CalRecycle Manufacturers Challenge Packaging Workshop
Cal/EPA Headquarters, Byron Sher Auditorium
1001 I Street, Sacramento, CA 95812
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DRAFT CalRecycle Staff Notes

Howard Levenson's Opening Remarks

- This workshop is part of CalRecycle's ongoing discussions of how to achieve our Legislative mandate of 75% source reduction, recycling, or composting by 2020. Packaging is one means of how to achieve that goal.
- CalRecycle is not anti-packaging. Recognize packaging's critical functions and trade-offs involved in decision-making and the complexity associated with the large universe of products.
- Many laudable efforts to reduce impacts from packaging.
- From AB 341 and AB 32 perspective, more needs to be done.
- From 2008 to 2014, CalRecycle's waste characterization studies indicate the amount of packaging going to landfill remains about the same – about ¼ of the waste stream.
- CalRecycle posed that a mandatory approach was necessary to achieve meaningful reduction of packaging disposed – industry responded that CalRecycle should focus on voluntary instead.
- Today we want to hear from industry meaningful, comprehensive, collective voluntary efforts to achieve a target of 50% reduction.

Scott Smithline's Remarks

- Wants to be clear that the timing of the workshop and that it had to be rescheduled several times is not an indication of the importance of what we're talking about today.
- We're under a challenge from the Legislature to achieve 75% recycling by 2020.
- Caused us to invest in several significant efforts over the last year, namely diverting organics – the single largest material type disposed in landfills – from the waste stream.
- Reaching 75% effectively means reducing disposal by half, we are funded as a department through disposal; have been focused on identifying a sustainable funding mechanism for the department.
- Packaging is no less important than the other materials in the waste stream in achieving 75%.
- Must address packaging, a quarter of the waste stream.
- Also helps us address climate change, litter reduction, and environmental protection.
- Concept 28 of the 75% report represents what CalRecycle has officially and formally submitted to the Legislature for our approach for dealing with packaging.
- Concept 28 says, "Pursue statutory authority to establish a comprehensive statewide packaging reduction and recycling program." That has been the conclusion of the department of what we need to do.
- Today is an opportunity for us to determine how to proceed, to begin that conversation in a serious way.
- We intend to fully explore the benefits that voluntary efforts can play and to understand what the newest and best thinking is from the industry on voluntary efforts.
- Want to be clear that we are committed to solving this problem – it's not if we're going to solve this but how.

- We'll be listening intently for ways we can cooperate and solve this in a way that achieves our environmental goals and is the least onerous for all parties involved.

Cynthia Dunn's presentation

- Packaging continues to make up about a quarter of the total disposal stream (no real change between the 2008 and 2014 waste characterization studies).
- Paper and plastic are most prominent packaging material types disposed.
- Reviewed previous workshops, attendees, outcomes.
    - We knew there were many perspectives to consider and better understand.
    - Have been engaging with stakeholders including recyclers, local governments, consumer packaged goods companies, materials management facility operators, composters, environmental advocacy organizations, retailers, industry trade associations, packaging companies, solid waste and recycling companies, non-governmental organizations, other agencies within California government, and academic, and scientific institutions.
- We recognize the importance of packaging and some of the other environmental benefits that packaging can provide.
- Not asking industry to disregard those benefits but are asking them to put as much effort and innovation into solving the end-of-use challenges as is put into the product and packaging development phase.
- Provided overview of Manufacturers Challenge and expectations (see presentation):
    - Efforts must be collective, comprehensive, effective, and address how proposals/activities will be financed.
    - Asked industry for big picture needs, what specific activities they propose, key milestones and timelines, including what baseline they propose, and financing.

Questions

Q: Mike Mohajer: Does the 50% goal use the 2014 waste characterization disposal tonnages?
A: Cynthia Dunn: We've asked the industry groups to respond with what they think the baseline should be. CalRecycle has extensive data on disposal in California, so to the extent industry would like to use that or parts of that, or perhaps propose additional activities they think should be conducted in order to identify a baseline – we've left it open and up to industry. We've set an ambitious goal and asked industry how they would go about meeting it and how would they measure it.
Q: Mike Mohajer: If some of the packaging material goes to a transformation facility, that would be ok?
A: Howard: the 75% goal, set in statute, calls for source reduction, recycling, and composting. Does not include materials that go to waste-to-energy plants, which are known as transformation facilities here in California. We are looking at all of these activities in the same context as AB 341 – looking to see major efforts to reduce or recycle those materials.

Panel 1

Derric Brown, Vice President of Sustainability, Carton Council & Director of Sustainability, Evergreen Packaging

- This should focus on program performance, participation capture rates, and how to make the existing infrastructure more effective.
- Need to strengthen existing local infrastructure and programs to increase recycling of cartons and other materials.

- Already widespread curbside access, need to improve participation and MRF yields.
- Committed to funding, work with MRFs, collaboration with municipal operators and systems.
- CalRecycle estimates of cartons landfilled in California is higher than what is actually landfilled, based on U.S. EPA data.
- Worked with several other organizations on a MRF Material Flow Study
    - How do certain packaging materials flow through MRFs and what can be done to increase quality and recovery of those materials. Learnings:
        - Minimize compaction – don't flatten recyclables. 2D/3D separation is key to high recovery
        - Avoid overloading screens
        - Screen maintenance is key to consistent performance
        - More screens produced better separation
    - This info can help with education to residents and MRF operators
- Opportunities: confusion about what is recyclable, how do you add materials to the list and improve access for those materials? There are low efficiencies within MRFs – how can that be improved? For cartons, markets need more volume.
- Supports voluntary industry collaboration through public/private partnerships with performance tracking and strong public leadership. To drive high recovery:
    - BMPs/Policy
        - Widespread access/quality materials
        - Participation/incentives (PAYT)
        - Harmonize programs
    - Engagement
        - Support public/private partnerships
        - Support innovation and provide technical assistance
        - Support the Recycling Partnership
    - Funding
        - Increase disposal fee to $4/ton
        - Consider a generator fee
- Carton Council has worked to increase household access to carton recycling. Currently 74% of California's population has access to carton recycling.
- 2 team members located in California.
- About 65,000 tons in California.
- Issued grants to 10 Material Recovery Facilities (MRFs).
- No wax coatings on gable top or aseptic cartons.
- 1% of 8 MM packaging tons is cartons.
- Support secondary processing at MRF.
- Baseline should be zero and should acknowledge success.
- Need foundational information on local program performance and focus on performance metrics.
    - Metrics should focus on access, capture rates, key performance indicators at local and state levels, etc.
- Goals should be reasonable short-term targets by sector.
- Leverage AB 901 to track progress program by program.

Emily Tipaldo, American Chemistry Council

- Packaging – particularly plastic packaging – helps to reduce food waste.
- Plastic packaging does more with less material.
- California has a solid structure for handling recyclables.
- ACC interested in increasing the recycling of non-beverage bottles
    - Works with Keep America Beautiful "I want to be recycled" campaign
    - Recycling Partnership
    - APR on grocery rigid plastic recycling program
- Non-bottle rigid plastics recycling has tripled nationwide since 2007. Great access in California.
- 85% access to recycling in California.
- ACC has developed common terms and tools through an advisory committee
    - Geared toward recycling coordinators
    - Easily-accessed free resources
- Materials Recovery for the Future
    - Research collaborative managed by ACC
    - There are challenges with collecting film
    - 11 organizations, 8 CPG companies, 3 associations
    - Investigating whether plastic film can be successfully processed at MRFs today
- A lot of opportunities and challenges related to film plastic collection and recycling.
- Film is the greatest opportunity for CalRecycle to get involved with
    - ACC has a Flexible Film Recycling Group (FFRG) that leads W.R.A.P.
    - W.R.A.P. is a program that seeks to double film recycling by 2020 (to 2 billion lbs.)
    - $2.4 million invested by ACC to-date
    - Opportunity for commercial film recycling – would like to work with CalRecycle on this effort
        - Working with RILA looking at the mall environment
    - CA has over 97% access for film recycling
- ACC works with the Sustainable Packaging Coalition on the How2Recycle label.
- Vancouver, WA – leveraged an existing program to boost film collection
    - 125% increase in bags and film collected and a measureable decrease in contamination.
- Sustainable Materials Management
    - After working toward highest value first, after mechanical recycling, there is always some residual.
    - There should be a place for feedstock recovery or energy recovery, potentially, similar to the way approximately 40% of the material going to anaerobic digestion comes out as gasses which are combusted for energy.
- In summary, CalRecycle should join the W.R.A.P. program and promote the How2Recycle label.

Lynne Dyer, President, Foodservice Packaging Institute

- Move organics out of landfill.
- Food service packaging (FSP)
    - Take out-related packaging products
    - Not general food packaging such as cartons/pouches/glass bottles
    - Food service packaging is <5% of packaging and <2% of municipal solid waste
    - Efforts to increase food recovery and feed the hungry utilizes FSP

- Roughly 70% of the FSP that is sold in quick-service restaurants leaves the store. Most of the FSP that leaves quick service restaurants ends up being disposed in the home. Therefore, most of FPI's activities have been focused on the residential side.
- FPI has:
    - Paper Recovery Alliance
    - Plastics Recovery Group
    - Foam Recycling Coalition
- Focusing on a systems-based approach to build recovery options for FSP
    - Identifying real or perceived barriers
    - Support development of collection and recycling infrastructure
    - Expand end-use markets for recovered material
    - Educating consumers
    - Connecting with local governments and solid waste officials
- What do we need to have happen? Need to move organics out of landfills
    - Where FSP plays a role:
        - Food recovery hierarchy – packaging helps to reduce food waste, feeding hungry people, and the composting realm (recyclable, compostable packaging)
- How do we get more composters to accept food scraps? Access to composting?
- Need to identify and expand residential and commercial recycling
    - Don't know how many entities accept FSP for recycling. Identify MRFs that accept FSP.
    - FPI is developing an operator toolkit
    - Foam recycling grants for densifiers (will have one in southern California soon)
    - Need common terminology for education and outreach
    - Working on mapping recovery laws (e.g., if they need to recycle or compost in certain areas)
- Voluntary Funding – FPI member companies are already spending a significant amount of money (FPI, individual companies, not even including research & development activities).
- Future strategy: leverage resources.

Mike Robson, representing the Glass Packaging Institute

- Well-established infrastructure for glass recycling due in large part to the bottle bill.
- High recycling rate – about 80%.
- Opposes EPR for packaging.
- CalRecycle's 75% goal could easily be met with continued focus on C&D and organic materials.
- Glass is only about 2% of the waste stream.
- Glass industry works with many stakeholders to recycle glass packaging and support anything that can improve the recycling and infrastructure.

<u>Questions</u>

Q: What is the industry doing to make multi-layer pouches recyclable? Is industry working to create markets for recyclables by using recycled content?

A: This question was put off for the end of the panel presentations but we didn't pick it back up.

Q: How do you expect consumers to differentiate compostable FSP versus non-compostable?

A: Lynn Dyer: Comes down to harmonized labeling and consumer education. From a manufacturer's standpoint, it's difficult to know where those products will end up. The entire supply chain is talking about how to deal with that.

Q: From Matt _?_, Package One, a corrugated converter: We are an upstream supplier to almost all of your products. As a company, for the last 5-6 years, we've been trying to reduce packaging…what is industry doing to work with upstream suppliers to reduce (secondary) packaging requirements and promoting (secondary) packaging reduction within your organizations?
A: Emily Tipaldo: For resin manufacturers, much of this is handled on a company-specific basis.
A: Lynn Dyer: similar statement.
A: Derric Brown: from a company perspective, we do try to reduce secondary packaging. Industry-wide, is on a company-specific basis as well.
Q: From Teresa Bui, CAW: (to Derric) Can you elaborate on what you meant by good MRF coverage in California for cartons and do you know how many MRFs do positive sorts for carton bales and is there demand for it?
A: 74% access in California (curbside, drop-off opportunities) based on population. Some of that does not go into grade spec 52 and it does go into Mix. We support going into grade spec 52 (developed by the Institute of Scrap Recycling Industries & SPI). Good export market in the West, good domestic markets east of the Mississippi. Don't have specifics on number of MRFs that do positive sorts.
Q: From Chuck White: Regarding film recovery, there's been a focus on plastic bags. Is there any emphasis to work with stores to expand types of plastic film they accept?
A: Emily Tipaldo: A number of the local ordinances in California that ban plastic bags do not require that retailers maintain the recycling infrastructure. If the state ban were to go forward, there is a requirement that retailers maintain the recycling infrastructure. A primary goal for the W.R.A.P. program is to collect other types of polyethylene film products. Currently there are no California retail chains participating in the W.R.A.P. program.
Q: Mike Mohajer: what are the panelists' positions on Extended Producer Responsibility (EPR) versus Advanced Disposal Fees?

- Lynn: We don't support either. Period. We understand the industry, we understand what needs to be done, we understand how most effectively to do this. Voluntary product stewardship activities that are undergoing are the best way to move forward.
- Mike: The Glass container industry does not want to see EPR for packaging, whether it's glass packaging or otherwise. Do not support EPR but do support bottle deposit programs.
- Emily: supports PAYT and some other initiatives along that vein
- Derric: supports PAYT

<u>Comments</u>

- From Susan Collins, CRI:
    - Notice a disconnect between expectations Cynthia laid out in her presentation and what has been presented so far.
    - There is a difference between access to recycling and actual recycling.
    - Not a lot of mention of recycled content.
    - Lack of specifics.
    - What's been presented seems reliant upon someone else – specifically local governments – to collect and do it, reliant upon export markets to take the material.
- From Lynn Dyer: Acknowledge there is a disconnect. It's a real challenge for some of us, and some of us have not been working on it very long. For other products it's taken decades to reach a 50% recovery goal. Our member companies can't do a 50% reduction in that short of a timeframe. From a timeline standpoint, I don't have one but we will work as quickly as we possibly can. It's not because

the government is saying to, it's our customers, the brand owners, who are pressuring us to do it. Recycled content is very important to us and we're seeing this more. Sometimes it's technical challenges associated with using recycled content and not lack of desire. Sometimes you hit performance limitations and price constraints. Recognition that there are lots of other places that the recovered material will go besides just back to original products.

- From Derric Brown: We agree that access does not equal recycling or recovery but we must first have access across the country so that's been our focus so far. Education and outreach that access is there. Second is getting the recycling logo on the package. We are shifting our efforts from access to recycling.
- Emily Tipaldo: Respectfully disagrees that there's a disconnect. We've tried to present programs that may be national programs but with backing and leveraging on the part of a state agency to affect behavioral change – that some of those opportunities have been presented. More materials have stayed domestically for film and non-bottle rigids over the last couple of years than have been exported. For film, we've surpassed the 1 billion pound goal, and now the goal is 2 billion pounds.
- From Evan Edgar, California Compost Coalition:
    - Represent 35 permitted, organic composting facilities in California. We're the food and green waste guys, plus represent 7 anaerobic digestion facilities.
    - We don't want plastics or bioplastics in compost and definitely not in anaerobic digesters
    - Challenge with compostable paper packaging, which is a growing trend. While there is biomethane potential from anaerobic digestion, compost facilities don't want to compromise their CDFA organic certification or litter issues associated with compostable paper.
- Lynn Dyer: Agrees with Evan. As a manufacturer, what kinds of standards do you design your products to? There is discussion that ASTM standards are not replicable to today's compost facilities…we talked about the U.S. Composting Council's Compostable Plastics Task Force, that's one of the conversations. That's an ongoing challenge, want to make sure we're managing it responsibly.
- Conrad MacKerron, As You Sow: echoes Susan Collins' statements. Also wants more transparency on collection rates. Encourage industry to say more about any goals you have to collect the materials you're responsible for. Didn't see a lot of California context in the presentations. Main request is about funding. Clearly that's the biggest issue. Can Derric talk more about a generator fee from his presentation and could each of you discuss funding you might approve or endorse?
    - Derric: It's about $1.40/ton now and there's a move to go to $4.00/ton and part of that can be used for education and outreach. Is $4.00 the right number, I don't know, but the concept is a good one. The Carton Council has spent money and will continue to do that in California. Don't have a 4-year budget, but we're committed to work on this.
    - Emily: We'll be hearing more in the presentations today about this, I think it's a matter of the state or localities partnering or localities applying to be parts of these programs.
    - Lynn: On metrics, it's hard to show progress. Sometimes we just don't have the data, why we did the access study, access rates are easier to track than recovery rates to track. Gets down to what you can control and what you can't.
- Emily Tipaldo: To Evan: We agree, I must have miscommunicated. I was attempting to make the point that, whereas energy and chemical feedstock recovery are not currently recognized under AB 341, that there are other aspects of energy recovery, like with anaerobic digestion, that count toward diversion.
- Kevin Messner: Regarding the CalRecycle slide about the MMBC program in British Columbia, I hear a lot about Canada, and everyone has their own definition of success. To bring it to the attention of

CalRecycle, that program hasn't set any of its mandated targets except for one, and that one is greatly exaggerated because newspapers are not part of the program but they are reported in the results. That program is extremely expensive at almost $400/ton, costs every household about $50/year. It's a very complicated subject, but when I see Canada as an example, that's an example of what not to do and one that we don't want to replicate here.

- From webinar: Thank you to CalRecycle for calling on manufacturers to reduce, recycle, and compost packaging. That is a distinction from settling for increased transformation or combustion. Disappointed that ACC did not address any efforts from its members on redesign unrecyclable packaging for end-of-life with goals of waste prevention and recyclability.
- Emily Tipaldo: A number of our member companies are working on 100% recyclable packaging, including pouches. An ongoing effort. As an association, we don't drive our members' innovation, but we encourage collectively to increase recycling, recyclability, access, etc. That is occurring. In terms of redesigning, I talked about the source reduction that has occurred in the market over the last 20 years. That is reflected in U.S. EPA's data. In the tens of millions of pounds of material kept out of landfills due to source reduction.
- Meghan Stasz: Source reduction is very important to our industry and it's easy to focus only on the recycling component of the 75% legislation.

<u>Jared Blumenfeld, U.S. EPA Region 9</u>

- Many reasons for an interest in better collection and recovery of packaging in California, especially from a Clean Air Act (CAA) perspective – regions not in attainment with the CAA and the #1 reason is truck emissions. Better packaging optimization could lead to significant decreases in transportation-related emissions.
- What can we already learn from California, whether it's AB 939, setting a 75% goal, what the Air Board is doing to promote composting, or the Water Board is doing to stop trash from going into our lakes, rivers, and streams.
- Shared a message that the President gave at the last America Recycles Day re: the importance of recycling, composting, and reusing to address the global climate challenge.
- Containers and packaging comprise the largest component of the waste stream. Recovery efforts to-date have been voluntary and there is room for improvement.
- How far can voluntary efforts take us? What can industry bring to the table?
- Nine of the top 10 items picked up on annual coastal cleanup days are packaging and disposable service ware items.
- 42% of greenhouse gasses produced in the U.S. result from the provision of products and packaging. Wal-Mart set a goal to reduce packaging 5% and that resulted in the equivalent of taking 200,000 trucks off the road permanently.
- Working to get the L.A. region and the San Joaquin Valley into attainment with the Clean Air Act.
- NRDC report on jobs. Attaining a 75% recycling goal nationally would add 110,000 jobs to the economy.
- If California can accomplish this, so goes the rest of the nation. Example, banning plastic microbeads started in CA and is now a national law.

<u>Questions</u>

Q: Patty Moore: the goals in California have swapped from that of diversion to recycling. When the 75% goal talks about reducing greenhouse gasses, there is a conflict between waste prevention (source

reduction) and recycling at times. California needs to consider what is your goal? Reducing GHGs or reducing and recycling materials? The hierarchy shows that waste prevention is more important than recycling.
A: Jared Blumenfeld: There needs to be a balance in looking at the numbers and getting the work done.
A: Howard: Disagrees with much of what you said, the law specifically states source reduction, we're doing a lot there, particularly with food waste reduction. Perhaps we should have a side conversation.
Q: Teresa Moulton: there are so many templates for packaging labels out there internationally – have you guys considered any of these?
A: Jared Blumenfeld: Need to take as many good models out there as we can but understand that there are cultural and geographic differences that affect efficacy.
Q: _?_: How do you motivate people to recycle?
A: Need to educate people in the language and in a way that they understand and continue to reeducate.

Panel 2

Karen Bandhauer, Project Director, The Recycling Partnership

- 501(c)3, mission-driven organization – not member-driven.
- Formerly Curbside Value Partnership, used to focus on education.
- Now work extensively with residential curbside, very engaged around operational support.
- Focus on quality and quantity, behavior change, recommends best practices.
- Has a technical council, City Partner Network, State Leaders Group.
- Since July 2014, has awarded 7 grants resulting in $11 million in infrastructure improvements, 248,200 tons of material collected.
- Additional $6 million in community improvements.
- Most population centers in California have carts.
- Potentially some opportunity to expand cart access in California through existing grant program
- Regional vs. statewide work is needed – at the local level.
- Can't educate our way out – need convenience, relevance, positive perception, reducing confusion.
- Need common lists of accepted materials to improve material quality.
- Not enough material is pushing through system in California.
- Work would have to be regional. Getting to scale in California would require adequate funding, which would have to come primarily from local governments, then haulers and MRFs.

Christopher Ladd, Director and CFO, Closed Loop Fund

- Want to make system changes.
- CLF overlaps with three of California's top 75% priority strategies.
- Investing $100 million to increase recycling in the U.S.
    - Focus on building infrastructure to create systemic value. E.g., Plastic recycling facility in Baltimore, MD (QRS)
- Loans to private companies and municipalities (typically 5-10-year loans).
- If we make the right investments and achieve our projections, hope to save local governments around $2 billion in landfill tip fees and generate revenue. Hope to unlock an additional $400 million in private capital.
- Invest in collection, sortation, secondary processing, and end-market development.

- CalRecycle should explore new funding models, such as a green bond with private industry and/or foundations providing loan guarantees.
- Glass, problematic across the country.
- Film – beginning a study with a partner, MRF-level and end market development.
- Doing work on organics and food waste.
- Do below-market interest for private entities. E.g., if the interest rate for a private company is 5%, we drop it to 2-3% and change the repayment to ensure the facility can get up and running. Average loan is 5-10 years and goal is to have the loan be repaid, plus interest, from the success of the loan.
- Projects to-date hope to become case studies that can be used and implemented elsewhere.
- In 2014, California sold a green bond for uses – not recycling – but other environmental uses and this can be a model that can be used for reaching CalRecycle's goal.
- The solution is investment, has to be voluntary.

Questions

Q: Has anyone done analysis of who is doing the most recycling in California?
A: Karen Bandhauer: We have data only on the grantees we have so far and none are in California.
A: Chris Ladd: Haven't spent enough time to understand the economic need here in California.
Q: Conrad: RP tends to use pounds per household; why do you use that metric and can you explain how it can align with the statewide goal to increase recycling by X percent?
A: Karen Bandhauer: Recycling and recovery percentages are hard to calculate and there are a lot of things that affect those numbers that are hard to account for and are out of our control. Pounds per household is used in other places and we can use more of an apples-to-apples comparison. However, it's highly dependent on participation. Recycling Partnership will be focusing more on waste sorts to calculate metrics. Need to make sure that the existing infrastructure utilizes best management practices so that the material moving through it is quality material.

Comments

- From Susan Collins, CRI:
    - Estimates that California is already spending an estimated $3/4 billion on residential recycling alone.
    - Largest percentage of costs are operational (90%), not capital costs.
- Chris Ladd: System is broken. Municipalities might not be running efficiently. If you're paying for recycling you have a problem.

Panel 3

John Picciuto, President, Western Plastics Association

- Highlighted member company Command Packaging that collects, washes, and recycles CA agricultural film; it uses post-consumer recycled PE resin produced by its sister company Encore to make reusable grocery bags and other products.
- Highlighted Roplast Industries, actively developing a certification process for PCR; Heritage Plastics; Titus, built a plastic recycling facility (PRF); Repsco, PCR in slip sheets; NatureWorks, a bioplastic resin manufacturer.
- Members produce:
    - Flexible food packaging – film products such as bags, wraps, pouch components
    - Industrial bags – trash, institutional

        - Can include PCR
        - Trash bag PCR law already required 10% PCR; has not succeeded due to little verification, especially of overseas manufacturers.
    - Plastic carryout bags – reusable, merchandise, grocery
        - If SB 270 referendum fails, 20% PCR required
        - But customers want PCR now
        - Need verification/certification of PCR to level the playing field; working with APR on this. Without it, CA & US manufacturers are at a big disadvantage.
- Control over design of flexible food packaging is with brand owners. They are our customers, they make these decisions. If something costs more, customers are not willing to pay for it.
- Increasing Postconsumer Resin (PCR) in bags/film will get more flex packaging out of landfills.
- What the WPA can do
    - Work with recycler members to increase diversion and reprocessing.
    - Push manufacturers to incorporate PCR.
    - Publish list of quality PCR sources.
    - Promote sustainability and reduction of waste.
    - Work to establish an enforceable system of PCR verification/certification with APR & CalRecycle.
    - Enlist support from trade associations outside of California.

Robert Helminiak, Vice President, Science and Regulatory Affairs / Kim Holmes, Senior Director of Recycling & Diversion, SPI: The Plastics Industry Trade Association

- SPI is made up of four councils:
    - Material suppliers
    - Equipment & Mold Makers
    - Processors
    - Brand Owners
- SPI recently added, "Pursue Zero Waste Strategies" to its mission statement.
    - Rigid Plastic Packaging Committee and the Food, Drug, Cosmetic Packaging Materials Committee can work with CalRecycle and others on these issues.
- Recyclers – not a council, but a new group within SPI – Kim Holmes' group
    - Many recovery projects/efforts – wants to make sure that their projects are scalable and replicable and bridge supply and demand, demonstrate technical and economic feasibility.
    - While these projects are not taking place in California certainly they would be transplanted.
    - Highlighted many of the projects SPI has funded/supported, including:
    - SPI is an inaugural member of Recycling Partnership.
    - Healthcare Plastics Recycling Project
        - Working on a pilot project for flexible packaging in Chicago.
        - 7 hospitals, 4 recyclers/haulers, 2 additional financial sponsors.
    - Development of a Plastics Sustainability Research Lab at UMass Lowell.
- Using PCR is not novel, it's just what you do.
- Need to recover retail garment bags, vehicle plastics (End-of-life vehicle program, RILA – collect film from clothing), etc.
- Energy recovery a good option for non-recyclable plastics.
- Education

  - Re I focus Recycling Summit & Expo – challenging the plastics industry to reimagine manufacturing with increased use of recycled content, better design for recycling, and overall sustainability.
  - Recycleplastics365.org
  - EPS recycling technology guide
  - Compatibilizer guide
  - Sustainability benchmarking tool
  - Plastics energy recovery team (part of ACC) – technologies that convert plastics into secondary tradeable commodities. Support this as a supporting component to the broader solid waste management picture for plastics.

Kyla Fisher, representing AMERIPEN

- Stress the importance of collaboration and AMERIPEN's reliance on scientific data to develop policy positions.
- The recycling stream has changed significantly in the last decade; has a significant impact on how future recovery goals will be set and evaluated.
- Recycling stream used to be an 80/20% mix of fiber to containers, that has shifted to a 60/40% mix; expect that to continue to change with additional packaging innovations in the coming decades.
- Strongly support a Sustainable Materials Management (SMM) Framework (espoused by US EPA, G7 and OECD countries).
- Although CalRecycle has looked at the 75% reduction holistically, we question/are concerned that the Manufacturers Challenge is a digression from the SMM framework and may inadvertently detract from the overall objective.
- There is a valued nexus between packaging and food waste
  - Ex: shrink wrapped cucumber extends shelf life.
  - Organics is the largest component of the waste stream.
  - Encourage CalRecycle, as they divide strategies between organics and packaging, to consider the interlinkages and ensure that in enacting programs and policies that you don't inadvertently penalize packaging that may reduce food waste; there may be merit in incentivizing certain packaging to reduce food waste.
  - CalRecycle should explore opportunities and challenges between organics and packaging collection.
- AMERIPEN intends to convene a working group to explore policies and programs that would support the packaging and food waste nexus and would like to engage CalRecycle.
- AB 341's revised definition of recycling does not demonstrate support for alternative end-of-life technologies.
- AMERIPEN encourages CalRecycle to look at energy recovery for hard-to-recycle materials as a strategy for state goals. Could be a unique leadership area for the State.
- Re: recycling infrastructure, as there may be conflicts with state water goals and existing recycling technologies. In some cases, it may make more sense to move some materials out of state and invest in generating new technologies such as energy recovery that can effectively address multiple statewide environmental goals.
- AMERIPEN would be willing to offer support to CalRecycle in approaching the Legislature to request an energy recovery program that compliments but does not replace existing recycling infrastructure.
- Industry has invested in research to determine best practices in recovery across the country.

- Anticipates an update to the 100 Cities Survey later this year.
- Need a toolbox approach, multiple strategies. There are existing or underutilized tools that can be adopted to help CalRecycle.
- Need simplified consumer messaging. Must engage the end user.
- Supports Sustainable Materials Management (SMM). Need to be sure that any packaging recovery approach doesn't conflict with US EPA's SMM approach or with the state's water goals.
- Metrics based on tonnage are not effectively capturing source reduction successes, GHG emissions, or recycling successes.
- CalRecycle should:
    - Develop working group with CalRecycle
    - Adopt and SMM framework
        - Food waste/packaging nexus
        - Encourage utilizing energy recovery for difficult-to-recycle materials; specifically, CalRecycle should approach the Legislature with an energy recovery bill that complements other approaches. No (other) effective recovery for multilayer pouches.
    - Support and encourage use of SPC's How2Recycle label. Need simplified messages to shift consumer behavior.
    - Collaborate and engage voluntary industry efforts.
    - Explore additional metrics (such as tonnage/GDP, tonnage against GHG emissions, and volume against weight). Changes to metric weights will help measure diversion.
    - Change framework on how we address packaging (Upcycling, gasification, pyrolysis).
    - Allow more time to show impacts of existing efforts (2014 waste characterization study doesn't reflect this yet) and allow voluntary efforts in the meantime.
- AMERIPEN is happy to assist CalRecycle as it works on these efforts.

<u>Questions</u>

Q: Is the industry working to make multi-layer pouches recyclable?

A: Kim Holmes: Emily mentioned she has some members working on design for recyclability, to make sure the layers are compatible with each other and that they can go through a mechanical recycling process. The Material Recovery for the Future project looks at how to get them from household to the processor. It takes time to prove out the process and demonstrate the economics.

A: Kyla Fisher: Multi-laminates are an excellent example of source reduction. There is a challenge at end-of-life. Many aspects to consider with recovery besides technical recycling, such as end markets, sorting, processing. Dow's Energy Bag is a great example of collaboration. SPC has a working group on multi-laminates. There are opportunities to upcycle multi-laminates but at this time there is no effective solution for recovery that we're aware of.

A: John Picciuto: This is an important question, since the growth curve for stand-up pouches over the next 3-5 years is 3-5% so this is one that the industry has to get its arms around.

Q: John Dane: for Kyla: appreciate your science-based approach. Re: SMM, you mentioned that the CalRecycle goal of 50% reduction of packaging in landfills by 2020 might run counter to SMM approach or goals, can you elaborate?

A: Kyla Fisher: Don't want CalRecycle to think that I'm challenging you on the Manufacturers Challenge. I'm saying that looking at packaging in isolation removes you from SMM, you fail to look at the lifecycle,

the flows. Is recycling the best solution? How are the materials flowing? Will need to tackle things incrementally, but then bring them back into the wider picture.
Q: From Conrad MacKerron: Pouches are a significant problem since their use is rapidly increasing and they're put on the market designed to go into the landfill. Need to be a huge priority for industry. Can you talk about R&D that may be occurring?
A: Kyla Fisher: Respectfully challenges Conrad that there is not a solution; it may not be a recycling solution, but we do have upcycling opportunities, gasification and pyrolysis. Maybe we should be changing the framework of how we're addressing packaging. Goes back to the SMM framework – is recycling the only solution? No, not at all. Don't know the numbers that industry is investing but it is an area that we want to focus on and innovate end-of-life solutions for.
A: John Picciuto: This is an area where the brand owners need to take the lead.
A: Robert Helminiak: Individual companies are going to have to tackle this problem. There are alternatives; energy recovery is a viable alternative that is used around the globe. Should be considered.
A: Kim Holmes: Looking at design for recycling as a criteria in product development is a big thing but not the only lens by which we should be looking at product development; if we were, we'd be missing the boat on a lot of other sustainability advantages.
Q: Patty Moore: could you talk more about how you're trying to verify PCR?
A: John Picciuto: Early in the conversation. When it comes to validation or certification, there are two areas to address; one is where the PCR is produced and then making sure it's incorporated into the film. Need to get stakeholders like CalRecycle, like APR involved to try to move it forward.
Q: Mike Mohajer: To Robert: What, specifically, will your organization be doing to pursue zero waste and what zero waste means to your organization.
A: Robert Helminiak: Developing zero waste strategies are part of our mission statement. Our recycling group can now interact with other players in the product chain. We're trying to find ways to economically recycle products, trying to find better systems and procedures to do that. Testing pilot programs where we can transport it to other areas like California.
A: Kim: Our organization has made an important acknowledgement that recycling is important and these materials do not belong in the landfill but go back into manufacturing and the highest and best use.
Q: Robert Bateman, Roplast Industries: Could the panel comment on opportunities for government and industry cooperation? For example, we make reusable plastic bags. SB 270 could result in reduction of 10,000 tons of material per year and the PCR mandate, if properly certified, could result in an additional 10,000 tons that is used in producing the bags that can be done in California. Will only happen if industry and government works together to produce plans like this one and inevitable result in laws and regulations that will make it possible to raise these savings.
A: Kyla Fisher: Industry and government do collaborate. E.g., AMERIPEN has a technical advisory group that has some state and local government representatives. You don't have to have mandates, there is a lot that can be done on a voluntary basis. Sometimes mandates do help but you need to make sure you have the scientific data to ensure the research demonstrates that. Sometimes it does, sometimes it doesn't.
A: Robert Helminiak: Partnerships are essential. There's something to say about the progress that's already been made and getting credit for that. Light weighting in plastics in the last 20 years has been huge progress and calculating that to see how much progress has been made is probably something we should do and possibly something we can work with CalRecycle.
A: John Picciuto: As an organization, WPA is not supportive of bans, but the reusable bag is an opportunity for us, especially with the use of PCR.

Comments

- Patty Moore: Re: PCR verification, need to look at this not just for film but for other types.
- Cynthia Dunn: Want to make sure everyone's clear; we've tried to emphasize repeatedly that we're not asking for anyone to only look at the recycling aspect. We have to pull packaging out of the waste stream. We offered a voluntary goal of 50%. We've gone out of our way to understand the different perspectives and recognize that there are a lot of goals that companies are trying to meet, and not all of them are focused on recycling. We are taking a holistic look and think it's a false argument that CalRecycle or the Manufacturers Challenge is asking for only a very narrow perspective of this issue.
- Howard Levenson: We operate under an AB 341 framework that focuses on source reduction, recycling, and composting. Energy recovery, gasification, pyrolysis are in a statutory definition that places them in a disposal category. There have been lots of discussions about changing that for many years and many bills that have tried but not been successful. CalRecycle, and Scott, have acknowledged that we need to continue to discuss what is the role of energy recovery but right now we are very constrained to exactly what the statute says. We understand the need to have that discussion.
- Kyla Fisher: What you heard from industry today is that we are more than willing to help you guys have that conversation.
- Susan Collins: While light weighting has occurred in some cases, consumption has increased (e.g., PET water bottles) so those factors play against each other and that has to go into the equation. CalRecycle is very bottom-line oriented in this; what is still going into our disposal stream? CalRecycle does study an issue very thoroughly and approach issues with a science-based approach.

Panel 4

Meghan Stasz, Grocery Manufacturers Association

- Emphasize the area of food waste prevention as a huge opportunity. Food wasted because of failed packaging is worse (uses/d more resources from a lifecycle perspective).
- Looking at the ten most prevalent material types disposed in CalRecycle waste characterization data, it's a huge success that packaging is not on this list.
- Many different factors go into package design or redesign efforts.
- Source reduction should not be overlooked
    - Cited GMA-sponsored study that suggests that although the GDP growth is increasing at a faster rate than the European Union (EU), the U.S. is generating less packaging than the EU.
- Because of industry's commitment to the environment and because SMM goes beyond our packaging design decisions, a number of companies have contributed to or participated in voluntary efforts trying to unlock some of the last challenges around:
    - How to get consumers to recycle
    - How to improve MRF technology around the country
    - How to put in place some best practices
    - Cited the Recycling Partnership, Closed Loop Fund, and How2Recycle Label
- Value of material and effect on the supply chain.
- Energy recovery has a role to play.
- Partnering with other voluntary initiatives.

- Holistic approach is important; cautions against overly-narrow thinking because, "Sometimes when you're a hammer everything looks like a nail."
- Streamline recovery message across California.
- Cost & efficiency
    - Look at what's working in California and replicate – this needs to be done – perhaps a partnership opportunity?
    - Conduct cost-benefit analysis.

Kate Krebs, American Beverage Association

- Divert 94% of waste at the North American bottling plants and doing everything we can within our manufacturing systems to ensure that our environmental footprint is as small as possible.
- Very supportive of this collaboration. Think that stakeholders, especially manufacturers should be involved.
- AB 2020 and bottle bill has not allowed the industry to change and adapt to the economy and the recycling infrastructure that has developed in California.
- Under a voluntary system, there is collaboration and more opportunity to adapt and maximize the investment that you're making in the system.
- In our perspective, AB 2020 is not an EPR system; it is not controlled by the Producers yet it has a lot of the elements in place that you see in Canadian and European EPR systems. It's not a system we would support. We support collaboration and maximizing investments that are made.
- Our members are participating in many of the voluntary partnerships mentioned here today and are committed to optimizing packaging.
- Would prefer the opportunity to operate under a voluntary system, what the Manufacturers Challenge is suggesting.
- Recognition of existing investments and infrastructure, but there are challenges with CA's bottle bill infrastructure to maximize investment.
    - Learn from what has worked and what hasn't
    - Are there things we should change in order to hit new goal?
- Carbonite plant investment.
- Need good end markets.
- Look at long-term investments.

Terry Webber, Director, Government Affairs, American Forest & Paper Association

- Tracking paper recovery since 1990.
- Paper is the oldest recycling success story – around 33% in 1990 to 65.4% in 2014.
- AF&PA is involved in a number of partnerships.
- Difficult to determine how to come to an appropriate baseline and % goal for paper recycling/recovery.
- Defend achievements to-date and protecting existing high-performing efforts during policy discussions.
- 2020 Sustainability Goals – 70%+ recovery goal
    - 50 million tons recovered
    - Almost 9/10 of the way towards the goal
- California baseline tonnage numbers – more discussion welcomed.

- Global recovered paper demand will outstrip supply in coming years.
- Opportunities for increased recovery in paperboard, containerboard & multi-wall bags, and office papers from office buildings, smaller commercial/institutional, and exurban communities
- AF&PA generally opposes:
    - EPR for paper – can interfere with the tremendous progress that has been made to-date
    - Recycled content mandates – working on a project with MIT to identify the sources and EOL uses of paper and the effect of recycled content mandates. Both manufacturing costs and environmental impacts are higher. Research done for AF&PA by the research firm RISI conclude that higher recycled content mandates do not drive increased paper recovery when the recovery rate is as high as it has been in the U.S. for so many years.
    - Product taxes and bans
    - Mixed waste processing systems
- Single stream recycling is a challenge. Oppose comingled recycling because of the reduction in quality for paper in the waste stream.
- Variations in mill processing capabilities are a challenge to increased recovery.
- Free market best serves recovered paper markets.
- Do a tremendous amount of education- paperrecycles.org.
- Supports best practices for sustaining recovered paper markets.

<u>Questions</u>

Q: John Dane: For AF&PA, can you explain why the chart that showed amount of paper going to recycling continued to increase and a dramatic reduction of paper going to landfill during 2007-2012 despite the Great Recession?

A: Terry Webber: Would need to verify, but this is a very complex calculation and when you have economic cycles like the one with the Great Recession they generate a different mix of products, less packaging; probably has to do with the overall mix of paper in the marketplace.

Q: Conrad MacKerron: For AF&PA: Can you elaborate more on what you can do here in California? For example, one of the most progressive commitments from a company in recent memory is Starbuck's saying they're going to recycle all the cups in their stores – and now they're finding they can't find markets for them. Are you willing to reach out to the 14 mills you have in California and see if they will take the Starbuck's cups and are you willing to provide incentives to make that happen? This kind of collaboration is an example of what is needed here in California to help reach this goal.

A: Terry referred to Lynn Dyer to elaborate on a joint project. Acknowledged it is an issue and they are working on it.

A: Lynn Dyer: One of the issues we're running up against is end markets – you need end markets. There are tremendous differences mill-to-mill in terms of equipment and processing technologies. Also running into issues of the products that they're making. We're looking at what types of mills are better outlets. You have to find the right mill for what you're trying to do.

<u>Comments</u>

- Susan Collins: Highlighted that US EPA total disposal data is often cited (about 250 million tons/year) but that several recent reports have come up with about 400 million tons/year. So there are millions of tons of materials that are unaccounted for and we just don't know from which product categories.

- Susan Collins: Packaging that is imported with imported goods (e.g., iPhones are individually packaged with plastic and paper boxes within larger boxes put on pallets that are wrapped in shrink wrap) yet that packaging is not counted in the Containers and Packaging category.
- Terry Webber: In terms of imported packaging, that's also true of exports.
- Mike Mohajer: From a local government perspective, I expected to hear from the panel what they would do about the 25% of the waste that is packaging, and this all costs a lot of money. There is a need for partnership and somehow we can come up with something.
- Meghan Stasz: I think you heard countless examples of partnerships today. There were countless examples of best practices that California can absolutely adopt, that your municipality could do or CalRecycle could do. Agree that the mandatory organics recycling law will be very expensive to comply with, a lot of infrastructure to build out, but please remember that this will also be very expensive for businesses to send their food waste to those facilities as well. A lot of cost associated across the board.

<u>Facilitated discussion</u>

Howard Levenson summarized some of what he heard throughout the day:

- Many collaborative efforts within and across packaging groups and types.
- Much in the way of voluntary partnership efforts are aimed at:
    - Outreach and education (e.g., consistent, harmonized terminology)
    - Need to set goals and baselines
    - Enhanced us/participation of existing curbside and other infrastructure
    - Improving MFR performance and material recovery in general
    - Some industry funding for individual projects – some R&D, some program, some infrastructure
    - PCR verification
    - Role of brand owners
    - Sustainable Materials Management
- Hopefully CalRecycle attention over the last couple of years has fostered even more communication and partnership.
- Challenges we heard:
    - Difficult to set goals, track progress
    - Difficult to consider long-term budget commitments
    - Difficulty to work in California versus nationally
    - Access to recycling is not the same as actual recycling
    - Industry is already expending considerable funding on increasing source reduction and recycling of packaging.
    - More is needed on source reduction although we need to acknowledge that even if source reduction were to double, there would still be significant – millions – of tons to manage at end-of-use.
    - Particular packaging types are small contributors to the overall disposal stream. CalRecycle recognizes that this is a complex industry, there are many types of packaging but want to remind everyone that we already have laws in place with many material types that deal with that percentage of the waste stream – carpet, mattresses, old newsprint, beverage containers, rigid plastic packaging containers, trash bags, etc. so it can be done at that smaller level.

    - Didn't hear a lot about long-term goals, about how we'll get there collaboratively.
- Regarding funding, did not near a lot of specifics; we heard:
    - Increase in tip/generator fee
    - More funding needs to come from locals and haulers
    - Continued voluntary funding
    - Loans, bonds
- Howard indicated that CalRecycle is primarily in listening mode. Questions posed to the audience:
    - Is this enough? Does what we heard today equate to a sufficient collective and collaborative effort to reduce and recycle packaging such that we see a 50% reduction in disposal by 2020?
    - Did we hear enough about long-term significant goals, baselines, and funding?
    - What do we need to think about here at CalRecycle that we haven't heard so far?
    - Do the partnership projects mentioned – pilots, R&D, etc. – hold promise and feasibility for being scalable to address…
    - Is there an appetite to implement national ideas and concepts in California?
    - How can all of this be funded on a voluntary basis?

- John Dane: Suggest a "Round 2" and "Round 3" to continue discussions. Suggests that CalRecycle should put together smaller working groups to identify specific objectives that would tie to milestones by industry type. Purpose would be to get greater clarity and more identifiable and specific objectives.
- Chuck White:
    - AB 939 was pretty well implemented at the local level, responsibility was put on local governments with potential penalties for not meeting the 50% diversion, but now we're getting away from the low-hanging fruit, getting into very costly collection and processing measures. I hear local governments saying there's no way they can be asked to cover the cost of doing this on their own. They're asking why can't manufacturers step up in some kind of shared responsibility to share this cost. From the hauler's perspective, we'll perform whatever service the local government instructs us to. The idea of the generator fee puts the burden on the local government and the citizens of that local government with very little responsibility being put on the manufacturers that make the products that at some point in time are going to require disposal. Not suggesting a full EPR mode but why couldn't there be some kind of attempt to bring the sides together to talk about some kind of shared responsibility…50/50, 60/40, whatever. Perhaps it's time to have a real discussion about EPR in some form. Local governments are not necessarily willing to give up control and service providers will do the work as long as they're compensated.
    - Lifecycle Assessment (LCA) is complex and nebulous.
    - Is it realistic to get to 95% organics recycling (referring to Air Resources Board's proposal) without discussing thermal technologies?
    - Perhaps there's a category that can be created that's not quite disposal and not quite recycling…
- Justin Lehrer: Voluntary activities are meaningful in many cases, but they plateau. Alameda County StopWaste did voluntary programs for about 20 years. We found they plateaued and at a certain point our boards and the 16 cities and communities in Alameda County determined that a

voluntary approach was not going to help us meet our 2020 goals. So now we have mandatory commercial recycling and composting, and we have specific projects targeting source reduction, food waste, and packaging, to drive recycled content. As we move further along and make more progress we have to look at different approaches and I don't think voluntary can get us there. I appreciate the engagement from industry today and other stakeholders but want to encourage more openness to the issue that the status quo of voluntary programs isn't going to shift the existing problem, isn't going to solve the problem entirely. Need to embrace realistic approaches, new funding ideas, coming back to Chuck's comment, an adult conversation about it. Final point, earlier it was mentioned that energy recovery is a viable alternative and is used across the globe, what I immediately thought was, so is EPR.

- Lynn Dyer: Asked Justin Lehrer how long it took to see results from these mandatory programs. We want to see how Mandatory Commercial Recycling works – results – first, before we propose new efforts, and that takes time.
- Justin Lehrer: Agree it takes time, don't have the numbers in front of me, but mandatory has stoked more action and recovery.
- Howard Levenson: AB 939 took 15 years or so, mandatory commercial recycling will be measured the next time we do a waste characterization study. Mandatory commercial organics just started so it's going to be a while. AB 901 passed last year, and that's going to enhance the enforcement capabilities on our disposal reporting system and will allow us to get more data on the flow of materials through the system but it's going to take at least a year to do the rulemaking and then implement and so that's going to be a while. We've been using 2020 because it's in AB 341 but, at least at the staff level, we're open to hearing from industry if different goals or timelines are necessary. The point of the Manufacturers Challenge is that we want to see significant achievement in X number of years. We need feedback from industry of where's what it's going to take X number of projects, X amount of funding, X amount of years to reach a meaningful target.
- Chuck White: Recall CalRecycle doing a greenhouse gas and energy life cycle assessment and I don't think that ever got finalized because it got so complicated and all the stakeholders have their own opinions on what values should be used. Wonder what Howard thinks could be used to measure that gets away from tonnage and moves more toward a SMM framework to evaluate what is the best option for managing materials?
- Howard Levenson: Part of the issue is that we have to implement the laws the way they're set up; where we can make linkages we do. The best example is in organics, we do a tremendous amount of work with the Air Resources Board quantifying emission reduction factors far more refined than the WARM model for organics and different organics pathways, we've done work with them on carpet and other reduction factors, we're now working with Food & Ag trying to quantify the benefits of organics being applied to the soil in terms water conservation, quantifying some of these externalities that are part of the SMM; it's exceedingly hard to do. We tried to do an organics LCA maybe 7 years ago, it was so fraught with problems partly because you couldn't see the underlying data and assumptions. Just did a used oil LCA but those are exceedingly difficult and fairly well defined universes. When you think of trying to do this on all of packaging…LCA is great conceptually but in practical terms, when you're trying to implement something, you don't have 10 years and $10 million to do those kinds of studies. Where we have a chance to look at those other parameters we do, but it's kind of hit and miss.
- Chris Ladd: I spoke earlier about a co-funding model where it could be a green bond where California raises it, there's some involvement from industry, the corporate world, to enhance that.

Or there could be a co-funded model like the Closed Loop Fund. What we've learned with the Closed Loop Fund or our governance structure is the enhancing or forcing a level of collaboration that wouldn't happen otherwise. These companies have invested money into a fund, they sit on an investment committee, we bring deals to them and the conversation isn't about "my company's" particular commodity or problem – it's about the system and the solutions that the system needs. Use the analogy that a rising tide lifts all boats. For example, we're spending a lot of time on glass. Glass has nothing to do with Pepsi or Coke largely are doing, or Unilever, but they understand that if we provide a solution for glass that MRFs, which are a vital part of the recycling system will benefit across the U.S. and recycling will become more profitable. There are many different interests and many different problems in California, but perhaps a way to tie everything together is something like a co-funding model. There's obviously a lot of work to do to understand the size, the allocations, etc. It could also be a way to develop sustainable business models into the future, it's worth exploring – the level of collaboration I've seen is unprecedented and think it could be replicated here and could be a model in other states.

- Kate Krebs: The brands I work with use LCAs to make packaging decisions, so there's a wealth of that kind of information out there. Industry may share LCA data if it was to be used to "move things forward." Also, the collaboration and ability to utilize the different kinds of tools and funds that were put forward today it would help if we knew, priority-wise – what you are looking for. Would help us in our internal discussions when we're doing our budgets because our budgets are annual also. If there's a long-term strategy and some short-term gaps that you have in terms of information, it would be helpful for us to know what that is.
- Howard Levenson: In terms of LCA of product formulation A versus B – that goes on all the time and that's quite doable; I'm talking about the difficulty of doing that on the macro lifecycle level with many products and management pathways – that's what gets exceedingly complicated.
- Kyla Fisher: What I heard today from industry is that we recognize this is a national challenge, looking at California we are looking at margins and what are those challenges in terms of, a) recycling and improving the infrastructure across the board, but also how do we work at the margins. Remind that infrastructure, change, behavior change takes time; those are the things we need to be looking at. Industry isn't shying away from offering a timeframe, but we can't offer one because nobody knows. We're in this unprecedented example of trying to revise a recycling system that is dramatically changing, that has shifted in the last decade and will continue to shift and looking at material flows that are national and international. I think we're committed to working with you guys but we need to remember that this is a national challenge and we're doing the best that we can do and giving a set example and a set solution is really difficult to do because it's unprecedented.
- Chuck White: I heard from the plastics folks that they'd like to be able to get energy out of waste plastics at some level. As you pointed out, Howard, that's very difficult, statutorily, in California. The Air Resources Board is talking about getting 95% organics out of the landfill by 2025. Seems like you're going to need some kind of conversion technology that deals with the paper, plastics, and the residual organics that you simply can't separate out of the waste stream. Is there a possibility of getting a coalition together that would be able to move that forward that's not full-blown disposal but not full-blown recycling, either? Don't see how you'll get to 95% otherwise.
- Howard Levenson: There have been many efforts and bills over the years to try and address this, but this is a very delicate subject. Don't want to speak on behalf of Scott on this issue. If others

want to take that up, if it's really important to the industries and stakeholders involved, they need to take that up.

- Conrad MacKerron: My understanding is that the Zero Waste Business Council wants nothing to do with waste-to-energy and doesn't want that to be part of the zero waste definition, and so for companies that are saying they want zero waste but are also promoting waste-to-energy there is a disconnect there. Zero Waste is a term that industry sometimes tries to self-define. I've spent the last 4 years or so talking with about 60 brands about producer responsibility for packaging and most of those brands will not answer the question about what their responsibility is. If you push them they'll say, "We don't want EPR" but they don't have a plan B. That's a fundamental issue that continues to be a problem. A second thing is that there's no platform for all these various trade associations to work together here in California. There's a lot of great information in the presentations today but they're all from their particular point of view – the beverage industry, the glass industry – but they need a platform to get together to work on what's going on in California. I didn't see that they had all worked together on the California issue much, it was too much national data and not enough focused on California. There was a huge lack of metrics on any of this. It's fine to say we gathered 5 tons of flexible plastics this year or collected so much film but that doesn't relate to how they're going to meet the reduction goal. If there's any other data out there that could be submitted, that would be helpful because I don't feel like there's a lot to chew on to say, "Here's what this industry told me today how they're going to meet this goal" which was a fundamental request that they've had an additional 6 months of extra time to work on. This is also counterintuitive to how these companies operate in a very rigorous business environment where you have sales goals, you've got to meet them or you're out, but when it comes to environmental policy suddenly it's a journey, it's a very soft focus and there are no goals, and I think they need to apply those business principles to the environmental policies and then we'll see some of the hard metrics.
- Howard Levenson: CalRecycle doesn't have a next definitive step. We'll assess all the comments we received today and put together some sort of summary of what we heard, what we think some potential options might be, will be something in public that shares our thinking based on what we heard today. We'll have something in the March/April timeframe, maybe a little longer.