

Resource Conservation and Recovery Strategies for Greenhouse Gas Emissions Reductions

Webcast Transcript

November 15, 2012

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Webcast Agenda and Meeting Logistics

Slide 1 and 2: Introduction Slides

Operator: Good afternoon, my name is Kaila and I will be your conference operator today. At this time, I would like to welcome everyone to the Resource Conservation and Recovery Strategies for Greenhouse Emissions Reduction conference call.

All lines have been placed on mute to prevent any background noise. If you should need assistance during the call, please press star then zero and an operator will comeback online to assist you. Thank you.

I would now like to turn the call over to our host Emma Zinsmeister, you may begin conference.

Emma Zinsmeister: All right, thank you very much and thank you everyone on the line for joining us today for our webcast. This is being brought to you by EPA's Local Climate and Energy program.

Our topic today is going to be resource conservation and recovery strategies. Since it's estimated that the extraction, production, use and disposal of goods and services accounts for about 42 percent of U.S. greenhouse gas emissions, we figured that this is a very, very important topic, especially for local governments since you play such a crucial role in waste management in your communities.

So today we're going to be talking about different strategies local governments can use to work with residents, private companies and other groups to cost effectively reduce the greenhouse gas emissions from their waste through resource conservation and recovery strategies that involve things like reducing waste generation and diverting waste from landfills.

So you'll hear about several things during the call today, including EPA solid waste management hierarchy and different types of resource conservation and recovery strategies you can use and also associated environment impacts, the life cycle of materials and the greenhouse gas emissions associated with each stage of that life cycle, and of course the associated opportunities that you can use to reduce those emissions.

We'll also hear from a couple of case studies, you will have some great examples from Alameda County, California and Kansas City, Missouri, and we'll be presenting tools and resources that you can use to implement programs similar to theirs in your community.

Slide 3: Happy America Recycles Day

So to start things off, I wanted to wish everyone a Happy America Recycles Day, it's just very coincidental but this happens to fall on the same day as our webcast. You can visit

americarecyclesday.org to learn more information about events that are going on in your community to promote recycling. So I hope that you guys will take part in that.

Slide 4: Webcast Agenda

So for the call today, I'll start by giving a welcome and introduction, a little background information on what the local climate and energy program here at EPA has to offer. We will then hear from Shannon Davis from EPA's Region 9 office in San Francisco who will give us some background information on the relationship between climate and waste.

We'll also hear some case studies today, Justin Lehrer from stopwaste.org in Alameda County, California. We'll talk about their first reduction program that they're doing to reduce industrial packaging waste, and then we'll also hear from Dennis Murphey in Kansas City, Missouri, who will talk about how they have specifically looked at waste as part of their climate action that they're taking and the associated projects they help with that.

At the end of the call, we'll have a question and answer session or you can ask questions for – and from all the speakers by typing them into your GoToMeeting chat box, and then as you exit to webcast, we would encourage you to take part in the optional feedback section that will come up on your screen.

So to start off, I'm going to pass things over to Wendy Jaglom from ICF International to provide a little bit of background information on how to use GoToMeeting software.

Slide 5: GoTo Webinar Software Logistics

Wendy Jaglom: Thanks, Emma. So all those participants will be muted throughout the webcast to minimize background noise. You'll be able to submit questions and comments in writing which I'll go over on the next slide.

PDF and audio files in today's webcast will be made available for download in a couple of weeks at the URL that's on the screen now. And throughout the webcast, if you have any technical difficulties, feel free to contact me at wendy.jaglom@icfi.com which is again on the screen. Next slide.

Slide 6: Questions (GoTo Meeting)

If you have any questions during the webcast, you can submit using the question pane. Simply enter your answer in the box circled in the – and it's on your screen and click send. We will compile your questions and ask them during the question and answer session at the end of the webcast, and if you could please include the name of the presenter you would like to answer the question that would be great. Next slide.

Slide 7: Optional Feedback (GoTo Meeting)

At the end of the webcast, a talk on window will appear once you exit GoToMeeting. We encourage you to take a few minutes to respond to the optional question and provide your feedback. Next slide. OK, thank you.

Slide 8: U.S. EPA Local Climate and Energy Program: Goals

Emma Zinsmeister: So thank you, Wendy. And again if anyone has any trouble at all with the GoToMeeting, please feel free to email Wendy.

So, for those of you who aren't familiar with EPA's Local Climate and Energy Program, the goal of our program is to help communities across the country reduce their greenhouse gas emission through a variety of strategies that also help to achieve many of your sustainability goals that you may have in your community.

So, we provide informational and technical resources, and also connect to a variety of program at EPA like Energy Star or WaterSense to get you in touch with the right technical information that you need for your programs and projects.

And ultimately, we strive to help bring in understanding of the multiple benefits that reducing greenhouse gas emissions can have, including things like improving air quality, reducing energy and cost savings, economic development, public health, and other aspects of quality of life in your community.

Slide 9: U.S. EPA Local Climate and Energy Program: Resources

So we offer a variety of resources. You may have heard of our climate showcase communities. We have 50 pilot communities that are doing innovative greenhouse gas reduction program across the country, and you can view profiles of their work at the web address that's listed here and hear about the model that they're developing that you can also pursue it in your community. They range across a wide variety of sectors from energy efficiency to transportation and there're a lot of interesting projects there.

We also have a comprehensive website where you can get a lot information and resources about different greenhouse gas emissions reductions strategies and the resource here in bold, the Local Government Climate and Energy Strategy Series is a set of guidance documents that provides really comprehensive information on how to design and implement programs that can reduce emission, and I'll talk a little bit more about that in just a moment.

And then we of course offer peer exchanges like the webcast that we're having today. In fact in December, we're going to be having a call on December 6 from 3:00 to 4:30 p.m. on energy efficiency building competition, and we'll be hosting that with the Energy Star program and you'll be able to hear from one of our Climate Showcase Communities, Cary, North Carolina, their fire chief has been very involved in their building competition program there.

We will eventually have registration information up on our website and available through our email and newsletters. So please sign up for the newsletter which is listed at the bottom of the slide here.

Slide 10: Local Government Climate and Energy Strategy Series

And as I mentioned, we have a series of guidance documents that provide comprehensive information on how you at the local level can actually design and implement program in a variety of ways to reduce your emissions.

And in particular as you'll see listed here, we just recently release the document on resource conservation and recovery strategies which will service a great resource after today's webcast for you with more comprehensive information on the resources and tools that are out there.

Slide 11: Resource Conservation and Recovery: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs

And a little bit about this document, the content of the document covers the variety of environmental, economic, and human health benefits from reducing waste, as well as the different practices and technologies that you may use to do so, information on how you'll practically get this program off the ground, about key participants you should engage, policy mechanism, cost and funding opportunities, and a variety of other strategies.

It features a number of case studies, including one on Kansas City which you'll be hearing more about later during the webcast, and you can get to this resource online at the link provided.

Slide 12: Strategies Covered in the Guide Follow EPA's Solid Waste Management Hierarchy

And just lastly, the document and the topics that we'll be hearing about today fall into EPA Solid Waste Management Hierarchy. This is just a prioritization of the approaches that you can take to waste management in your community based on the environmental benefits that they provide, and so of course reducing waste and preventing it from being generated in the first place as most preferable, and as you can see down the line, recycling and composting, waste treatment with energy recovery, and lastly landfilling the duties is the least preferable.

And just as a note here on waste treatment with energy recovery, our guide series does have a specific guide on landfill gas energy. So I encourage you to check that out if that is something that is of interest to you.

Slide 13: Contact Information

So here's my contact information in case you have any questions about those resources or our program, please feel free to contact me, and I think we will kick things off with a quick poll question with where folks are with the work that they're doing in their communities. Wendy?

Poll Question #1

Wendy Jaglom: You should be able to see the poll now.

Emma Zinsmeister: OK, I actually can't see it.

Wendy Jaglom: OK, I'll go ahead and read it. So, the question is which practices from EPA's Solid Waste Management Hierarchy are you using in your community organization, and please go ahead and select all that applies.

I don't know, the options are Source Reduction and Reuse, Recycling, Composting, Waste Treatment with Energy Recovery, or Landfilling and Incineration without Energy Recovery.

OK, so we'll just wait a few more seconds so that people will answer. Answers are still coming in.

OK, I'm going to go ahead and close the poll and share the result. So, I'll go ahead and read, it looks like 96 percent of the participants are using recycling, 73 percent are using source reduction and reuse, 58 percent are composting, 42 percent are using waste treatment with energy recovery, and 23 percent are using landfilling and incineration without energy recovery.

Emma Zinsmeister: Great, thank you Wendy. And that's really great and encouraging results. Certainly, we're happy to hear that folks are doing a lot of recycling and that there's a lot of growth in both source reduction use and composting. And you'll certainly be hearing about techniques to promote those strategies in your communities as these presentations go on today.

Connecting Climate and Waste to Sustainable Materials Management

Emma Zinsmeister: So to start things off, I'll just introduce our next speaker, Shannon Davis. Shannon Davis is an environmental scientist with U.S. EPA Region 9 out in San Francisco. She has 25 years in public service and public policy and environmental management. She's worked for three elected officials and has directed waste management and air quality programs with the state and local level.

At her position at the EPA in San Francisco, she works with cities and states to integrate materials management approaches into climate protection sustainability plan. She was a co-author of the EPA report on sustainable materials management, and is the co-chair of the West Coast forum on climate change and materials management, which she will be speaking a little bit about in just a moment.

She has a Bachelor of Science Degree in Molecular and Cellular Biology from University of Arizona in Tucson. So I will turn it over to you, Shannon.

Shannon, are you seeing the popup box?

Shannon Davis: I am and I could show my screen and – so is it showing?

Emma Zinsmeister: It is, yes. You want to make it full screen?

Shannon Davis: Yes. There we go. OK, thank you. So ...

Emma Zinsmeister: It looks good.

Shannon Davis: So welcome to everyone on the webinar this morning or this afternoon and specially shout out to Emma and others from the Office of Air and Radiation for asking me to participate in today's webinar.

Collaboration and partnership are real important key in this kind of work when we move from waste materials management. It's important both across our EPA offices as well as between state and local partners, two of which you'll hear from today.

Slide 2: Overview

So, today, I'm going to attempt to accomplish a little bit of everything in the short time I have, and mostly I want to touch on some familiar concepts and introduce what might be new concept for some of you. I'm also including many tools and resources to which you can refer at a later time.

My intention is to reinforce the value of traditional solid waste programs and policies in climate work, and talk about how they're accounted for in traditional climate inventories, and I also want to give some examples of expanded opportunities for state and local program in using materials management approach.

And then in addition, I'll give a series of links to really great resources and I will close with a commercial on the West Coast forum that is in the work out here.

Slide 3: New Value for Traditional Programs

I think what's really important is to acknowledge that when climate and sustainability conversations began from years ago, the value of recycling and waste reduction program was institutionalized in broader ways than before.

Historically, as we know, the cost and responsibility to manage waste has always fallen to local government, and with the advent of the climate sustainability demand, the solid waste reductions and the GHG reductions took on greater importance.

And so, local government staff were directed by management elected officials to account for the GHG emissions that maybe either associated with the city operations or a community at large, and waste has become one of the areas included in both the baseline assessment of emissions and then also targeted for opportunities for reductions.

And generally, recycling has been viewed as a way to decrease materials being sent to a landfill. It's an end-of-life strategy and I'll get into that in a slide or two. But first I want to emphasize the really good programs that are out there.

Slide 4: Traditional Waste Programs: Good and Getting Better

So, traditional waste programs and as Emma said, I want to wish everyone a Happy America Recycles Day which we've been celebrating since 1997. So 15 years, we've had the – a national celebration day of recycling. And like America Recycles Day, all the programs listed in this have been up and running in some form before the climate conversations, but they're now being recognized as a climate protection strategy.

And programs are a mix of voluntary, mandatory, incentive based to outreach education programs, and while originally these programs had aspirational goals, some recycling programs now live in state statute and local ordinance, for instance in California, they are required to have 75 percent diversion rate by the year 2020, and this statutory requirement is an outgrowth of the original wide sweeping global warming legislation that was passed when Schwarzenegger was our governor out here.

But in spite of the success of all these programs, I would agree we have a really long way to go with this end-of-life effort. I think our national recycling rate is covering around 35 percent or so.

Slide 5: Measuring GHG Reductions

So, we all know that recycling is a climate protection strategy, and I want to touch on how the measurement of components of reducing greenhouse gas emission is counted through waste reduction recycling.

So in a sector-based view of emission in traditional inventories, waste prevention and recycling are associated with the waste sector, and this has appeared as a very minor or even trivial piece of the inventory, and it's reinforced often by the common but inaccurate perception that recycling and waste prevention are primarily about keeping stuff out of landfills or in our smaller states saving landfill space and extending their life.

The tool that's commonly used to measure the GHG emissions reduction is an EPA tool called the WARM or the Waste Reduction Model. It's a very useful tool, I've included a link to it and the background report that accompanies it and also gives you the assumptions and a lot of narratives behind that.

Slide 6: Moving Upstream

So, again while these traditional programs are really important, the opportunities they represent are a very small piece of the pie, and most of the reduction potential associated with prevention and recycling is upstream.

In other words, it's much more useful to characterize waste reduction initiative as of materials and waste, and to avoid the narrow and restrictive terminology of waste emissions or waste initiative, waste settlement is important but opportunities to reduce waste come through to waste diversion and better landfill controls. Materials are also important, recognizing them helps us expand the conversations from the narrow frame of just waste.

Slide 7: End of Life Options and Life Cycle Options

So, here is one of our often used graphic illustrations that represents the different phases of a product and materials life. You can follow the wheel clockwise starting with the resource extraction phase and ending with the end of life recovery.

And there are two types of LCAs, the one I'm going to be talking about or referencing today is a process LCA that measures energy and materials input and output. It's more of an environmental impact tool that you can measure one product against another.

And let's see. A really good example of life cycle savings is the simple aluminum can which all of us have been recycling for years, where the amount of GHG emitted during the recycling of the can is dwarfed by the emissions that would be produced in the extraction and processing of the raw material used for the can.

And another favorite example is Levi's, one of the first retailers who conduct process LCA. They evaluated their 501 jeans and the popular Docker slacks. And they expected to find the

greatest emissions in the transportation phase, but what they found was that the cotton farming and the used phase had the greatest environmental impacts, and the greatest energy used by far was in the used phase or in the washing and the drying phases. So looking using an LCA model, you can highlight opportunities that you didn't know existed before.

Slide 8: U.S. GHG Inventory 2006

OK, so a conventional sector-based inventory gives us an accounting of tailpipe emission which is on the left pie chart on the screen. And many cities jurisdiction use this, EPA publishes a big report and it's a very important way to count GHG emission and to ray them.

But when you look at that, the critical and important solutions are very expensive and long-term. How do you get cleaner burning fuels, how do you set up better mass transit, and so for cities and states, those are important but again long-term and very expensive.

The systems-based view on the right leads more to an upstream prevention oriented strategy. And Emma talked about the 42 percent in her opening and this is where that number comes from.

And basically it's the same numbers that are in the sector-based view, but they are arrayed differently. For those of you that have spreadsheet kinds of mind, the systems-based view is a hotlink that will take you to the report that will walk you through how this accounting came about.

The important thing for us today is to emphasize that looking at a system-based view or how the data are rayed here, it gives cities more policy and program levels to reduce GHG emissions.

You can include what were once desperate sustainability policies into one bucket, and you can also select policies and programs that are faster and cheaper in reducing GHG than otherwise would be done from the sector-based technologies. They also have considerable leveraging from purchasing power, and of course there's the job component that comes with reuse, recycling and composting.

Slide 9: Untitled

This chart here is just the different way of looking at the opportunities. Again the scope for the life cycle includes the whole life cycle including downstream, actions from materials management including end of life which is recycling diversions and composting, but also accounts for things like packaging which Justin will be talking about.

It includes procurement, design and labeling and then the partner's point I think is really one of the most exciting, interesting pieces of it, because we get to partner and look at other people doing other kinds of work and see how they fit together.

So, like for instance I come from the traditional waste sector in EPA and I'm collaborating in a partnership with air, so that's how it works.

Slide 10: Identifying Opportunities

So, one of the things I'm really aware of is, it can be really overwhelming when it's new. But for you to identify opportunities, take a look around, see what's already working in their community and your jurisdiction, think about what your possible partners are including non-traditional.

And also educate yourself and others about LCA and there's a link here and this is a webinar that will be held the first part of December. It's first in the series of three where we're taking people through what an LCA is and what possible tools there are for cities. And we're partnering with the Office of Research and Development headquarters or the Cincinnati office to do this and really looking forward to it.

Slide 11: Tools and Resources

So here's a slide that is a brief listing of tools and resources for you and the first link here is to the West Coast Forum homepage. It lives up in Region 10 in Seattle and it will give you access to lots of webinars and lots of different kinds of products that we produce.

And on that page if you link to the first link there, the second one is a Materials Management Electronic Climate Action Protection toolkit. But a small group of us in the forum wrote about a 150, 200 pages using a wiki space platform, and we laid out how to integrate materials management actions in your climate protection and sustainability plans. And it's written exactly for people like you in state and local government, whether it's solid waste, sustainability or climate, and it will take you through not only the narrative, how to – we like to say get seat at the table, how to language and how to talk about it, talk about how to do an inventory, how to include materials management actions in your target reductions, it has a great page on examples of climate action plans from cities and states on the West Coast and across America that have used these kinds of things.

The third bullet will take you to a PowerPoint presentation and the narrative script that you could actually use to talk to other people, you can cut and paste it, use it however you want, it's just a very strong message tool for us.

The fourth bullet really is a brand new thing we're working with, we're actually still in the pilot stages of it, a food waste prevention toolkit, part of our consumption work in the forum.

And this link is going to take you to a very dull, plain and boring FTP site where you'll see different folders that comprise the toolkit for food waste prevention. There's messaging, there's a food waste measuring page, there's how to do a menu planning and how to shop.

It's very cutting edge and it's very exciting. The second to the last bullet is our partners over at ICLEI, they have recently completed a community protocol for accounting and reporting of GHG emissions using traditional lens, as well as hybrid lenses that can take into account emissions that occur in the products that people use but then are made some place else.

The last point – last link is probably the funniest one developed by a good friend and colleague of mine, Chris Jones across the bay in Berkeley, Cool Climate Calculators, go on there to check out your own foot print, he's got it refined to the zip code, and you can see based on your zip code where your carbon footprint comes from with food, with transportation, with electricity and with fuel.

Dennis is from Kansas City. His footprint is going to be largely heating on electricity, mine out here is in California's transportation, so just a great tool to bring it down to the personal level.

Slide 12: The Forum

Coming to the end here, I just wanted to say little bit about the forum which is an EPA convened partnership of over a 100 West Coast cities and state. We begin our work about five years ago to do exactly what I've been talking about today, which is to develop materials management tools and resource for cities and states.

And there's a link there to our website that will be coming soon. It's a non-EPA website driven by our partners' content and there's an upcoming list of the events and products, which you'll all be able to access through the new website and eventually through the existing one as well.

Slide 13: Thank You

So with that, I want to say thank you again to Emma and others for the opportunity to present. I'm looking forward to Dennis and Justin and also just to say I'd love to hear from you there if you have any materials management practices that have been successful, if you have questions, you want to comment, you want to talk, please I'm available and would love to hear from you. Thank you.

Emma Zinsmeister: Thank you, Shannon. And I certainly encourage folks to check out the various resources that Shannon has mentioned and to attend those life cycle analysis webcast that are coming up to learn more about the life cycle concept and the how to think about emissions from your waste material streams in that context.

Poll Question #2

Emma Zinsmeister: And so with that, we have another poll question for folks here to see how much is your community or organization thinking about the climate impacts of waste management. You can take a minute to just answer that for us. Choices include we have not yet considered the climate impacts of waste, we're just starting to consider the climate impacts of waste, we've been actively evaluating the impacts for a while, or we understand the impacts and are now taking action. So we would like to hear from you whether or not you've moved into this kind of thinking about your waste to materials stream.

We'll give everyone just another moment to let out. All right Wendy, if you want to pull up the results.

Great, so it looks like quite a few folks are actually just starting to consider the climate impacts to waste at 47 percent, our next highest response is that we understand the impacts and are now taking action.

So it sounds like folks are somewhat in between learning about this approach and then actually moving on to action. We will be hearing in our next presentation from Justin some example about how you can actually start to put this kind of thinking into motion with more upstream types of projects.

Use Reusables: Fundamentals of Reusable Transport Packaging

Emma Zinsmeister: And so with that, I'll introduce our next speaker, we can switch it over to Justin. Justin Lehrer has over 15 years experience working with both the private and public sectors to meet and exceed sustainability goals, as a program manager at the public agency stopwaste.org, he manages several business assistance programs and the reducing and preventing waste and increasing operational efficiency.

Since 2007, Justin has led the Use Reusables Campaign for writing free educational resources, training workshops, and expert advice to help businesses transition through useable transport packaging.

The campaign has continuously expanded its reach, going national in 2011 with new resources and grants available. Prior to his work at StopWaste, Justin was an environmental consultant with Booz Allen Hamilton and County Recycling Coordinator for the County of San Mateo.

He graduated from University of Vermont and holds a Bachelor's degree in Integrated Natural Resources and Business Administration. So with that, Justin, I will turn it over to you.

Slide 1: Title Slide

Justin Lehrer: Thank you, Emma. Can you see my screen and hear me OK?

Emma Zinsmeister: Yes.

Justin Lehrer: OK, great. Thank you and thanks everyone for joining us today. I'm going to spend the next 20 minutes or so sharing our approach – one of our approaches to driving greenhouse gas reductions through the reuse of industrial packaging here at StopWaste.

Slide 2: Who Are We?

So, starting out with who we are and – OK, there we go. So StopWaste is a public agency in San Francisco Bay Areas East Bay, Alameda County which comprises the cities of Berkeley, Oakland and about 15 other communities going up and down the East side of the San Francisco Bay.

Our mission is to reduce waste to landfill. We do that through programs in waste prevention, recycling, composting and driving – and to drive more sustainable consumption partners within our communities.

You know, programs working in the schools with our residence, a green building program and we also work quite a bit with commercial industrial businesses where I spent most of my time. And that's what I'm going to talk about today.

Slide 3: What are Reusables

And starting out, I'll try to get us all on the same page. Let's talk about what I'm talking about when I say reusable in this case, and then what we will do is get into some of the knots and bolts of our project, how it works and finish up with how other communities can work with us on this and participate.

So, we're talking about the packaging that most people truly ever see. Reuse just defined in the dictionary is pretty broad, anything that's capable of being reused again and again. But we're talking about pallets, containers, wraps or bands that secure loads, and dunnage. And dunnage is void fill or, you know, packing peanuts, anything that's designed to hold an item within its package.

So we're talking about all these items that are designed for reuse within a supply chain. As opposed to packaging that is designed for one time use where you can maybe opportunistically get a few additional uses out of it.

Slide 4: Reusable Packaging is Not:

So single use packaging like you see here is there're many, many applications where it's most sensible for an organization to use single use packaging. But the journey that where we're on here and that we're discussing today – I address how to evaluate for an organization if there's an opportunity to use a more durable solution for your packaging.

And a quick note on reuse, I mentioned opportunistically use most, all of us have been opportunistically users at a time. What that simply means is taking advantage of on hand packaging to reuse it and a lot of businesses just do this and it's a great practice and I totally support it. But it's really also not what we're talking about today. I think opportunistic reuse of packaging can be a first step on this path way to planned reuse. And I think planned reuse which is what we are talking about is really where efficiencies and other benefits come into the picture and more significant greenhouse gas reductions.

So, I look at opportunistic reuse as an entry point to the eventual adoption of more durable thought out reusable packaging programs.

Slide 5: Everyday Reusables

So, here's what we are talking about, where might we use some of these reusable products. Well certainly in the grocery store, the milk – the venerable milk crate has been around forever and use for milk as well as in college dorms. And then there're bakery trays, soft drinks use reusable, the beer keg is a very familiar reusable to many of us. Fruits and vegetables are increasingly using reusable packaging. And then changing industries for a minute, and closer to many of us perhaps, is the containers used for waste tunneling and transportation.

The totes out use for curbside programs are reusable. The pallet of course and there's many different material types you'll see in these photos as well and they were not in our project, we are

not advocating for a particular materials such as plastic or wood or metal. All of them can be used and all of them have their place.

What we're advocating for is reuse. Whatever the material of the package is that makes more sense. We want to see that get reused as much as possible.

So another note on packaging is when most people think of packaging, I think the common threat is the primary package. So if you think about tube of toothpaste, that tube, that's contain the actual product, that's you primary package. That tube is going to be pack in a box and that's the secondary package.

And there's another level of tertiary packaging or transport packaging. So following this thread of the tube of toothpaste, the tubes are loaded into boxes, those boxes of toothpaste are loaded into the larger case which may in many situations be packed in a corrugated cardboard case.

Those cases in term are loaded up on a pallet typically secured with the load of shrink wrap and that pallet, that shrink wrap or stretch wrap and the cardboard case, those are all the tertiary or the transport packaging where we're focusing our efforts.

Slide 6: The Use Reusables Campaign

That brings us to our project we called the Use Reusables campaign, and I'm going to make a long story short by saying we did a lot research to figure out which waste prevention practices in particular made a lot of sense for us to pursue in our community.

This is after about 10 years of working with businesses on more end of type solutions, recycling, composting, putting materials in the right place at the end of their life so to speak, more and more businesses that we worked with were coming to us and saying, "We want to take this a step further, we want to move upstream, we want to talk to our suppliers and prevent the ways before it's created in the first place".

And that of course moves up to waste hierarchies, the right direction it goes. So we conducted research, international research to figure out which waste prevention practices would really have an impact and what kept rising to the top of our list was this concept of reuse. It didn't matter if it was reusing a cardboard box or reusing a pallet. But the more times you reuse something, the benefits were just very significant and impactful and based on the industrial makeup of our commercial sector here in Alameda County, it really made a lot of sense for us.

So we developed this campaign in 2007 primarily as an educational campaign but it evolved since then. And what we're really doing is trying to give folks an education opportunity, educate them about reusable packaging, help them evaluate whether or not reusable could be a good fit to their supply chain, their organization's need and then provide with technical assistance to actually make that switch to connect them with service providers with the products they need to navigate the logistics changes and to hopefully make that switch and start realizing the benefits.

And I will be speaking more about the benefits in a minute. I also wanted to speak – say a word about how this fits into our other activities in Alameda County. I mentioned that we were working on recycling and composting programs and other downstream activities.

Well now we're actually implementing, we're in the process of implementing mandatory commercial recycling in Alameda County that's going to affect – it affects some side of businesses now and it's going to affect more in a couple years.

So, with recycling activity now becoming not just the standard but actually the required standard, it really presents us with an opportunity to do this more upstream activities and to look at preventing the waste from the first place and realize the greenhouse gas that if it's doing stuff. So that's sort of a note on that.

Now, I mentioned our projects started in 2007, I've really called that a pilot. You know, we did a few workshops locally and what we quickly realize was that a program like this does not really make sense to live within one county. Goods are moved as we know well beyond county borders in most cases.

Slide 7: Made Possible by...

And EPA actually saw that and in Region 9 of EPA gave us a little bit of support in 2009 to extend regionally and help us reach out to other parts to the San Francisco Bay Area and then subsequently EPA's Climate Showcase Communities program, which Shannon mentioned a few moments ago, recognizes us and gives us further support to take the program nationally. And that's been really wonderful, it gives us the opportunity to host workshops all across the country and to reach out to much larger supply chains because we're going for scale here. That's really where the greenhouse gas and the waste benefits will come into play as getting those large national chains to make big switches in their packaging.

And then I also want to mention the Reusable Packaging Association, they're partners in this. They are the preeminent trade association representing the service providers, the manufacturers on reusable packaging. So, they really are subject matter experts that come in and teach our training workshops, and help us connect businesses and other organizations with the solutions that they're looking for.

Slide 8: Many Benefits of Reusables

So word on benefits, there're really three categories. I'm going to focus first on the environmental benefits and I'm sure we're all familiar with this hierarchy and we saw a slide earlier about it as well.

Slide 9: Environmental Benefits

Slide 10: "Reduce & Reuse" are the Most Sustainable

And I basically spoke this already, but we're trying to move up to hierarchy and I think we've all also heard the notion of, well recycling is great and we all do it but it's really not the first priority and I think it's become the first priority for lots of folks because it's tangible. We can wrap our heads around it, we know what to do, it's much harder to track and measure and figure out reduction side of things, but that's what we're trying to focus.

Slide 11: U.S. Solid Waste

And then, you know, further sort of enforcing our work and on the environmental side, some data from EPA similar to what Shannon was showing us earlier, containers and packaging comprise almost a third of North America's municipals solid waste stream. And 56 percent of those resources are waste in landfills. So there's a huge opportunity there to address packaging, granted that's not just the industrial packaging that I'm speaking about but all packaging.

Slide 12: U.S. Greenhouse Gas Emissions.

And then we saw this slide earlier but I just want to reiterate it, this is the systems base view that Shannon showed us. So if we look at this one and we see that products and packaging are 37 percent of the impact here, you know, have gas emissions, when you look at the use and the provision of goods and the relationship of those goods to packaging.

Slide 13: Top 5 Materials Landfilled from Commercial Sector

So, really started to – these dots are all connecting for us and they were all brought home here and this is local data, this is from Alameda County's 2008 waste characterization study and what this is showing is that the top five materials still going to landfill from our commercial sector here.

But you can look at three to five, uncoated corrugated cardboard, unpainted wood which is largely pallets and then film plastics. So we saw OK, if we focus on this area of reusable packaging and thinking through that scenario I laid out earlier of the tube of toothpaste and how it's shipped, we can address all three of these common materials that are still ending up in a landfill, but that have alternatives or could be just reduced out of the system.

We're also addressing a very large slot of materials that are affecting greenhouse gas emissions nationally and we're moving up the hierarchies. So, this was really a no brainer for us at this point when we saw this data.

Slide 14: Environmental Benefits of Reusables

And then we also spoke briefly with Shannon about life cycle analysis. Well this is one and I always disclaim them when I mentioned LCAs, they're as good as their assumptions, of course. In this case, this was a study conducted by Frank Loner & Associates, it was peer reviewed by Michigan State University, they have a school of packaging. And it was comparing – it's a process study. It was comparing reusable plastic containers used for produce that would take the produce from field directly to market and then display that produce in the container.

It was comparing that with a corrugated container that did the same thing. So the onions or whatever it was kept in the field, loaded into the container brought to market and then displayed for sale in that same container.

And what the study showed and we can make this available for download, it's on our website, almost 30 percent fewer greenhouse gas emissions from the reusable plastic so in this case, energy consumption was almost 40 percent lower and waste generation 95 percent less with reusables. So what drives all these numbers is the number of times the packages were used. If you used a plastic container and we use it five times, the results were not nearly as good. That's why we're not focusing on these materials.

But in this case, these containers were used hundreds of times compared to the cardboard containers which got one use. You can argue that cardboard can get multiple uses and in some cases it absolutely can. In this case, we were dealing with the produce that has moisture. It's also marketed in the container so there's more wear and tear, so they could not be reused multiple times.

Slide 15: Financial Benefits

OK, the financial benefits, I don't have time for a deep dive into the financial benefits, there certainly is a long way you can go in studying this. But what I will say is that this is where we lead the conversation, when we're speaking with businesses about our project and we don't lead off with the environmental benefits, they're very compelling to a lot of people but in the end, the bottom line, truly the bottom line is what matters to most of the business folks we speak with.

Reusables will not make financial a logistical sense in all cases, but our team has been trained to quickly identify situations whether it might be a good condition for usable packaging, and we have a suite of tools that we've designed to help businesses and others calculate the ROI and other cost considerations involved in the switch, so that we can support them in making a good case to their chief financial officers. They can speak the language as needed to make these changes internally.

Slide 16 and 17: Health & Safety Benefits

And then health and safety benefits are actually really significant, and that's because these containers can be designed more economically. You can design containers that cannot be overfilled so you do not exceed weight limits. You can have hand holds grips to hold them appropriately.

When you think about the warehouse or distribution center environment, it's a lot – a durable rigid package is going to resist a forklift sphere a lot more than a cardboard box will. So, there's all kind of things like this stuff plan to help in safety considerations.

Slide 18: Stability

Here's a visual demonstration of what we're talking about. In a truck, if the containers can nest and stock and put kind of an interlock into place, you have a much lower risk of tipping like we see here.

Slide 19: Let's look at some Reusables in action

So now, a few examples out in the field that we've seen and with businesses we've worked with.

Slide 20: Reusables in Action

An example here of an Oakland California coffee and tea manufacture of Peerless Coffee and Tea and they're in the process of replacing cardboard cases with 30 reusable totes, the green one that you see on the left, for their Bay Area distribution routes.

So, this is a very small project, they've converted one route, the truck that you see and you can see in the truck, there're some racks so, part of the process and part of what our team helps these businesses with is make these – making these logistics changes, that truck have to be outfitted with racks and non-slip knots so that the reusable crates didn't slide around.

Once they made that change, they've been implementing on this route, they're planning to expand it to their other routes so that's why the numbers at the bottom of this slide aren't huge, it's just the pilot stage.

Another similar example is Ghirardelli Chocolate in San Leandro California. They're also using reusable totes similar to the once you see here but they're using them all in house, it's called work in process and they're basically using them to store goods. Once they're done with manufacturing and when they are ready for merchandizing, they're storing their chocolates on sight. And then, they'll actually – they were storing them in cardboard boxes and they would then repackage them when they were ready to ship them to a customer site in orders.

So now, they're using these reasonable totes and the scale is a little bit larger here. The switch has save them 228 tons per year of cardboard and that cardboard was purchased, assembled, handled and recycled. So at each stage, there was labor savings, cost savings that add up, and I believe that the 228 tons number that I'm quoting is a couple of years old. So imagine, it has adjusted up at this point, I've heard they've been just kind of expanding that.

Slide 21: Reusables in Action

Moving on, reusable pallet wrap is a newer technology that we're seeing but it replaces the stretch wrap and Food manufacturer Premier Organics has been using it. And workers benefit in this case from reduced stress and strain for wrapping dozens of pallets a day by hand. They've also reduced – for this case, another company U.S. Foods has reduced their firm waste by 50 tons per year and they're saving almost \$20,000 a year in avoided purchasing cost.

Slide 22: Reusables in Action

And then, I just want to quickly mention, this can apply to any industry including local governments office relocation. And this is the picture of our office at StopWaste, we use this orange reusable crates for our move, it eliminate all the cardboard boxes, it reduced truck trips because the crates are uniformed in size so we were able to fill the truck completely and fewer loads.

And the best part is no one has to lift anything, you could see this crates are in dollies. So we just loaded up a crate on the dolly and then putting them to one on top, loaded that up and when you had the stock of three, you just roll it at the building into the truck. So, it's really nice from that respect as well.

Slide 23: Example

I have a quick case study, I'm going to breeze through it because I'm running low on time but what this is, on the left you see an Intermediate Bulk Container, IBC, and they can be used for storage of grains or liquids as fiber drums as you see on the right are often used for.

Slide 24: Case Study Example

And what happens in this case with the fiber drums is they are difficult to recycle, they are difficult to open, they have these metal chimes on the top. They have limited capacity and they really weren't that efficient base wise. If you store drums next to each other, there is all the space in between the round edges of it that is not used for product.

Slide 25: Case Study Example – Solution: Reusable Intermediate Bulk Container (IBC)

Slide 26: Case Study Example – Results: Operational Efficiency

So here's the solution and I'm going to jump forward to show you, I think the visuals do the best job to explain this. One IBC of 215 gallons replaced six fiber drums.

Slide 27: Case Study Example – Results: Reduce Required Storage Space

You could stock them, tie them high when they're full for 1,500 gallons compared to 660 gallons in the fiber drums. So it's huge base efficiency.

Slide 28: Case Study Example – Results: Truckload optimization

And then truck trips. One truck load of the IBCs was equivalent to five and a quarter truck loads of the drums, so a huge efficiency greenhouse gas benefit there on the transportation end.

Slide 29: How StopWaste can Help

So, I just wanted to quickly go through that. And then to wrap up, I think I've discussed what we're doing here at but what I want to pitch to you all is that we are looking for opportunities as

part of our Climate Showcase Communities' project to work with other agencies around the country, other communities.

If you feel that you have an industrial landscape that might be a good fit and I can speak with folks to kind of assess this but basically, to boil it down to a few, have a lots of business to receive piles of pallets out at the loading dock, that's usually a good indication that there's a good fit, a good opportunity for reusables potentially.

Slide 30: How It Works

We'd loved to work with communities to set up and host workshops. What we offer is all of the resources we've developed, the expert speakers, the logistic assistance, even working with the attendees after the fact to help them evaluate and maybe make the switch.

Slide 31: How We Spread the Message

We would love to do that, the responsibility of the host community is to secure a venue and help us get to the right audience. So, we have a target audience, we'd love to reach them with your help and host the workshop and provide all this resources, we have to help spread the message to our website, to our printed guides, we have video clips in the website and interactive calculator as well. We also spread the message to webinars like this one.

Slide 32: Training Workshops

So, our training workshops are typically half day events, two to three hours, we will bring in experts from the Reusable Packaging Association. There's an opportunity to learn about the benefits to have detailed Q&A, it's usually more of a discussion, at some point, we get into a really interactive conversation.

Slide 33: For More Information

And then, wrapping up, I just want to give you our website address, my contact information. Please feel free to check out the website and contact me and we can chat more about this and thank you very much.

Slide 34: Questions?

Poll Question #3

Emma Zinsmeister: Thank you, Justin. I just want to encourage folks on the line if you have any questions for Justin or Shannon or anyone that is speaking today, Dennis later after his presentation, please type those questions into the GoToMeeting panel that you have on your screen so that we can address those during the question and answer session.

So as we just heard, there's a huge opportunity in the packaging aspects for source reduction and emission reduction. We're interested to hear from folks what some of the challenges are that you're facing in designing similar types of programs in your community.

So if you could take a minute here to answer the poll question, what is the largest challenge you faced related to implementing the source reduction program like the StopWaste program?

We recognize that it's a pretty innovative approach, something new. We are, you know, helping to promote their message through the Climate Showcase Communities program and of course, are interested in hearing what kind of resources might help in doing this work in your community. So, please take a moment to answer that for us.

OK, Wendy, if you could pull up the results? Great, so it looks like the largest challenge that folks are dealing with is political buy-in from key stakeholders, and then 24 percent is financial—covering the upfront costs, as well as some challenges with logistics and general knowledge.

So, if you have any questions for Justin, particular about how to get stakeholders on board and engage folks in this type of work, please type those in and we can get to those in the Question and Answer session. So, thank you.

Integrating Solid Waste Management into Kansas City's Climate Protection Plan

Emma Zinsmeister: So, moving on to our next speaker, we have Dennis Murphey from Kansas City. Dennis Murphey is the Chief Environmental Officer for Kansas City Missouri. He manages the Office of Environmental Quality and provides leadership to city departments on integrating climate protection and sustainability into all city operations.

He serves as a city manager, mayor and city council, he serves the city manager, mayor and city council as their primary adviser and source of the information on all environmental issues. He directed the development of Kansas City's Climate Protection Plan which you'll hear about in just a moment. And he received the implementation of the plan as well as promoting regional partnerships between the public and private sectors to address environmental issues. Dennis has over 36 years in environmental management experience in the public and private sectors.

So with that, I will turn it over to Dennis.

Dennis Murphey: Thank you. I'm on the line but I can't see my screen.

Emma Zinsmeister: We can see – I think we have your screen up. I think you just need to pull up your presentation into slide show mode.

Dennis Murphey: OK, does that work now?

Emma Zinsmeister: Yes.

Slide 1: Title Slide

Dennis Murphey: OK, good. Well, it's a pleasure to be here today and talk a little bit about how we integrate the solid waste management and resource recovery into our Climate Protection Plan in Kansas City, Missouri.

It sometimes is perceived that climate protection activities at the local government level are only happening on the East and West Coast. And so I'm always happy to dispel that myth and let people know that it really is happening in the middle part of the country as well as in the heart land.

Slide 3: Integrating Solid Waste Management into Kansas City's Climate Protection Plan

And so, we actually begin Climate Protection Planning in 2006. And by 2008, July 2008, our mayor and city council had unanimously adopted the Kansas City, Missouri Climate Protection Plan.

And based – we started of the process by doing a review of other city Climate Protection Plans and it was pretty clear, the solid waste management was a fundamental element that we needed to include in the – in the development of our plan.

So we created a series of workgroups, we have a steering committee that was comprised of community leaders that provide a general oversight over the entire process and work with all of us. But we had workgroups that consisted of about 20 to 25 individuals each that were down in the trenches, looking at developing recommendations for specific strategies to incorporate into our Climate Protection Plan to address and achieve the greenhouse gas reduction goals that were established by steering committee, and we had a separate workgroup that works solely on greenhouse gas reduction strategies that related either to the carbon offsets or to waste management.

Carbon offset was sequestration, tree planting and some of those kinds of things, but waste management was obviously a highlighted area that we focused on.

Slide 3: Primary Intent Was to Build on Existing SW Management Program Activities thru KC Recycles

And so, what we wanted to do was to build upon the existing solid waste management program activities we had underway in Kansas City already through the KC Recycles initiative. And KC recycles consisted of weekly curbside collection of recyclable household materials, it was a voluntary program. It was also implemented in partnership with the past, you throw, initiative where individuals were allowed to dispose of two bags of solid waste a week. Anything more than that, they were required to pay an additional cost.

Slide 4: Additional Objective:

We, also in addition to the curbside recycling initiative and the pick up at the curbside, had for a number of years operated drop-off recycling centers. We had three to four depending on upon the timeframe we're talking about. They are recycling centers that could be utilized by people that didn't have access to the curbside program, such as people that live in apartment buildings because the curbside program was for single occupancy households. And the recycling centers also provided an opportunity accepting materials that we didn't except in the curbside programs such as glass, several other kinds of plastic materials, some metals that we didn't accept through the curbside program and other materials.

And then we had also had an ongoing program that had been – well, our solid waste divisions was working with people to put on special events, festivals and other activities in our community and set up recycling containers and work with them to minimize the amount of waste that was being sent to the landfill from the special events. And through all of that, we were collecting approximately 1,500 to 1,600 tons per month material that we were diverting away from landfill disposal.

Slide 5: SW Management Strategies included in KC's Climate Protection Plan

I think it's also worth noting that as we got into doing our greenhouse gas inventories as part of our Climate Protection Plan, what we've discovered is that we were already doing a number of things that achieved greenhouse gas reductions that we've been doing for other purposes that fell into the area of energy efficiency alternative fuels and other things. But again, the same thing applies in the area of waste management. We had already been implementing some waste management strategies that were reducing greenhouse gas emissions even before we had a Climate Protection Plan.

We also had another objective that we try to incorporate into our Climate Protection Plan and that was to include solid waste management greenhouse gas reduction strategies that provided other benefits, even if weren't able to specifically quantify our measure how much greenhouse gas reduction impacts we would get.

We wanted to do this in order to avoid the need to site and construct additional landfills, we also wanted to do this to create what we called enterprise opportunities by recovering materials that were previously being discarded. In fact, as we got into the Climate Protection Plan, there was a lot of discussion about turning, flipping the mind set away from it being waste management into an enterprise mentality of materials and resource recovery operations.

And then, it also gave as an opportunity to collaborate with regional partners, others in our metropolitan area to provide cost savings through scaling up activities in ways that we couldn't do individually.

So, we had a number of different objectives other than just achieving a specific quantifiable amount of greenhouse reductions in incorporating solid waste management into our Climate Protection Plan.

So, there were a number of things that came out at the workgroups that ultimately were incorporated into the 55 different greenhouse gas reduction strategies that were ultimately adopted in July of 2008 in our Climate Protection Plan.

One of the most important was to develop a comprehensive Solid Waste Management Plan and that has been done. That was actually underway as we were working on the Climate Protection Plan and was completed about the same time that the Climate Protection Plan itself was adopted.

We also within four years wanted to double the amount of materials that we were collecting in the city's curbside recycling program. That curbside program had only been in operation for a few years and we wanted to substantially expand the amount of materials and the type of materials we were collecting.

We have not, I would say at this point, achieved the goal within four years of doubling the amount of materials collected, but we have expanded and included a number of different kinds of plastics that we accept in that recycling curbside program, and have expanded and increased the amount of material that we're collecting. And we're seeing higher participation rates now in some sectors of the – of the community that were underperforming in the early years.

We also wanted to focus on our own internal municipal operations and expand recycling activities that were taking place in municipal buildings. And of course, we're major generator of paper materials and so we want to increase the recycling of paper. But we've also then found as we gotten into this further, that not only that we want to increase the amount of internal recycling, but we wanted to differ the waste reduction activities within municipal operations.

And it actually has resulted in recent years of creating the first paperless municipal court operation in the country that was implemented about a year ago, and also working with the city clerk's office, they have now gone to a paperless operation working with the mayor and city council and the city clerk operations by giving each of the mayor and council members laptop computers and handling the transmittal of what previously were this enormous amount of documents that were being produced and distributed to the council members each week, we're handling all of that electronically now.

So we've not only gone with expansion of recycling activities within city operations but also waste minimization activities inside city operations.

We've also taken into – we have a strategy of recycling materials at public events on a broader scale whether it was parades, festivals, concerts for the events, and we've been fairly successful in doing that. We hosted the Major League All Star game this past summer and significant amount of efforts were put into expanding recycling opportunities at Kauffman Stadium that was very successful.

Slide 6: SW Management Strategies included in KC's Climate Protection Plan

One of the things that we haven't done before a Climate Protection Plan on a significant scale was composting food waste, and we wanted to expand that substantially and we are now collecting a significant amount of food waste that the major Farmers Market in Kansas City Missouri, which is the city market, sometimes called Riverfront Market but in other facilities as well. And so, we are hoping that we can continue to look for new opportunities of collecting and composting food waste rather than continuing to put that into the waste stream.

We've also, at the same time that we were developing the Climate Protection Plan, we're looking at waste that we could make it easier for people to recycle in public areas in the downtown area. And so, what we've done is in high traffic areas, we place recycling containers in the public right of way for use by pedestrians that they can recycle either plastic bottles, aluminum cans, or paper materials, and do so at the same place where they would otherwise be discarding materials into trash receptacles.

We also identified in the plan that we wanted to begin recycling at least 75 percent of construction and demolition materials from city construction projects. And that was happening concurrently with other initiatives in the city whereby we had adopted a standard of doing future city construction projects to achieve at least a LEED silver rating from the U.S. green building council.

We subsequently increase that standard to LEED gold standard that we strive to achieve and what we've found wasn't working with our construction contractors is that it was relatively easy to recycle and reuse 75 percent or more of a construction and demolition materials from the city projects and in fact, have consistently hit more like 85 to 90 percent diversion rate away from landfills.

And actually, as a result of the city's efforts in working with this contractors, they have found that it is easy enough to do that they began incorporating this into their private projects, and encouraging their clients in the private sector to also divert that rate of materials away from construction demolition landfills.

And then we had a goal in the Climate Protection Plan, the big goal was to flip the paradigm in Kansas City, whereas historically we had sent 80 percent of waste materials that we generate to our landfills and recycle that we're used about 20 percent. What we said was that by 2020, we want to flip that and have at least 80 percent of the material being diverted away from landfills into reuse or recycling.

Slide 7: SW Management Strategies included in KC's Climate Protection Plan

Now, one of the ways that we hope to achieve that, and one of the recommendations in our Climate Protection Plan was for the city to figure out a way that we could perhaps in partnership with the private entity build a regional eco-center which would be a regional resource recovery management facility.

And unfortunately, up until recently with the economic collapse that we experience across the country, that didn't – it wasn't feasible to do it from a financial standpoint, however as we're starting to see recovery of the market place and the economy in the Kansas City area, we think that that ideas is viable again. And so we actually will be going out for bids next month and saying if we can develop a viable concept for constructing an eco-center, that would be not only a resource for Kansas City Missouri but for the entire metropolitan area.

Kansas City is a point of reference that only represents about a quarter of the population of the metropolitan area. We're about 460, 480,000 people, metro area is about 2 million which also as a bi-state area about half the population living on the Kansas side of the state line and about half the population living on the Missouri side.

We also identified in the plan that we want to expand our organic waste collection and composting, particularly yard waste. We are presently building a third leaf and brush facility that should be opened in the spring of next year that will enable us to do an even larger amount of composting of yard waste. Yard waste is prohibited from being sent to landfills in Missouri, so we have a strong incentive for trying to compose and reuse that material, and we've had a very valuable partner in Missouri organics which has been composting yard waste for us for several years now.

And then, we also identified in the plan that we – in the future we want to enact in ordinance that would not only have the city diverting construction demotion material away from landfills, but

also require construction demolition projects across the board by the private sector to have in the management plan that would help them to achieve an 80 percent diversion right also by 2020. We have not yet implemented or developed that ordinance.

Slide 8: Other SW Management Strategies for GHG Reductions in KC

In addition to the strategies that are in the city's Climate Protection Plan, as we've continued to look for new opportunities of embracing strategies in terms of resource recovery and solid waste management that would also give us greenhouse gas benefits, we have begun to look more and more at doing greater deconstruction versus demolition of dangerous buildings in Kansas City, so that we can actually recover as much of the reusable materials in those buildings rather than just bringing in a bulldozer and knocking them down.

It saves the embedded energy of the recovered materials and it also reduces the greenhouse gas emissions that would otherwise result from the materials going into construction demolition landfills, but it also creates job opportunities. We've been able to train unemployed people from the urban core, including individuals that were difficult to employ because they might have a criminal record or other things in their background that made it difficult for them to begin earning an living through wage jobs, and we've been able to combine job training with opportunities of partnering those individuals with our demolition constructors, as we've used federal grants that have given us the opportunity to pay the incremental cost to do deconstruction versus just demolition of buildings.

And then finally, we're presently looking at reusing some city land for energy generation from biomass. That probably, ends up being woody waste from tree trimmings and storm damage, and we are presently working with the National Renewable Energy Lab and EPA on the evaluation of how to evaluate the possibility of doing that kind of work at our old municipal form site, which is where the city's old municipal jail was previously located, which we've now demolished and have consolidated corrections activities with the county.

Slide 9: SW Management Strategies that Address GHG Reductions from a Materials Consumption Basis

So, our plan in our greenhouse inventory was a sector-based plan which you heard discuss earlier. What we are now looking at is also incorporating things that go beyond looking at sector-based activities that is electricity consumed, gasoline fueled used, and waste management activities, into looking more at a material consumption basis of some of the activities that we want to include in Kansas City, Missouri as well.

So, we have as a part of our construction demolition activities also began to substantially reuse waste concrete and asphalt in road construction projects, and looking for opportunities to minimize the amount of those kinds of materials that we otherwise sent to landfills. And we are currently working on development of the sustainable procurement ordinance that will do a lot more than our old environmentally preferable procurement ordinance which said we wanted to buy materials that have high recycled content.

We're now looking at a much broader ordinance that will provide us the opportunity to get preferential consideration for purchase of materials that are durable, recyclable, that are made from recyclable materials that have generated less greenhouse gas emissions from their production and manufacturing. So, we're trying to take more of as a broad based material consumption perspective in our activities going forward.

Slide 10: Links to Info Sources

So, with that said, I was trying to get through this so we still preserve an opportunity for some amount of time for Q&A. You now see links to our – both our Climate Protection Plan as well as to a link to the Kansas City long term Solid Waste Management Strategic Plan, and I would welcome you to take a look at either of both of those documents, and see if any of the things that we've incorporated here in Kansas City might be of benefits to you.

Slide 11: Contact Info for KCMO Resource Staff

In addition, feel free to email me, I've got my name and email address on the screen now as well as Michael Shaw who is Kansas City, Missouri solid waste manager.

So with that, I'll be happy to provide an opportunity for some Q&A.

Poll Question #4

Emma Zinsmeister: Thank you, Dennis. So, we just heard a quite holistic approach from Kansas City to their waste management, and Dennis mentioned a variety of benefits and motivations for pursuing their activities and thinking about a materials management approach to their – to their waste in light of the fact that they do have a traditional sector-based waste inventory. And we also heard about a range of benefits from reusable perspective from Justin's presentation.

So, for our last poll question today, we'd like to ask you about your motivations in your communities for pursuing different materials management approaches.

So with that, we'd like to pull up the last poll question.

Which of the following benefits is the primary motivation for your community or organization material management practices? So if you can take just a minute or two to answer that for us.

All right, if we can pull up the answers.

So, I think as we may have expected or anticipated, greenhouse gases are not necessarily the strongest motivator or reason for pursuing a lot of materials management works. A lot of communities are dealing with collection and landfilling costs that are rising, as well as limited landfilling space from other opportunities that, or motivators that have pulled well are the air and water food reduction, and all system economic growth including job creation as we heard, Dennis mentioned there are some job related opportunities in the work that they're doing.

Interestingly to note on, in reducing the dependence on virgin materials and other interesting opportunity, I think as you get more into the source reduction type of work to think about those opportunities as well.

So, with that, we're going to turn it over to question and answer session. So, if Wendy, if you could pull up the questions for our speakers, we have probably have a few minutes to answer one or two questions each, and then anything that we're not able to get to at the moment, we could certainly post written responses when all of the files from this webcast are upon the web, so we will get your questions answered even if we don't have time to talk about them at the moment.

So with that, Wendy, I leave it open to you for the first question.

Questions and Answers

Wendy Jaglom: Sure. So the first question is for Shannon. From the life cycle perspective, what is the largest opportunity for local government to reduce greenhouse gases?

Emma Zinsmeister: Shannon, are you on mute?

Shannon Davis: Zinsmeister?

Emma Zinsmeister: Shannon, was that you?

Operator: Shannon's line is open.

Emma Zinsmeister: I think – I think we may have lost Shannon on ...

Wendy Jaglom: OK.

Emma Zinsmeister: ... there on the phone. So we will ...

Wendy Jaglom: So I'll ask ...

Emma Zinsmeister: ... run to next question.

Wendy Jaglom: Yes, I'll ask a question for Justin then. Justin, have you used the reusable concept with the local government themselves in terms of reducing their own waste, or is that mostly for commercial use?

Justin Lehrer: That's a great question. It can – it could – there are definitely applications in local government, we have had workshops specifically with a local government audience, specifically all of our member agencies here in Alameda County.

Projects, we haven't had too many. I know that the county itself has been looking at opportunities in their correctional facilities, and there are some cities in their public works departments have found opportunities for reusables in corp yards. Basically, similar to those IBCs the large bulk, then I showed the case study of, those can be used as containers for parts and supplies and things to help organizing in corp yard so I've seen that usage.

And then the last one is in purchasing. If there's like a large, for a larger city or a county, if there's a large sort of centralize purchasing department, then you got some pretty good cloud and influence over your suppliers to try to influence how office supplies and other supplies are coming in to the city or the county in reusable. So there are opportunities, I haven't worked with too many first-hand but just a handful.

Wendy Jaglom: Great, thank you, Justin. So, the next question is for Dennis. What was the recycling rate before the development of the Solid Waste Management Plan and what is it now?

Dennis Murphey: I was afraid you're going to ask that. The recycling rate beforehand and the diversion rate is really what we consider it is – before we actually did our Climate Protection Plan, since we had already established the curbside recycling program, we were probably up to about 25 to 27 percent.

As of where we are right now, unfortunately, we don't know because we have not been able to do as much tracking of our progress as we'd like to do the budget constraints. But I think, we're going to hopefully include in the next budget cycle an opportunity of doing another greenhouse gas inventory that will include more detailed information in terms of the progress we're making on the Solid Waste Management Plan.

I think – but from talking to the solid waste manager, we're probably in the 30 to 35 percent range in terms of the diversion rates now. So, we've probably seen an uptick at somewhere between 5 and 10 percent. But again, that's one of the things that you often find where you're doing Climate Protection Plan in greenhouse gas inventories is that you may have already picked a lot of low-hanging fruit, you've already achieved some of those things. So, by having an aggressive curbside recycling program in place, we have already achieved some of that reduction that we hope to achieve. I think the big opportunities are still lying ahead if we can get a broader embracing of the construction demolition diversion by the private sector.

Wendy Jaglom: OK, thank you, Dennis.

I think Shannon is on the line with – let see if we can hear you now. All right. Well, in that case, I guess I'll ask one more question for Justin. Have you quantified the financial benefits of the health and safety benefits of reusable packing?

Justin Lehrer: I don't have the – well, we have in certain cases. Well, first, on the health and safety, I have not quantified those benefits. What I've done is thinking first hand, you know, on implementation when we visit sites and talk to managers. We heard about those benefits and how – you know, in the end, what I've heard from managers is in the end, you know, we need this decision based on a finances but in the end, it was the health and safety, you know, folks that were the most, you know, thrilled with it because of lot of the improvements there. So, I have more anecdotal evidence on that.

The financial case we have calculated but it varies widely. So, we've calculated on a case by case basis and it would be hard for me to sort of pull up members right now on the call, but I'm happy to speak with folks offline and we do have some printed case studies that sort of have a bottom line with the financial benefits like I mentioned Ghirardelli Chocolate. There's a case study on our website that you can download that has the financial benefits as well as several others. So, I'd point you in that direction.

Wendy Jaglom: Great, thank you. So, for some reason, we're not able to hear Shannon but she has suggested that cities should attend the December 4th LCA webinar. We'll be discussing what cities can do from the LCA point of view.

Dennis Murphey: And actually, Emma, if I can jump in on that one briefly.

Emma Zinsmeister: Yes, go ahead.

Dennis Murphey: I actually had an interesting conversation with my counterpart about a month ago in Eugene, Oregon, who had looked at what the biggest impact that they could have on greenhouse gas emissions in their community, and it was very much from reducing or achieving alternative to their continued purchased and use of concrete and asphalt. That was the largest contributed greenhouse gas emissions in the city of Eugene.

It was – on the analysis they've done, over half of the greenhouse gas emissions were from their consumption of that materials. So, they were looking very hard at reuse of those materials and also looking for purchase of materials from sources that use alternative fuels rather than so much fossil fuel in the production of those materials.

Emma Zinsmeister: Great. Thanks for sharing that Dennis.

So I think that's about all the time that we have for question and answers today. I think – I think we've heard a lot of great presentations to give folks some food for thoughts on the ways in which they can look at their waste and materials management from a life cycle perceptive.

I certainly encourage everyone to visit the website with the files. Once we have them up, we will send out a Listserv notice to notify everyone, you should have also – if you previously registered, received in the email, check out – check out the links, certainly check out on your guide on Resource Conservation Recovery that I mentioned earlier. Check out the webcast Shannon's West Coast Forum is going to be offering, the case studies from Justin, and the resources that Dennis mentioned, there's a lot of great material out there.

So we appreciate everyone for your time today and thank you to all of our speakers. We hope that you will join us again soon, and have a good afternoon.

Operator: Thank you. Ladies and gentlemen, that concludes today's conference call. You may now disconnect. Presenter, hold the line.

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