
- Wind Turbine Blades
- Solar Panels
- Batteries

Solar Energy

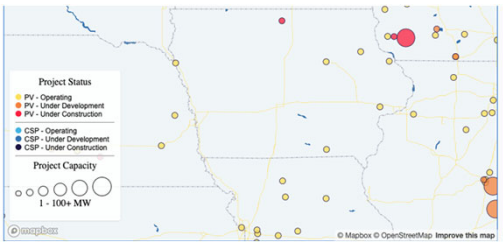
Background - Solar



Background - Solar



Background- Solar



Solar Energy in Iowa

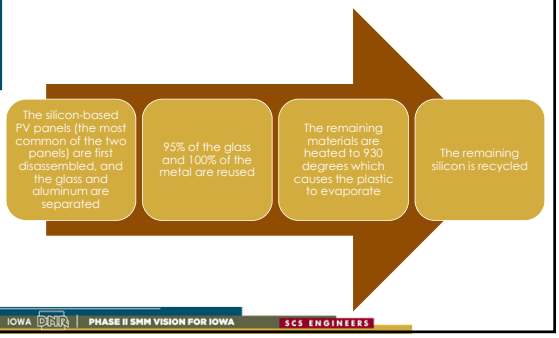
- Large scale solar investment in Iowa has been limited due to the states emphasis on wind power
  - 167 MW in 2020
  - Iowa hosts six solar facilities that are each generating larger than 1.5 MW
- Iowa has somewhere between 1,694,800 and 1,059,250 solar panels currently installed
- Total number of solar panels with approved projects: 2,372,500
  - ≈ 47,450 tons
- An additional 3,750,000 to 6,000,000 solar panels are expected to be installed within the next 3 years

Solar Reuse and Recycling

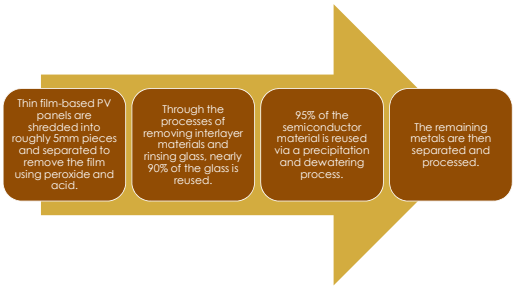
In Iowa, solar panel waste has not been a significant issue yet, as the state is relatively new to solar power and most panels are original and have yet to expire.

Most PV panels fall into two basic types and require two distinct recycling life cycles: silicon-based PV and thin film-based PV panels.

Solar Reuse and Recycling



Solar Reuse and Recycling

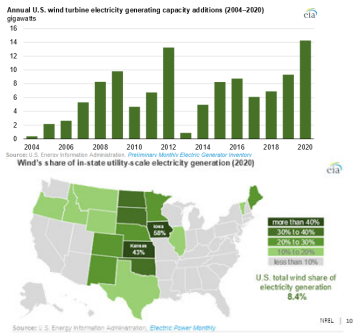


Solar Reuse and Recycling

Wind Energy

Growing U.S. wind energy generating capacity

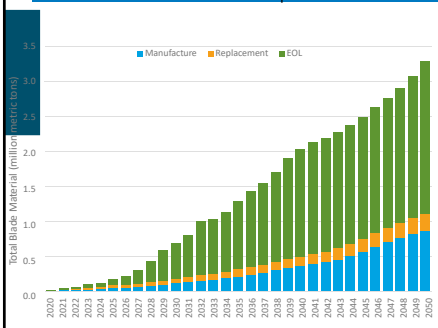
The U.S. installed more wind turbine capacity in 2020 than in any other year



Wind Energy in Iowa

- 5,590 total wind turbines that are producing over 10,951 megawatts (MW) of electricity.
  - 16,670 individual wind turbine blades

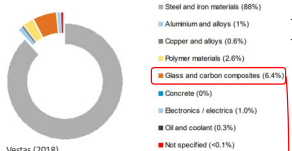
Cumulative Blade Material Including Manufacturing and Replacement



- Blade manufacturing and replacement add around 1 million tons of waste by 2050
- Process innovation and new materials primarily impact manufacturing waste in the short term, with effects on EOL waste delayed 20 years or more
- Assumptions (basedon Cambridge IfM, 2017)
  - Composite waste from manufacturing estimated at 17% of annual installed blademass
  - Blade replacement:
    - 3% of blades replaced during operation (year 6), representing failures due to defects, lightning strikes, etc.
    - 5% of blades replaced in year 16 (repowering)

Wind Turbine Recycling Potential

Material breakdown of V120-2.0 MW turbine (% mass)



Vestas (2018)

Composite blade materials make up largest fraction of turbine materials that are not recycled

End-of-life treatment of V120-2.0 MW turbine components

Material	Treatment		
	Recycling	Incineration	Landfill
Large metal components (tower, nacelle frame)	98%	0%	2%
Other major components (generator, gearbox, cables)	95%	0%	5%
Steel	92%	0%	8%
Aluminum	92%	0%	8%
Copper	92%	0%	8%
Polymers	0%	50%	50%
Fluids	0%	0%	100%
All other materials	0%	0%	100%

Storage Batteries

Storage Batteries Overview

- Batteries – generally lithium-ion batteries – used to store energy have become a key partner of photovoltaic solar, wind, and hybrid power plants, especially in areas that are not connected to a strong grid.
- Battery costs have come down sufficiently to make industrial rollout possible.
- California is currently the global leader in the effort to balance the intermittency of renewable energy in electric grids with utility-scale batteries.
  - Florida, London, Chile and Lithuania are also installing large facilities

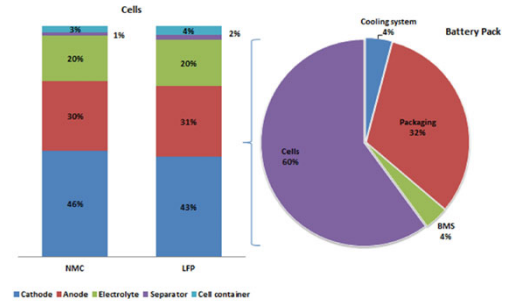
Storage Batteries In Iowa

Currently, MidAmerican operates one battery plant outside of Des Moines and Alliant Energy operates three.

Over the long term, growth in Iowa's renewable energy industries will require more transmission lines to move power to a market and more storage to hold it until demand exceeds supply.

Battery demand in Iowa will soon reach all time highs.

Battery Reuse and Recycling



End of Life Models

End-of-Life Management Models

- Decommissioning Plan
- Product Stewardship
- Rate-Payer Funded
- Permittee Funded

Washington Senate Bill 5939

In 2017, the Washington state Legislature passed Senate Bill 5939 to promote a sustainable, local renewable energy industry through modifying tax incentives

Manufacturers of photovoltaic (PV) modules to provide the public a free and convenient and environmentally sound system for recycling modules sold in or into the state after July 1, 2017

What the Program Covers

All PV modules used for residential, commercial, or agricultural purposes that are installed on, connected to, or integral with buildings

Freestanding off-grid power generation systems such as water pumping stations, electric vehicle charging stations, solar fencing, solar-powered signs and solar-powered street lights

Subcommittee Observations

Utility scale projects are different than commercial or residential projects.

Most large utility scale projects already have decommissioning plans.

- But not during project life
- Maybe ordinances could require funding reserves for "during life recycling"

RE technology is advancing and some of the waste now produced will not be there in the future.

Subcommittee Observations

Solar panels could be reused in developing countries.

- Need to ensure proper end-of-life management

Iowa Economic Development Authority's State Energy Center is to supporting research on end-of-life for wind turbine management.

Iowa could consider a solar panel take back program.

- Similar to battery take back

Next Five Years…….

Encourage policies that foster research for technologies to solve some of the end of life material management challenges

We need to encourage, to the extent that we can, solutions that drive businesses and solutions to move into Iowa

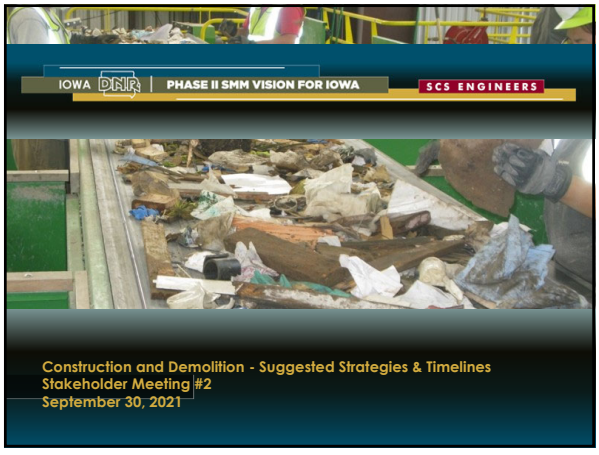
Consider re-establishing and expanding the renewable energy tax credit

Next Five Years…….

Public education is important to help promote the benefits of renewable energy.

- May be a negative connotation with the renewable energy infrastructure
- Need to ensure the public understands all of the benefits that renewable energy solutions provide

All outcomes of this process must be fair and equitable to all utility customers.



Subcommittee Members Thank You!

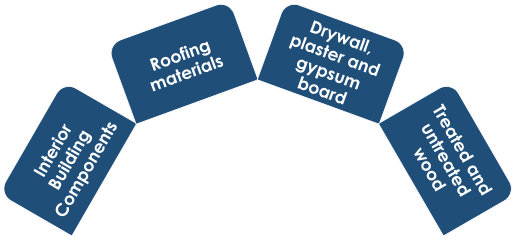
Name	Representing
Becky Soglin	Johnson County Planning, Development and Sustainability
Brian Seals	Waste Commission of Scott County
Cindy Kuhn	Habitat for Humanity Restore in QCA
Damion Sadd	Continental Cement Co.
Hal Morton	Des Moines County Regional Solid Waste Commission
Kerry Dixon	Engie North America
Les Stohs	Greater Des Moines Habitat for Humanity/Re-Store
Nick Wylie	J Pettiecord
Richard Graves	
Seth Shannon	SCHEMMER
Tim Ruth	Home Builders Association of Iowa and Iowa City

Materials

C&D Debris

- Treated Wood
- Untreated Wood
- Roof Shingles
- Asphalt Paving
- Bricks, Rocks, Concrete
- Drywall, Plaster, Gypsum Board

Material Types Selected



Iowa Background

- 5.4% of disposed waste stream
- Construction industry = 5% of employment
- Some construction material manufacturing
- No alternative building material manufacturing
- LEED Certified buildings

Iowa Background

- DNR Derelict Building Program
- Aggregate Recyclers
- Habitat for Humanity Home ReStore
- Local Deconstruction and Reuse Programs
- State University 75% C&D Recycling Goal
- Wood Chipping

LCA of Buildings-Stages

- Material Manufacturing
- Construction
- Use and Maintenance
- End of Life
- Buildings account for 39% of global GHG emissions
  - 28% from operations
  - 11% from building materials and construction
- Structural systems comprise up to 80% of a building's carbon emissions

LCA: Wood, Concrete, Steel

Wood
- Least air impacts
- Greatest land and water impacts

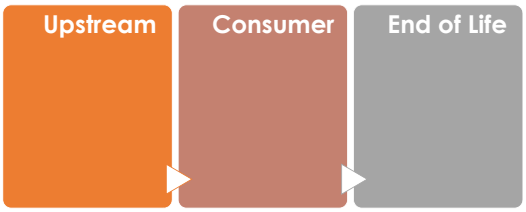
Concrete
- Greatest GWP due to chemical processes releasing CO^2 during manufacturing

Concrete and Steel
- Similar impacts for abiotic depletion, human toxicity potential, and eutrophication
- Greatest impacts during manufacturing due to energy use and emissions

LCA: Waste Prevention in Residential Construction

- Home size is most important determinant
- Multi-Family homes capable of realizing 10-15% reduction in impact compared to Single-Family homes
- Carpeting, **asphalt shingles**, fiberglass insulation, **drywall, wood**, and appliances are chief contributors to environmental impacts
- Metal, plastic, fiberglass insulation, and wood have high potential for benefit from reuse

Strategies



Upstream Strategies

- Conduct LCA's and waste characterization studies
- Increase building community's understanding of the impacts of building design, materials use, and construction practices
- Review and update building codes for commercial and residential projects
- Review and update requirements for government projects
- Reduce sales tax on recycled content construction materials
- Implement carbon taxes on new construction

Consumer Strategies

- Increase building community's awareness and support of IWE services
- Implement green building practices
- Educate consumers on deconstruction principals and practices
- Incentivize building repurpose and material reuse
- Assess and report impacts of new construction and major renovation projects

Example End-of-Life Strategies

- Support donation and deconstruction facilities
- Remove barriers to development of C&D processing facilities
- Incentivize development of C&D facilities
- Adopt Recycling Certification Institute methods

Suggested Strategies & Timelines

Suggested Strategies & Timelines 0-3 Years

- Upstream Measures
  - Conduct LCAs and waste characterization studies
  - Increase building community's understanding of the impacts of building design, material use, and construction practices
- End of Life
  - Support donation and deconstruction facilities
  - Pose the question to DOT of changing "May" to "Shall" for RAS 5%
  - Remove barriers to development of C&D processing facilities
  - Incentivize development of C&D facilities
- Consumer Actions
  - Increase building community's awareness and support of IWE services
  - Incentivize building repurpose and material reuse
  - Educate consumers on deconstruction principals and practices
  - Create multi-departmental task force on C&D

Suggested Strategies & Timelines 4-10 Years

- Upstream Measures
  - Review and update building codes for government projects
  - Reduce sales tax on recycled content construction materials
- End of Life
  - Adopt recycling certification institute methods
- Consumer Actions
  - Lumber yards (alternative outlets) outlets for reused materials
  - Assess and report impacts of new construction and major renovation projects
  - Communicate with cities on revising permits
  - Builder/contractor certification program - tie to national
  - Implement green building practices
  - LCA For C&D Waste Materials for public projects

Suggested Strategies & Timelines 11+ Years

- Upstream Measures
  - Review and update building codes for commercial and residential projects
- Consumer Actions
  - LCA For C&D Waste Materials for cities/counties for commercial projects

LUNCH BREAK (45 Minutes)

Break-Out Groups

- **First Break-Out Choose:**
  - Organics & Fibers
  - Plastics
- **Second Break-Out Choose:**
  - Renewable Energy Equipment
  - Construction & Demolition Materials
- Remember:
  - We want your input
  - Respect different viewpoints
  - Various perspectives will be heard when we reconvene as stakeholders

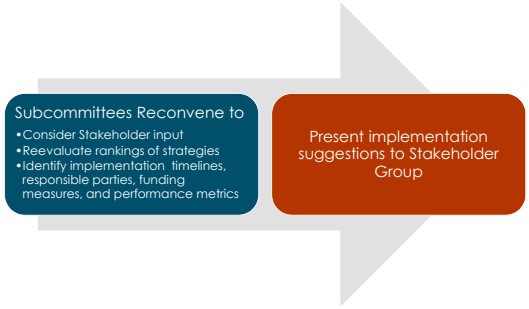
Break-Out Group Agenda

- Does anyone have any questions from the morning presentation?
- Are there any strategies/recommendations that require additional clarification or discussion?
- Are there any new strategies /recommendations that we should consider?
- If yes, are they short-medium or long term?
- Does anyone want to adjust the proposed implementation schedule?
- Are there any proposed strategies /recommendations that anyone can **not** live with?

Wrap-Up

- Break-Out Group Results
  - Modifications to Strategies and/or Timeframes
- Facilitator Conclusions
- DNR Comments

Where Do We Go Next



ATTACHMENT B

MODIFIED SUGGESTED STRATEGIES AND TIMELINES

Note: Green notes represent new strategies identified. Orange notes represents strategies that modified (i.e., text change or timeline change) from the original identified strategy.

Reshape Consumer Environments

Immediate (0-3 years)

Medium (4-10 years)

Long-Term (11+ years)

Create smaller size options for menu items - K-12/Institutions

Create smaller size options for menu items - restaurant

Change K-12 lunch programs (effort already performed)

Sell pre-measured ingredients for specific meals

Standardize food label dates to two phases (quality and safety risk)

Advocacy campaigns to raise awareness and educate consumers about ways to prevent food waste and environmental effects

Education and outreach campaigns to reduce plate waste on buffets

Optimize food packaging size and design for complete consumption

Work with USDA to evaluate rules that minimize food waste and allow for unconsumed food to be taken home

Work with restaurant industry and quick service restaurants to encourage smaller portions

Flat service rate for waste collection plus a charge by weight

Explore curriculum that connects food waste with environmental challenges

Plastics

Immediate (0-3 years)

Medium (4-10 years)

Long-Term (11+ years)

Upstream Measures

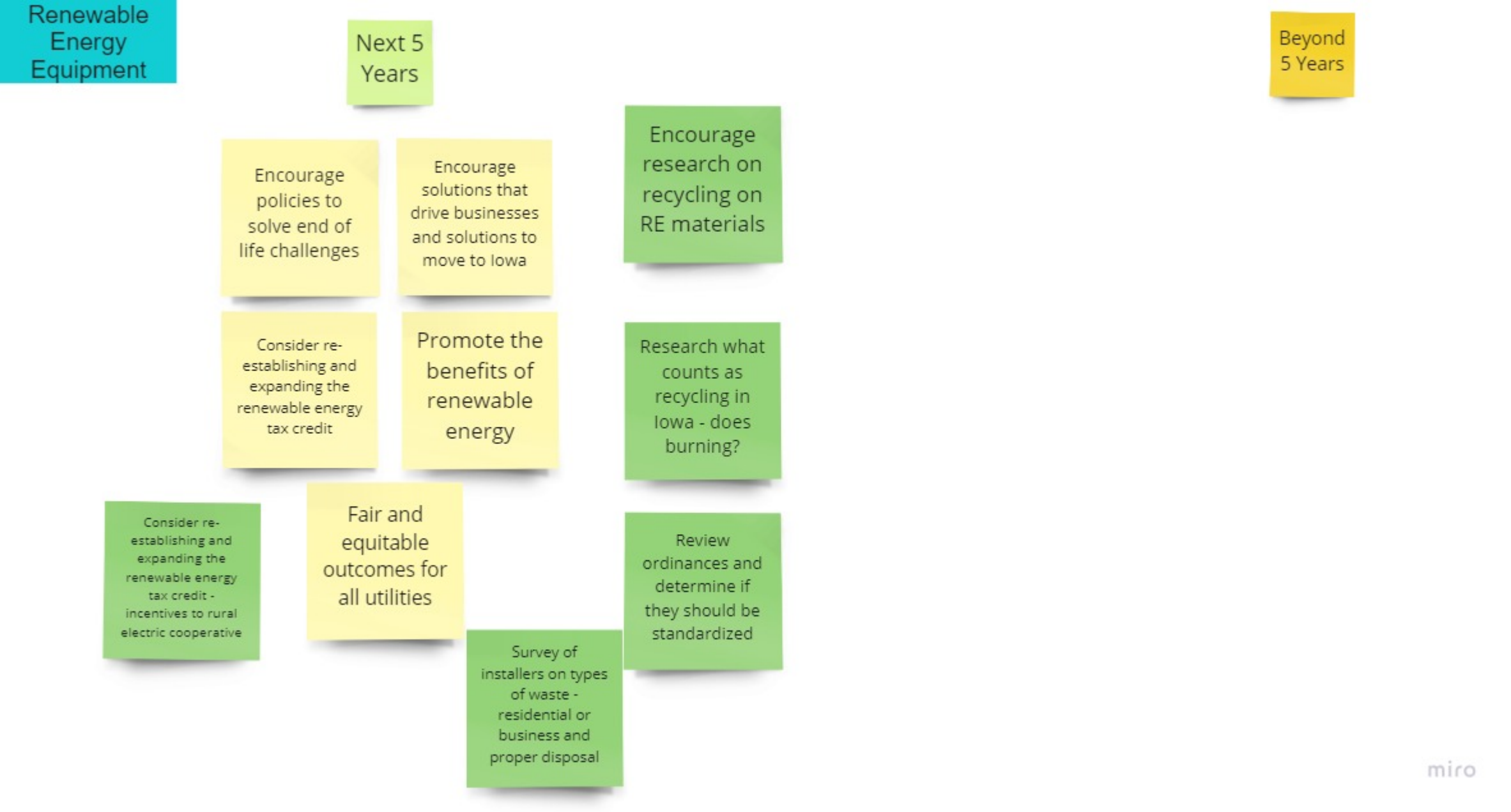
- Design for recycling or composting
- Survey Public on viewpoints related to bans and fee/incentives
- Data collection on post-consumer recycled content purchasing for government agencies
- Research replacing plastic bottle vs recycle plastic bottle
- LCA - single use plastic bag vs trash bags
- State define recyclable, compostable, biodegradable
- Identify problematic packaging
- Eliminate problematic and unnecessary packaging
- EPR Approach
- Reconsider Ban on Bans
- Provide incentives to use alternatives to plastic bags
- Require post-consumer recycled content purchasing for government agencies
- Fee for plastic bags, $ to education
- Local or statewide ban plastic bags
- Establish producer registry and reporting for packaging
- Local or statewide ban polystyrene containers
- Monitor EPR policy framework for packaging in other states
- Require post-consumer recycled content for packaging
- Consider/Adopt EPR policy framework for packaging

Consumer Actions

- Develop reuse and refill pilots and funding
- Research H&S codes on reusable containers
- Encourage reuseables for dine-in
- Encourage reuse/refill for take-out and delivery
- Education and awareness campaigns for refill, reuse, and repurpose
- Reuse of take out containers for food distribution
- Involve Public Health on H&S codes on reusable containers
- Implement to-go container and cup charges
- Standards for customer opt-in for food service packaging and accessories
- Ensure funding is thought through for any strategy implementation
- Implement plastic bag fee

End of Life

- Data on volumes of bottle bill vs MRF for collection
- Support research on plastics transformation into new product, fuel, etc.
- Data on statewide (Iowa) standards on labeling and recycling materials accepted - terminology consistent
- Education and awareness on littering
- Education and awareness campaign to reduce contamination in recycling programs
- Collection data on final destinations of materials / recycling facilities
- Add all non-carbonated containers to the Bottle Bill*
- Add SUPB (water) to Bottle Bill*
- Evaluation of recycling methods throughout state
- Support development and adoption of reusable packaging systems


Renewable Energy Equipment
Next 5 Years
Beyond 5 Years
Encourage policies to solve end of life challenges
Encourage solutions that drive businesses and solutions to move to Iowa
Encourage research on recycling on RE materials
Consider re-establishing and expanding the renewable energy tax credit
Promote the benefits of renewable energy
Research what counts as recycling in Iowa - does burning?
Consider re-establishing and expanding the renewable energy tax credit - incentives to rural electric cooperative
Fair and equitable outcomes for all utilities
Review ordinances and determine if they should be standardized
Survey of installers on types of waste - residential or business and proper disposal

C&D

Immediate (0-3 years)

Medium (4-10 years)

Long-Term (11+ years)

Upstream Measures

Conduct LCAs and waste characterization studies

Increase building community's understanding of the impacts of building design, material use, and construction practices

Review and update building codes for government projects

Reduce sales tax on recycled content construction materials

Review and update building codes for commercial and residential projects

Consumer Actions

Create multi-departmental task force on C&D

Develop sample project bid language supporting green building practices

Increase building community's awareness and support of IWE services

Educate consumers on deconstruction principals and practices

Lumber yards (alternative outlets) outlets for reused materials

Builder/contractor certification program - tie to national

Incentivize building repurpose and material reuse

Assess and report impacts of new construction and major renovation projects

Implement green building practices

Educate contractors concerning deconstruction and reuse resources

Communicate with cities on revising permits

LCA For C&D Waste Materials for public projects

LCA For C&D Waste Materials for cities/counties for commercial projects

End of Life

Support donation and deconstruction facilities - Root cause analysis of previous facilities in Iowa

Remove barriers to development of C&D processing facilities

Pose the question to DOT of changing "May" to "Shall" for RAS 5%

Incentivize development of C&D facilities

Adopt recycling certification institute methods

ATTACHMENT C

REGISTRATION INFORMATION AND MEETING ATTENDEE INFORMATION

Stakeholder Meeting #2 - Summarized Registration Data

First Name	Last Name	Organization	Which category most represents the industry you work in?	How did you hear about this meeting?
Paige	Alesch	Region XII Council of Governments	Other	Invite e-mail
Chaz	Allen	Iowa Utility Association	Industry Association	Invite e-mail
Aubrey	Alvarez	Eat Greater Des Moines	Non-Profit Organization	Invite e-mail
Tom	Anderson	Iowa DNR	Government - Regulator	Other
Mick	Barry	Mid America Reycling	Landfill Recycling Industry	Invite e-mail
Kate	Bartelt`	HDR	Consultant	Invite e-mail
Joe	Bolick	Iowa Waste Reduction Center - University of Northern Iowa	School/University	Invite e-mail
Michele	Boney	West Liberty Foods	Industry/Manufacturing	Invite e-mail
Lisa	Brunie	HNI	Industry/Manufacturing	Invite e-mail
Kari	Carney	1000 Friends of Iowa	Non-Profit Organization	Invite e-mail
Jeremy	Caron	City of Des Moines	Government - Regulator	Invite e-mail
David	Caskey	Climax Molybdenum	Industry/Manufacturing	Invite e-mail
Shelene	Codner	Region XII Council of Governments	Consultant	Invite e-mail
Christine	Collier	SCS Engineers	Consultant	Other
Jennifer	Coughlin	MidAmerican Energy Company	Utility	Invite e-mail
Nicole	Crain	Iowa Association of Business and Industry	Industry Association	Invite e-mail
Josh	Dansdill	Northeast Iowa RC&D	Non-Profit Organization	DNR Publication
Amie	Davidson	IDNR	Government - Regulator	DNR Publication
Lori	Dicks	Buena Vista County Solid Waste	Landfill Recycling Industry	Invite e-mail
Paul	Ebert	Des Moines Metro WRA/WRF	Utility	Invite e-mail
Christine	Eckles	Blank Park Zoo	Non-Profit Organization	Invite e-mail
Jeff	Fiagle	Iowa DNR	Government - Regulator	Invite e-mail
John	Foster	Black Hawk County Solid Waste Managment Commission	Industry Association	Invite e-mail
Jeff	Geerts	Iowa Economic Development Authority	Government - Regulator	Invite e-mail
Regi	Goodale	Iowa Assoc. Electric Cooperatives	Industry Association	Invite e-mail
jeffrey	Gorrie	Iowa Association of Municipal Utilities	Industry Association	Invite e-mail
Matthew	Gregory	McNeilus Truck and Manufacturing, Inc.	Industry/Manufacturing	DNR Publication
Steve	Guyer	Iowa Environmental Council	Non-Profit Organization	Other
Adam	Hammes	Kum & Go, LC	Retailer	Invite e-mail
Joe	Harms	PDI	Industry/Manufacturing	Invite e-mail
Brad	Hartkopf	Iowa Association of Business and Industry	Industry/Manufacturing	Invite e-mail
Jennifer	Horner	That's Not Trash LLC	Solid Waste/Recycling Processor	Invite e-mail
Rick	Hunsaker	Region XII COG	Other	Invite e-mail
Rick	Hurt	South Central Iowa Solid Waste Agency	Landfill Recycling Industry	Invite e-mail
Jen	Jordan	City of Iowa City	Landfill Recycling Industry	Invite e-mail
Jennifer	Jordan	City of Iowa City Landfill	Landfill Recycling Industry	Invite e-mail
julie	ketchum	Waste Management	Industry Association	Invite e-mail
Nathan	Klett	Foth	Consultant	Invite e-mail
Dave	Klockau	Eco Innovation LLC	Solid Waste/Recycling Processor	Invite e-mail
Kerry	Koonce	Central Iowa Power Cooperative	Utility	Trade association publication/newsletter
Michelle	Leonard	SCS Engineers	Consultant	Invite e-mail
karen	luken	eesi	Consultant	Invite e-mail
Beth	MacKenzie	University of Iowa	School/University	Invite e-mail
Ginny	Malcomson	Polk County Conservation	Government - Regulator	Forwarded by colleague
Jeff	Maxted	Alliant Energy	Utility	Invite e-mail
Karmin	McShane	Cedar Rapids Linn County Solid Waste Agency	Government - Regulator	Other
Dustin	Miller	Nyemaster Goode PC	Lobbyist	Invite e-mail
Michael	Miller	SCS Engineers	Consultant	Forwarded by colleague
Kathy	Morris	Waste Commission of Scott County	Landfill Recycling Industry	Invite e-mail
Hal	Morton	Des Moines County Regional Solid Waste Commission	Landfill Recycling Industry	Invite e-mail
Gary	Nash	ABI	Industry Association	Forwarded by colleague
Preston	Nibaur	Wells Enterprises, Inc.	Other	Invite e-mail
Dan	Nickey	Iowa Waste Reduction Center	School/University	Invite e-mail
Ayo	Oluwalana	Iowa State University	School/University	Other
Darcy	Pech	Self	None - General Public	Invite e-mail
Shawn	Peters	Vermeer	Industry/Manufacturing	Invite e-mail
Mark	Petersen	Pepsico Quaker Oats	Industry/Manufacturing	Forwarded by colleague
Alicia	Plathe	Iowa Department of Natural Resources	Other	DNR Publication
Julie	Plummer	Iowa Waste Exchange	Government - Regulator	Invite e-mail
Alicia	Presto	Iowa Waste Exchange	Consultant	Forwarded by colleague
Merry	Rankin	Iowa State University	School/University	Invite e-mail
Laurie	Rasmus	Iowa DNR	Government - Regulator	Invite e-mail
Jennifer	Reutzel Vaughan	Iowa DNR	Government - Regulator	Other
Karen	Rodekamp	ISU Dining, Iowa State University	School/University	Invite e-mail
William	Rowland	Landfill of North Iowa	Landfill Recycling Industry	Invite e-mail
Damion	Sadd	Continental Cement Co.	Industry/Manufacturing	Invite e-mail
Alan	Schumacher	Quincy Recycle Paper	Landfill Recycling Industry	Invite e-mail
Brian	Seals	Waste Commission of Scott county	Government - Regulator	Invite e-mail
Seth	Shannon	SCHEMMER	Other	Invite e-mail
Sophia	Siegel	Drake University	School/University	Other
Alicia	Simmons	Frontier Co-op	Industry/Manufacturing	Invite e-mail
Doyle	Smith	City of Cedar Falls	Government - Regulator	Invite e-mail
Becky	Soglin	Johnson County (Iowa) Planning, Development and Sustainability	Government - Regulator	Invite e-mail
Gretchen	Spear	International Paper Co.	Industry/Manufacturing	Invite e-mail
Bryce	Stalcup	Waste Commission of Scott County	Landfill Recycling Industry	Invite e-mail
Theresa	Stiner	Iowa DNR	Government - Regulator	Other
Mike	Sullivan	Iowa Department of Natural Resources	Government - Regulator	Invite e-mail
Kenneth	Sulma	Iowa Utilities Board	Government - Regulator	Invite e-mail
Samantha	Summers	Whirlpool Corporation	Industry/Manufacturing	Invite e-mail
Elizabeth	Thacker	Iowa DNR	Government - Regulator	DNR Publication
April	Thompson	SCS Engineers	Consultant	Invite e-mail
Jennifer	Trent	IWRC	Consultant	Invite e-mail
Tammy	Turner	Iowa Waste Exchange, INRCOG	Consultant	Forwarded by colleague
Jennifer	Van Thomme	Bridgestone Americas Tire Operations, LLC	Industry/Manufacturing	Forwarded by colleague
Scott	Vander Sluis	Van's Sanitation and Recycling	Solid Waste/Recycling Processor	Invite e-mail
Traci	VanHyning	NALC	None - General Public	DNR Publication
Emily	Venters	LyondellBasell	Industry/Manufacturing	Trade association publication/newsletter
Anastasia	Welch	SCS Engineers	Consultant	Invite e-mail
Mark	Weldon	Quaker Oats	Industry/Manufacturing	Invite e-mail
Jane	Wilch	City of Iowa City	Landfill Recycling Industry	Invite e-mail
Amy	Wilken	Department of Natural Resources	Government - Regulator	Other
Troy	Willard	Can Shed LLC/IRA	Other	Invite e-mail
James	Withers	American Packaging Corporation	Industry/Manufacturing	Invite e-mail
Mary	Wittry	Carroll County Solid Waste Management Commission	Landfill Recycling Industry	Invite e-mail
Jennifer	Wright	Iowa Department of Natural Resources	Government - Regulator	Invite e-mail

Stakeholder Meeting #2 - Meeting Attendees

Name (Original Name)
Adam Hammes (Adam Hammes)
Alan Schumacher
Alicia Simmons
Amie Davidson (Amie Davidson)
Amy Wilken - IDNR (Amy Wilken)
April Thompson
Aubrey Alvarez | Eat Greater Des Moines | She/Her (Aubrey Alvarez)
Ayo Oluwalana (Ayo Oluwalana)
Becky Soglin / Johnson County (Becky Soglin)
Beth MacKenzie (Beth MacKenzie)
Bill Rowland Landfill of North Iowa (William Rowland)
Brad Hartkopf (Iowa ABI) (Brad Hartkopf)
Brian Seals
Bryce Stalcup (Bryce Stalcup)
Christine Collier (Christine Collier)
Damion Sadd
Dan Nickey (Dan Nickey)
Darcy Pech
Doyle Smith
Dustin Miller (ACPA) (Dustin Miller)
Elizabeth Thacker
Emily Venters
Gary Nash
Ginny Malcomson (Ginny Malcomson)
Gretchen Spear- International Paper (Gretchen Spear)
Hal Morton
Jane Wilch (Jane Wilch)
Jeff Fiagle (Jeff Fiagle)
Jeff Geerts
Jeff Maxted - Alliant Energy (Jeff Maxted)
Jeff Phillips (Jeff Phillips)
Jen Van Thomme (Jennifer Van Thomme)
Jen Wright-IA DNR (Jennifer Wright)
Jennifer Coughlin - MidAmerican Energy (Jennifer Coughlin)
Jennifer Jordan
Jennifer Reutzel Vaughan (Jennifer Reutzel Vaughan)
Jennifer Trent
Jeremy Caron (Jeremy Caron)
Joe Bolick - IWRC (Joe Bolick)
John Foster
Josh Dansdill (Josh Dansdill)
julie ketchum
Julie Plummer
Karen Luken EESI (Anyone Anyone)
Karen Rodekamp (Karen Rodekamp)

Karmin McShane
Kate Bartelt (Kate Bartelt`)
Kathy Morris
Kenneth Sulma
Laurie Rasmus (Laurie Rasmus)
Lori Dicks
Mark Weldon
Mary Wittry- Carroll County Solid Waste (Mary Wittry)
Matthew Gregory
Merry Rankin ISU (Merry Rankin)
Michele Boney - West Liberty Foods (Michele Boney)
Michelle Leonard (Michelle Leonard)
Mick Barry
Mike Sullivan (Mike Sullivan)
Nicole Crain- Iowa ABI (Nicole Crain)
Paige Alesch- Iowa Waste Exchange (Paige Alesch)
Regi Goodale
RICK HURT - SCISWA (RICK HURT)
Samantha Summers
Scott Vander Sluis Vans Sanitation Recycling (Scott Vander Sluis)
Seth Shannon - SCHEMMER Architects & Engineers (Seth Shannon)
Shelene Codner - Region XII COG/IWE (Shelene Codner)
Sophia Siegel (Sophia Siegel)
Steve Guyer (Steve Guyer)
Tammy Turner
Theresa Stiner DNR (Theresa Stiner)
Tom Anderson - IDNR (Tom Anderson)
Traci VanHyning
Troy Willard
15073746321
15152902236
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16415216297