Zero Waste Commission

City of Berkeley
ZERO WASTE COMMISSION
Regular Meeting

Thursday, May 16, 2024 at 5:30 p.m.
City of Berkeley Corporation Yard (Ratcliff Building, Willow Room)
1326 Allston Way, Berkeley, CA, 94702

MEETING AGENDA

PRELIMINARY MATTERS:

5:30 pm 1. Call to Order by Chair and Roll Call by Secretary

- **Steven Sherman (Chair),** appointed by CM Rashi Kesarwani, District 1
- **Christienne de Tournay (Vice Chair),** appointed by CM Sophie Hahn, District 5
- **Corey Busay,** appointed by Mayor Jesse Arreguin
- **Rhea Grover**, appointed by CM Terry Taplin, District 2
- **Dennis Uyat**, appointed by CM Ben Bartlett, District 3
- **VACANT,** appointed by CM Kate Harrison, District 4
- **Sandra Curtis,** appointed by CM Susan Wengraf, District 6
- **Swasti Johri**, appointed by CM Rigel Robinson, District 7
- **VACANT**, appointed by CM Mark Humbert, District 8

5:35 pm 2. Approve Meeting Agenda and Order of Agenda Items

5:40 pm 3. Approve Draft Action Minutes:

- April 18, 2024 Regular Meeting*

5:45 pm 4. Public Comment on Items Not on the Agenda
Speakers are allotted up to two minutes. Speakers may be allotted less time at the discretion of the Chair.

5:55 pm 5. Commissioner Announcements
Commissioners may make general announcements; no action will be taken.

6:00 pm 6. Staff Updates:

- Progress on SB-1383 Implementation
- SUDs Ordinance Implementation/Enforcement
- Organics Sampling

DISCUSSION AND ACTION ITEMS:
Members of the public may provide comments at the end of each discussion item and prior to the vote of the Commission on any action items. Speakers are allotted up to 2 minutes.

6:15 pm 1. Report out from the Special Events Subcommittee and Green Building Subcommittee

6:45 pm 2. Discuss Legislative Updates

7:15 pm 3. Discuss Future Agenda Items

7:30 pm 4. Adjournment

INFORMATION ITEMS:
Information items may be moved to discussion but no action will be taken.

1. StopWaste's Re:Source guide featured in Berkeleyside - Eco-expert shares tips and tools for dealing with unwanted stuff

COMMUNICATIONS:
Communications from the public are included as links or attachments in the agenda packet.

1. May 2024 CAW Local Government Collaborative – Legislative Updates*
2. FAQ about Buoy Plastic Safety*
3. Life Cycle Analysis for Buoy vs. Other Reusables*

***Indicates material included in the agenda packet**
**** Indicates material to be available at the meeting**

ADA Disclaimer: This meeting is being held in a wheelchair-accessible location. To request a disability-related accommodation(s) to participate in the meeting, including auxiliary aids or services, please contact the Disability Services Specialist at 981-6418 (V) or 981-6347 (TDD) at least three business days before the meeting date. Please refrain from wearing scented products to this meeting.

SB 343 Disclaimer:
Any writings or documents provided to a majority of the Commission regarding any item on this agenda will be made available for public inspection at the Public Works Department located at the address below.

Communications Disclaimer:
Communications to Berkeley boards, commissions or committees are public record and will become part of the City's electronic records, which are accessible through the City's website. Please note: e-mail addresses, names, addresses, and other contact information are not required, but if included in any communication to a City board, commission or committee, will become part of the public record. If you do not want your e-mail address or any other contact information to be made public, you may deliver communications via U.S. Postal Service or in person to the secretary of the relevant board, commission or committee. If you do not want your contact information included in the public record, please do not include that information in your communication. Please contact the secretary to the relevant board, commission or committee for further information.

Commission Secretary:
Julia A. Heath, Recycling Program Manager,
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jheath@berkeleyca.gov

Zero Waste Commission
Regular Meeting

In-person Meeting
April 18, 2024

MINUTES

The meeting was convened at 5:31p.m. with Sandra Curtis, temporarily elected Chair, presiding.

ROLL CALL

Present: Rhea Grover, Sandra Curtis, Corey Busay, Swasti Johri, Chrise de Tournay, Steven Sherman
LOA:
Absent:

STAFF PRESENT: Julia A. Heath, Zohe Slack,
MEMBERS OF THE PUBLIC PRESENT: 5
PUBLIC COMMENTS (on non-agenda items): 0

ACTION MINUTES:

- **Approval of the April 18, 2024 Regular Meeting Agenda**
  Action Taken: M/S/C (Sherman/Busay) to approve the meeting agenda for April 18, 2024.
  Ayes: Unanimous; Abstain: none; Absent: None

- **Approval of the March 21, 2024 Regular Meeting Minutes**
  Action Taken: M/S/C (Busay/Grover) to approve the March 21, 2024 meeting minutes
  Ayes: Unanimous; Abstain: Sherman, de Tournay; Absent: None

- **Public Comment**
  0 public comment. No Action Taken.

- **Commissioner Announcements**
  Discussion only. No Action Taken.

- **Staff Updates**
  - **Progress on SB-1383 Implementation**
  - **SUDs Ordinance Implementation/Enforcement**
  - **Tours of the Transfer Station for Commissioners**
  - **Staffing update (new Public Works Director)**

- **Berkeley High Student Presentation About Their Efforts to Get Reusable Foodware in Their Cafeteria**
  Action Taken: M/S/C (Sherman/Grover) propose that Commission will recommend funding this project to the City Council.
  Public Comment: 2

- **Discuss FY 2024-25 Zero Waste Commission Work Plan**

Action Taken: M/S/C (Sherman/ de Tournay) propose that Steve will complete the 2024-25 work plan with approved revisions.
Public Comment: 0

- **Report out from the Special Events Sub-Committee and Green Building Sub-Committee**
  Discussion only. No Action Taken.
  Public Comment: 0

- **Discuss future agenda items**
  Public Comment: 0
  - Inviting a speaker from Californians Against Waste to discuss new relevant legislation

- **Discussion Legislative Updates**
  Discussion only. No Action Taken.
  Public Comment: 0

- **Adjournment at 7:28 p.m.**
  M/S/C (Busay/Curtis) to adjourn the meeting.
  Ayes: Unanimous; Abstain: None; Absent: None

The next regular meeting of the Zero Waste Commission will be held on Thursday, May , 2024 at 5:30 p.m. in person at City of Berkeley Corporation Yard (Ratcliff Building, Willow Room) 1326 Allston Way, Berkeley.

Respectfully Submitted:

_____
Julia A. Heath, Secretary

To: CAW Local Government Collaborative
From: Californians Against Waste
Date: May 1, 2024
RE: May 2024 Legislative Update

Last Friday, the legislature completed its final policy committee hearings for bills in their House of Origin. Bills will be heard next in their respective Appropriations Committee, with the majority of the bills getting referred to the "Suspense File". The Assembly and Senate Appropriations Committees will hold simultaneous hearings ahead of the **May 17** deadline to read off which bills will be released from their respective Suspense Files. Bills will then head to the floor where they will be voted on by the Senate or Assembly by **May 24** to continue on in the legislative process.

With the new leadership in the Legislature, there are new chairs for both the Assembly and Senate Appropriations Committees: Assemblymember Buffy Wicks and Senator Anna Caballero.

If you are interested in adding your support to any of our priority bills, please email nicklapis@cawrecycles.org and krystal@cawrecycles.org with your name, e-signature and affiliation.

Californians Against Waste Priority Bills

Bill	Author	Description	Status
SB 1053	**Blakespear & Allen**	**Closing the Plastic Bag Loophole** - Would eliminate the use of "thicker" plastic film bags by establishing requirements for reusable bags sold by stores to customers at the point of sale. It would also revise the definition of "recycled paper bag" to require it to be made exclusively from post consumer recycled content. An identical version of this bill was introduced by Assemblymember Bauer-Kahan - AB 2236. *Author-sponsored, strongly supported by Californians Against Waste*	Passed Senate Environmental Quality Committee Will be heard 5/6 by the Assembly Appropriations Committee & is expected to be placed on the "Suspense File"
AB 2236	**Bauer-Kahan**	**Closing the Plastic Bag Loophole** - Would eliminate the use of "thicker" plastic film bags	Passed Assembly Natural Resources Committee

		by establishing requirements for reusable bags sold by stores to customers at the point of sale. It would also revise the definition of “recycled paper bag” to require it to be made exclusively from post consumer recycled content. An identical version of this bill was introduced by Senators Blakespear & Allen - SB 1053. *Author-sponsored, strongly supported by Californians Against Waste*	Awaiting Assembly Appropriations Committee Suspense Hearing
AB 660	**Irwin**	**Simplifying Expiration Dates** - Requires food manufacturers to use uniform terminology when labeling their products with "safety" or "quality" dates and bans the use of consumer-facing "sell-by" dates. *Co-sponsored by Californians Against Waste and Natural Resources Defense Council. This bill was introduced in 2023.*	Awaiting a hearing in Senate Agriculture Committee
AB 2577	**Irwin**	**Regulating Expiration Dates** - Would require CalRecycle to include product labeling requirements that reduce food waste in existing edible food recovery efforts. *Sponsored by Californians Against Waste*	Passed Assembly Natural Resources Committee Awaiting Assembly Appropriations Committee Suspense Hearing
AB 2761	**Hart & Lowenthal**	**Reducing Toxics in Packaging Act** - Would prohibit use of vinyl plastic (PVC/PVDC) in packaging, as well as prohibiting fluorination of plastic packaging (PFAS). *Co-sponsored by Breast Cancer Prevention Partners, Californians Against Waste, Clean Water Action, and Natural Resources Defense Council*	Passed Assembly Environmental Safety & Toxic Materials Committee and Assembly Judiciary Committee Was heard on 5/1 by the Assembly Appropriations Committee & was placed on the “Suspense File”

CAW-Tracked Assembly Bills

Bill	Author	Description	Status

AB 2	**Ward**	Would expand existing e-waste programs to include consumer photovoltaic solar panels and establish a producer-run program for commercial and leased panels. *Note: This bill is sponsored by the California Product Stewardship Council.*	Awaiting Senate Appropriations Committee Suspense Hearing
AB 347	**Ting**	Would allow CalRecycle to impose fines on manufacturers for violating existing prohibitions on PFAS in food-related packaging and cookware.	Awaiting a vote on Senate Floor
AB 408	**Wilson**	Would place the Climate-resilient Farms, Sustainable Healthy Food Access, and Farmworker Protection Bond on to the November ballot, including $200 million for organics infrastructure.	Awaiting Assembly Appropriations Committee Suspense Hearing *Note: As a bond that would go on the ballot, this bill is a ⅔ vote and doesn't need to follow the same timelines.*
AB 863	**Aguiar-Curry**	Would increase potential penalties on CARE from $10,000 to $50,000 per day, as well as stipulate that repeated violations render a stewardship organization ineligible to continue operating. *Note: This bill is sponsored by the National Stewardship Action Council and the author and sponsor are in active conversations with stakeholders about broad amendments.*	Awaiting a vote on Senate Floor
AB 1238	**Ward**	Would require the Department of Toxic Substances Control to develop alternative management standards for photovoltaic modules. *Note: While this bill is designed to support the recycling of PV Panels, we remain concerned that the bill could also unintentionally pave the way for more pyrometallurgical (smelting) facilities in the state.*	Awaiting a hearing in Senate Environmental Quality Committee
AB 1567	**Garcia**	Would place the Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, Clean Energy, and Workforce Development Bond on	Awaiting a hearing in Senate Natural Resources & Water Committee and Senate Governance & Finance

		the November ballot, including $50 million for organics infrastructure.	Committee *Note: Senate Governance & Finance Committee is not active this year, this bill has been sent back to review by Senate Rules Committee and is likely to be single referred to Senate Natural Resources and Water.*
AB 2214	**Bauer-Kahan & McKinnor**	Creates a workgroup to implement Statewide Microplastics Strategy.	Passed Assembly Water, Parks & Wildlife Committee and Assembly Environmental Safety & Toxic Materials Committee Will be heard 5/1 by the Assembly Appropriations Committee & is expected to be placed on the "Suspense File"
AB 2244	**Ting**	Bans bisphenols (the chemical family that includes BPA) in paper receipts.	Passed Assembly Environmental Safety & Toxic Materials Committee and Assembly Judiciary Committee Will be heard 5/1 by the Assembly Appropriations Committee & is expected to be placed on the "Suspense File"
AB 2311	**Bennett**	Would expand existing CalRecycle grants to include eligibility for transportation for edible food recovery projects.	Passed Assembly Natural Resources Committee Awaiting Assembly Appropriations Committee Suspense Hearing
AB 2313	**Bennett**	Establishes the Regional Farmer Equipment and Cooperative Resources Assistance Pilot Program as part of the Farmer Equity Act.	Passed Assembly Agriculture Committee Awaiting Assembly Appropriations Committee Suspense Hearing
AB 2346	**Lee**	Provides additional procurement options for local jurisdictions in meeting their SB 1383 requirements. As introduced, the bill will allow compost procured from community, on-farm,	Passed Assembly Appropriations Committee On the Assembly Floor,

		and backyard compost to count towards a jurisdiction's procurement requirement. It also allows investments in organics infrastructure to count towards procurement, and simplifies the use of direct service providers. *Note: This bill is sponsored by StopWaste, who is actively soliciting additional pathways for expanding compost market development. Please reach out to Kelly Schoonmaker.*	recommended for Consent Calendar
AB 2511	**Berman**	Would extend the sunset on CalRecycle's Plastic Market Development Payments to incentivize use and reclaim of rPET in the state.	Passed Assembly Natural Resources Committee Awaiting Assembly Appropriations Committee Suspense Hearing
AB 2514	**Aguiar-Curry**	Among other provisions, the bill would add waste-to-hydrogen and pipeline injection of biomethane to 1383 procurement. *Note: This bill is sponsored by the Bioenergy Association of California. While the bill has gotten better over two rounds of amendments, CAW continues to oppose the inclusion of additional waste-to-energy strategies to SB 54.*	Passed Assembly Natural Resources Committee Awaiting Assembly Appropriations Committee Hearing
AB 2648	**Bennett**	Would prohibit the sale of single-use plastic bottles in State facilities. *Note: CAW is opposed to this bill unless amended to remove "plastic" as there are concerns about unintended consequences of switching to harder to recycle single-use containers.*	Passed Assembly Natural Resources Committee Awaiting Assembly Appropriations Committee Suspense Hearing
AB 2734	**Bennett**	Expands upon the Healthy Soils Act: common application, allows equipment sharing, allows grants for up to 5 years for on-farm demo projects.	Passed Assembly Agriculture Committee Awaiting Assembly Appropriations Committee Suspense Hearing
AB 2762	**Friedman**	Would establish gradual targets for increasing the use of reusable beverage containers, as well as stipulate the creation of a Reusable Beverage	Passed Assembly Natural Resources Committee

		Container Managed System to oversee, govern, and facilitate reuse across industry stakeholders. *Note: The bill is sponsored by the Story of Stuff Project.*	Awaiting Assembly Appropriations Committee Hearing
AB 2902	**Wood**	Addresses a variety of issues rural jurisdictions face in SB 1383 implementation. The bill would extend the sunset for rural jurisdictions in the existing regs, but requires them to undertake other activities to divert organics. It would also direct CalRecycle to incentivize carbon farming, edible food recovery, and animal feed, as well as creating training and model ordinances for community composting. AB 2902 would also exclude exempt parts of counties for purposes of calculating the population-based procurement requirement, and allows jurisdictions with existing low population exemptions three years to come into compliance once the county exceeds the population threshold, and allows jurisdiction that generate less than 200,000 tons of waste or that are located in areas with large bear populations to apply for alternative 1383 compliance strategies. *Note: Californians Against Waste supports this bill in concept, although we have concerns about a couple of provisions. This bill is sponsored by Rural County Representatives of California (RCRC).*	Passed Assembly Natural Resources Committee Was heard on 5/1 by the Assembly Appropriations Committee & was placed on the "Suspense File"
AB 2916	**Friedman**	Would prohibit buoy, dock, and other pier-related devices from being composed of exposed expanded polystyrene.	Passed Assembly Environmental Safety & Toxic Materials Committee Awaiting Assembly Appropriations Committee Hearing
ACA 16	**Bryan**	Would enshrine the right to clean air and water and a healthy environment in the State	Passed Assembly Natural Resources Committee

		Constitution.	Was heard on 5/1 by the Assembly Appropriations Committee & was placed on the "Suspense File"
AJR 10	**Irwin**	Urges the President and Congress to enact the federal Food Date Labeling Act of 2023.	Passed Assembly Floor Awaiting a hearing in Senate Health Committee

CAW-Tracked Senate Bills

Bill	Author	Description	Status
SB 551	**Portantino**	Would streamline beverage manufacturer reporting requirements for recycled plastic content.	Passed Assembly Natural Resources Committee Awaiting Assembly Appropriations Committee Hearing
SB 615	**Allen & Min**	Would create an end-of-life management system for electric vehicle batteries that are not being used or repurposed.	Awaiting a hearing in Assembly Environmental Safety & Toxic Materials Committee
SB 707	**Newman**	Would enact the Responsible Textile Recovery Act of 2023, which would require producers to establish a stewardship program for the collection and recycling of a covered product. It would define a "covered product" to include any post consumer apparel or post consumer textile article that is unwanted by a consumer. The bill would also require a program operator to submit a complete stewardship plan to the department for review and Approval. *Note: This bill is sponsored by the California Product Stewardship Council.*	Awaiting a hearing in Assembly Natural Resources Committee
SB 903	**Skinner**	Would establish legislative intent to phase out non-essential uses of per-and polyfluoroalkyl substances (PFAS), which are "forever chemicals" that are hazardous to human health and the environment.	Passed Senate Environmental Quality Committee Awaiting Senate Appropriations Committee Suspense Hearing

		Note: This bill is sponsored by Natural Resources Defense Council & Breast Cancer Prevention Partners.	
SB 972	**Min**	This bill directs CalRecycle to provide additional technical assistance to local jurisdictions, along with reports to the legislature on SB 1383 implementation. *Note: This bill is sponsored by the California League of Cities.*	Passed Senate Environmental Quality Committee Awaiting Senate Appropriations Committee Hearing, recommended for Consent Calendar
SB 1036	**Limón**	Regulates voluntary carbon offsets to limit double counting and other "junk offsets."	Passed Senate Environmental Quality Committee and Senate Judiciary Committee Awaiting Senate Appropriations Committee Suspense Hearing
SB 1045	**Blakespear**	Proposes three changes to support the permitting of composting facilities: requiring Air and Water Districts to respond in a timely manner to permit applications, reclassifying compost facilities as Essential Public Services, and tweaking local zoning to support composting. *Note: This bill is sponsored by the California Compost Coalition.*	Passed Senate Local Government Committee & Senate Environmental Quality Committee Awaiting Senate Appropriations Committee Hearing
SB 1046	**Laird**	Would require CalRecycle to develop a programmatic environmental impact report that streamlines the development of small and medium-sized compost facilities.	Passed Senate Floor Awaiting committee assignment in the Assembly
SB 1066	**Blakespear**	Would establish a Producer Responsibility Organization for the financing and collection of unwanted or expired marine flares, in turn shifting the cost of managing this product from local ratepayers to the industry responsible for producing them. *Note: This bill is sponsored by National Stewardship Action Council.*	Passed Senate Environmental Quality Committee and Senate Judiciary Committee Awaiting Senate Appropriations Committee Suspense Hearing
SB 1113	**Newman**	Extends existing bottle bill pilot projects until	Passed Senate Environmental

		2033.	Quality Committee Awaiting Senate Appropriations Committee Suspense Hearing
SB 1135	**Limón**	Would establish the California Compost Tax Credit Fund which allows for taxpayers to claim credits for compost application and disbursement.	Passed Senate Natural Resources & Water Committee and Senate Revenue & Taxation Committee Awaiting Senate Appropriations Committee Hearing
SB 1143	**Allen**	Would establish a producer responsibility organization (PRO) for Household Hazardous Waste, which would be charged with financing, operations, and proper disposal. *Note: The bill is sponsored by National Stewardship Action Council.*	Passed Senate Environmental Quality Committee & Senate Judiciary Committee Awaiting Senate Appropriations Committee Suspense Hearing
SB 1147	**Portantino**	Would set health-based limits for plastic in tap water and bottled drinking water.	Passed the Senate Environmental Quality Committee Awaiting Senate Appropriations Committee Hearing
SB 1175	**Ochoa-Bogh**	Would require the State Air Resources Board to consider alternatives to census tracts when deciding boundaries for low-population or elevation waivers for waste reduction targets. *Note: The author has agreed to CAW's proposed amendments that would limit this consideration to future regulatory processes and not be retroactive.*	Passed Senate Environmental Quality Committee Awaiting a vote on Senate Floor
SB 1208	**Padilla**	Would prohibit the State Water Resources Control Board from issuing waste discharge permits for a new landfill in the Tijuana River National Estuarine Research Reserve or Tijuana tributary. This is targeting the proposed East Otay Mesa Landfill in San Diego County.	Passed Senate Environmental Quality Committee Awaiting Senate Appropriations Committee Hearing
SB 1231	**Allen**	Would create an on ramp for producers who do not qualify to make recyclability claims under SB 343 but are on track to	Passed Senate Environmental Quality Committee

		becoming recyclable under SB 54. *Note: Californians Against Waste is currently watching this bill and has no position.*	Awaiting Senate Appropriations Committee Suspense Hearing
SB 1280	**Laird**	Would prohibit the manufacture and sale of disposable propane cylinders. *Note: This bill is sponsored by the California Product Stewardship Council, and marks the third attempt at addressing this problematic waste stream.*	Passed Senate Environmental Quality Committee Awaiting a vote on Senate Floor
SB 1302	**Blakespear**	Would allow "recycling machines" to be certified to dispense CRV payout and receive processing payments.	Passed Senate Environmental Quality Committee Awaiting Senate Appropriations Committee Hearing
SB 1420	**Caballero, Archuleta, Dodd, Newman**	Would establish State Air Resources Board renewability quotas in retail hydrogen, require hydrogen to have no net increase in air pollutants, and streamline CEQA processes for biomass and hydrogen projects. *Note: Californians Against Waste is opposed to SB 1420 as written.*	Passed Senate Environmental Quality Committee and Senate Energy, Utilities and Communications Committee Awaiting Senate Appropriations Committee Hearing

Bills no longer moving

Bill	Author	Description	Status
AB 2844	**Calderon**	This was a spot bill on recycled concrete materials.	Dead. The author's office says they are not moving forward with this bill.
SB 1167	**Blakespear**	**Reusable Mugs for Dine-In** - Would prohibit chain restaurants from providing single-use drinkware to customers who are consuming their beverage on the premises. *Co-sponsored by 5 Gyres, Californians Against Waste, Heal the Bay, and Surfrider Foundation*	Dead. Did not pass Senate Environmental Quality Committee.
SB 1232	**Grove**	Would allow CalRecycle to issue waivers to "all or part of a rural jurisdiction where there is low population density and limited waste collection"	Dead. Did not pass Senate Local Government Committee.

		for meeting organic waste reduction targets. *Note: Similar to SB 1175, CAW is opposing this bill since re-opening the exemptions in SB 1383 would hinder program implementation.*	
SB 1349	**Padilla**	Bottle Bill Processing Payments	Dead. Did not pass Senate Environmental Quality Committee.
SB 1426	**Blakespear**	This bill undercuts local waste franchises by allowing businesses to use non-franchise haulers as long as they offer a different form of diversion. (For instance, anaerobic digestion instead of composting.)	Dead. Did not pass Senate Environmental Quality Committee.
AB 2658	**Bains**	Would exempt food processors from SB 1383 requirements if they already have programs in place to divert organics.	Dead. Did not pass Assembly Natural Resources Committee.

This dialogue was taken from an exchange with a conservationist who had concerns about the safety of plastic. Answers are provided by Adrian Colesberry, Founder/COO of Buoy. For more fulsome discussions of these issues, may please refer to my newsletter on LinkedIn.

Q: How does Buoy source their plastics?

AC: "On the question of how the materials are collected, cleaned and tested, I asked our resin provider, Envision, to assist with the response. They sent us this statement:

"Envision Plastics follows FDA guidelines to produce "fit for food contact materials". Envision Plastics has gone through challenge testing and migration analysis to make sure there is not any residue of potential contaminants suggested by FDA in the final "fit for food contact" materials. According to the FDA , the concentration of potential residue of contaminants must be below

320ppb. Envision Plastics historical GC analysis has shown that the concentration of contaminants have been below 320 ppb, mostly non-detectable.

> *Sources of Envision Plastics' "fit for food contact materials" Ocean-Bound Ecoprime are from food packaging. If there has been any additive used to produce these packages, the additives had to be food grade.*

> *Envision Plastics hired a consultant to study the additives which are being used in all virgin PE. According to the study, all additives used in the virgin PE are food grade. We hope you find this helpful!"*

Q: I have read articles talking about all the toxins found in recycled plastic stock. How can you be sure that your plastic does not contain toxins?

AC: "There are many articles floating around about how recycled plastics contain toxins. I don't debate these results. It would be weird if that weren't true. The highest concentration of what they found were plastic additives, which makes sense because they are added to many plastics. To make production more efficient and therefore cheaper, producers use the full range of additives for non-food uses, say detergent bottles. So as they did not do any separation in these studies, it is no surprise that they found these additives. I have written an article on LinkedIn looking at two studies, one on random plastics and one on food-safe plastics. In the non-food plastic study, they found toxins that would not have been used to make the plastic, because you can put anything in a plastic bottle. Without separating plastics formulated and used for food from plastics formulated and used to contain other chemicals, it would be expected that you would find that the chemicals being held inside the plastic bottle would have absorbed/adsorbed into/onto the plastic.

Even though food-grade, "natural" (meaning undyed), plastics can be quite easily recognized and sorted, the FDA recognizes that a consumer could use a milk bottle to hold something else after being emptied of its original contents or could have contacted some toxin in the environment after being discarded, so they direct recyclers to test that they can wash out chemicals that might have absorbed/adsorbed into/onto the plastic.

This is the challenge testing that Envision refers to, which is described in this FDA guidance document starting on page 9. To execute the challenge testing, Envision took virgin Polyethylene plastic, soaked it in a cocktail of nasty chemicals from

the given list, chemicals that a consumer could possibly store in a bottle or that might be in a polluted location: toluene, chloroform, etc. (Each chemical category serves as a surrogate for herbicides, pesticides, heavy metals, solvents and some other categories.) They then process, per their procedures, and see if they can remove the chemicals from the cocktail to below a very low safety threshold or undetectable. If you imagine that Envision has received ten bales of plastic where every container in that bale was used to store a pesticide, the process they use to clean the plastic has been demonstrated "by challenge" to be able to remove it. I hope this addresses the suspicion that the FDA is making a "blanket approval." They are not. They demand that the processor do these challenge tests and submit their entire process with data. Only after review of their specific process, which proves that they can eliminate toxins that might possibly be in their feedstock do they issue the "Letter of Non-Objection".

It's at this point that I have to pause and explain how the FDA talks. In natural language "Non-Objection" sounds like the weakest thing in the world, but it's not in the context of the FDA and how they have to oversee things. The FDA can only use strong language to enforce laws that have been passed by congress. They cannot use strong language to enforce their own bureaucratic rules. But science, pharmacy and food innovations come so fast that there is a zero percent chance that a law passed in 1970 or even 2022 could adequately cover the thousands of fine points that protect our health. Therefore, when the FDA approves or bans things, they do so by rule and they can only talk about their rules in terms of not objecting. I used to make most of the white-label peptic in the country and much of the liquid children's cough-cold medication. Periodically, the FDA would want to change label text. They do not want producers freelancing the label warnings because they actively want people to have these medications in their pantries. (It's estimated that these medications save billions of dollars every year in skipped hospital visits and lost productivity, mainly for women, and that they save many children's lives, in the case of anti-febrile medications delivered on time to prevent high fevers.) They also want to make sure that approved warnings are on labels in exactly the wording they want. But when you get a label change directive from the FDA, they don't say, "Put "XYZ " warning text on your label. They say, "The agency will not object if you add a label reading, 'XYZ' to your medication. It should appear in no less than 8 point font…" If you do not make this label change by the date prescribed, the FDA, in their shelf grabs from retailers, will catch it and issue you a Warning Letter. When the FDA says they do not object, it means that they have done their due diligence and approve of something / mandate something.

Q Does food grade HDPE contain additives? It seems that every time an additive is banned, the chemical industry just uses another one.

AC: "You are right that the industry just jumps to a new chemical anytime another one is banned. This is why we use of a plastic that just doesn't need any of the questionable additives, like Phthalates, as PVC does to be made soft. I could not find any hard sources for what gets added to HDPE, just because there are so many sources. As you see in their statement, Envision hired a consultant to survey producers and that consultant confirmed that only food-grade additives were used in the virgin PE sources surveyed.

I guess there is a way to be cynical or suspicious of the FDA to the extent that you don't even think the food-safe additives are food safe. I don't know what to do with that. If that's the stance, there is no canned food, disposable cup, any food contact plastic film or any beverage in an aluminum can that you can consume inside a definition of safety. All the filters that filter water are made of plastic, so that is also not trustable. It gets difficult to live here pretty quickly.

Q: "I agree that using HDPE recycled plastics would be a great solution, but it's important to me that as we transition to reuse systems for packaging that we make sure they are safe for humans and the environment and avoid the mistakes we have made in the past of overlooking the priority of human health when it comes to the chemicals used in their production."

AC: "Regardless of the tests from the guidance, I'm sure there is a persistent "ick factor" in recycling back to food grade. The idea that the molecules in a container have been next to toxins, even though removed, is mentally disturbing for many. This planet is a giant recycling system as you obviously know. Some of the carbon in the food you eat was poop not so long ago, even if you are a vegan or vegetarian, and especially if you eat organic food. I was talking to an investment advisor from Israel earlier this year and she mentioned that Israel would be a great source for recycling because the ultra orthodox use plastic plates and cutlery at every meal, then discard them. In traditional households, there are milk plates and meat plates and no cleaning process can wash away the spiritual taint of one or the other. The women got sick of washing and storing that many dishes and spoons, so decided to use plastic. In certain food safety schemes (I also manufactured Pedialyte in a previous life) there is a rule that equipment that touches GMO ingredients cannot touch non-GMO ingredients. No cleaning process can be certified to get around this either. So a factory making both has to have duplicative equipment, hosing, etc. The waste involved is quite significant. We provide reusables for events and film shoots, whether that is our cups or bottles. Sometimes people ask with great suspicion how we wash the cups and bottles or ask, with great distaste, "Has anyone else used this bottle?" I try to be patient and explain how they are washed. But sometimes I ask, "Do you ask this to servers at restaurants?" All these are examples of purity concepts, which are some of the most destructive concepts in human culture and drive many of the behaviors that will ultimately burn this place down if we do not manage them. Yes, virgin plastic with food-safe additives has zero chance of having ever touched a toxin. That is because petroleum is a great, pure source of a fully hydrogenated carbon chain that can be made into a glorious variety of useful goods. It has been underground, safely protected from the toxins that we've made from it. So if we get new oil, we can make more pure stuff. Stainless steel is another great and pure surface. Silicone tubing and glass (silicone) is also great and pure as a surface. But making gigantic quantities of these things is burning this place down and we have to stop it, as I know you know.

Q: How can Buoy show that their food ware does not contain toxins?

AC: "Bottom line, the resin we use to make our bottles is run through a process that has been shown to remove toxins of concern to a low enough level, mostly non-detectable, that leaching, etc. is not a health concern. Our containers are safe.

Toxins are only toxic at dose and everything can be a toxin at the right dose. If someone's tolerance for any detected toxin is zero, earth is with all love, not the right place for them. There are artificial and natural toxins all over this place. I used to make peptic, as I mentioned above. At some point, the FDA lowered the daily amount of heavy metals that you could get from any one medication at max dose and peptic was, by the stroke of a pen, out of specification. If it were invented and marketed today, peptic could be classified as a natural medicine. Its active ingredient is Bismuth subsalicylate. Bismuth is an element, a near metal, taken from the earth. It coexists with all the other elements that make this world, so when you dig up Bismuth, you dig up everything: Lead, Arsenic, all of it. But why don't they super-purify it? Referencing the above rant on purity, the chemical process of purifying anything gets incredibly expensive, in money and energy, as you get to the high percentages. (To purify gasoline to prop airplane fuel purity vs 87 octane purity takes a lot more energy and also more oil, for instance.) They used to suspend the Bismuth using diatomaceous earth, which are the exoskeletons of ancient, tiny organisms, but, and I know you see where I am going here, those organisms are also being dug out of the earth, so they coexist with all things natural: cadmium, antimony… all of it.

Even though they are carefully washed and sanitized, some heavy metals remain, and the sum was too much, per the new rule, so they had to start suspending Bismuth in some of the same food-science gums that they use to make oat milk, etc. I give this example to demonstrate that once you start to look at everything as a toxin, even the natural is suspect and we would have to construct an elaborate and world-burning technological complex (made mostly of plastic, ironically) to separate ourselves from all of it.

Our bodies are built to handle low levels of toxins. We could not have evolved otherwise. We do and will ingest toxins daily. The way I understand it, we safe-store chemical toxins (the fat-soluble toxins) in our fat and safe-store metal toxins in our bones. Sometimes this is good and sometimes bad, but mostly neutral. Fluoride substitutes for calcium in porcelain formation, which makes your teeth harder, so less cavity prone. This is just your body seeing what it clocks as a toxin and tucking it away, but it has a positive after-effect as gum degeneration is tied to heart disease and early death. We all ingest chemicals every day that get tucked into our fat so the liver doesn't have to metabolize them all at once. The next time you have a hard jog or swim and start to metabolize your fat, whatever you have safe-stored drips out, almost like a titration, and your liver metabolizes them at a pace it can handle without hurting itself… no harm, no foul. In the case of that vinyl chloride spill in Palestine, Ohio, if they don't clean it up well enough, it could tax some people's livers beyond their ability to handle it and they could be harmed, but this is not the exposure that any consumer would get to these chemicals. Handling toxins in reasonable levels is the work that the body is built for. There is such a thing as something that is safe even though a particular element or chemical, like lead or some residual pesticide, is detected.

Q: Buoy profits from selling recycled plastics. How can I trust that they are not just saying things that are in their financial interest?

We are not big oil. Buoy is a startup that began operations in 2019 with no money and no stake in anything. We could have chosen any material and any way of making it. If we'd decided that stainless steel was the solution, we'd be buying stainless steel. After carefully surveying the options for manufacturing, we selected a material that was food safe, not merely recyclable but actively recycled, had the least carbon impact and did the most to stop plastic pollution from entering the ocean. If you can find any product that does all three of these things better than our product, we would consider changing our material and supply chain. The idea that an essentially pre-revenue company is advocating for this solution because we had a prior interest bound up in some greedy corporate profit motive is unsupportable. One of our core missions is to put economic incentives behind people collecting plastic before it enters the ocean. NGOs and good intentions do not have the power of free-market economic incentives.

When we buy Oceanbound plastic resin pellets, we directly create those incentives and take plastic out of the environment before it enters the ocean. If we don't buy it, there is less money for the people who would otherwise collect it. They go do something else, and plastic runs into the ocean. It's that simple.

Q: Why don't you find a material that is safe for humans AND for the environment?

While it's not a zero-sum game between human health and environment, it is also not a completely overlapping Ven diagram. Mostly, humans prioritize human health over the environment in ways that have devastated the world, but the heath-first folks tend to convince themselves that anything that is healthier for them is also better for the world. This is simply not the case. The best food contact surface is probably an ultrapure metal like titanium or palladium, which would donate nothing to the food, but making everything out of Titanium would destroy this place. The detergent that would purify our clothes the best is probably an industrial degreaser like nonophenol, but this chemical has completely sterilized rivers. Making everything out of stainless, which is a pretty close second to those pure metals, is also a kind of death sentence to the places that are unlucky enough to have the stores of nickel and cadmium needed to make steel. Making everything we currently make out of plastic from wood or other natural sources would divert land from the food

needed to feed the 8 billion and counting and would clear-cut every forest in the world. As we destroy the world to make these pure or more natural products, the world will break at some point. Wearing bamboo is an elite game that is not scalable. What forest was clearcut and what crop is not being grown to support local populations so that we can have bamboo toilet paper. I submit that you do not know. We do not have enough steel being recycled to make all the products that a stainless-steel world vision would require. I have listened to many stainless steel and aluminum advocates talk about the infinite recyclability of these metals, but in not one case was the item they were holding in their hand actually made out of recycled stainless steel. I know you are not suggesting any of this that the above is a straw man argument to an extent. I just wanted to point out that human health and thriving and environmental health and thriving are not natural bedfellows, no matter how much people may want to believe it. We need to start behaving like the natural world, which recycles everything, and figuring out how to recycle our resources and not need a new new, pure pure everything every day to feel safe."

Best,

Adrian Colesberry Founder/COO, Buoy,
LLC www.buoy.eco

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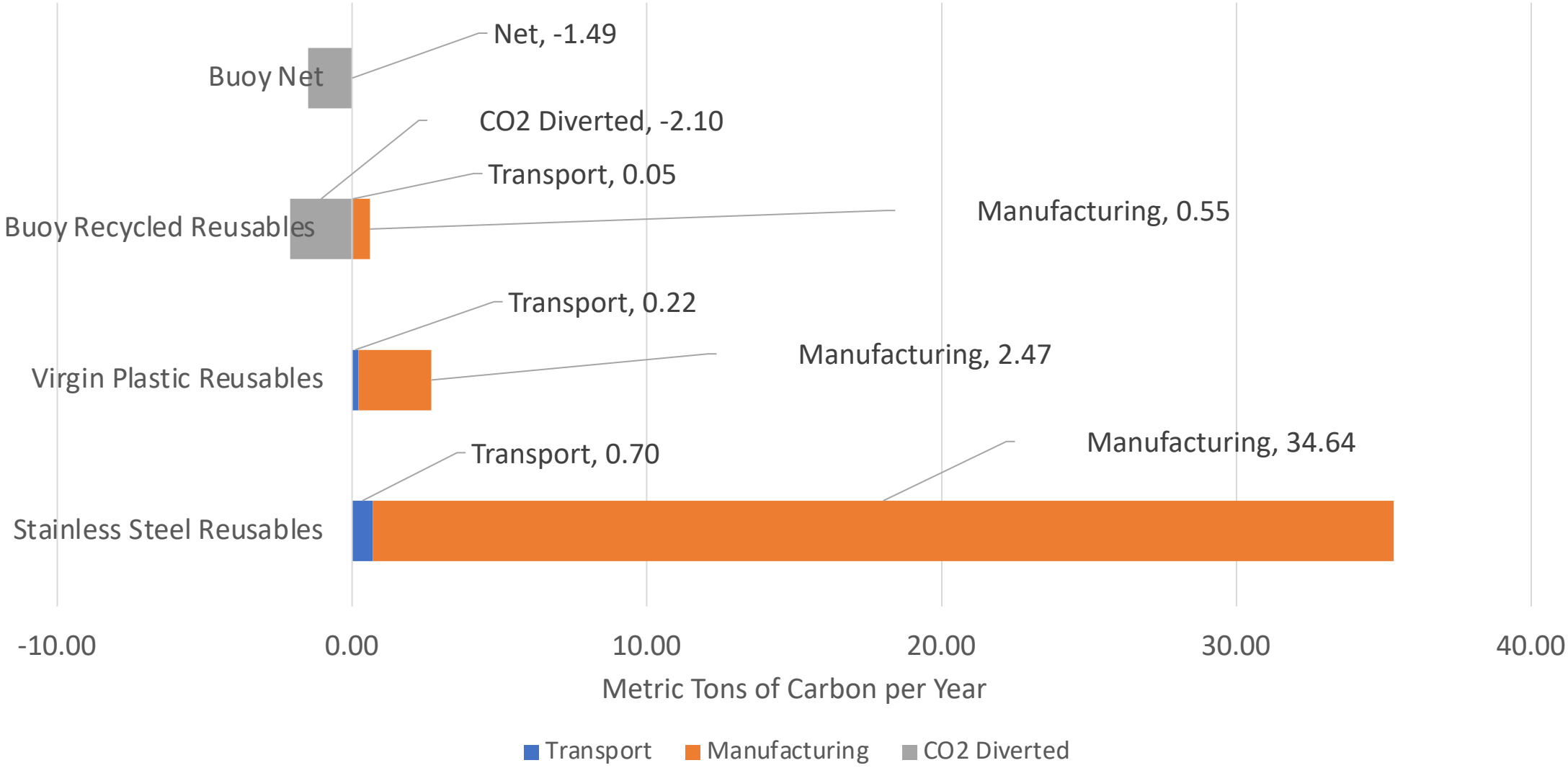
LCA for Buoy vs. other reusables

Assumptions

Number	Description	Source
1.8	Weight in ounces of 64-oz disposable CPET container	Amazon
2.2	Weight in ounces of 64-oz compostable container	Amazon
7.4	Weight in ounces of 64-oz Buoy Container Plus Lid	Buoy
3	Metric tons of carbon per ton of plastic created	Recycling Today
1	Metric tons of CO2 per ton of plastic burned	no-burn.org
0.86	Pounds CO2 per KWh electricity	EIA.gov
0.52	Metric Tons of CO2 per short ton at Source	Resin Supplier Impact Sheet
29.88	KG CO2e Transport Tracy to Los Angeles for 1000 lbs load	Carbon Care
5000	containers a day	Assumption
2	cycles of inventory to meet 5000 containers per day	Assumption
3	average life of a reusable, in years	Assumption
1.95	kgs of carbon per gallon of water	River Network

Comparing Carbon Impact of 10,000 Reusables



Comparing Buoy Reuse with Disposables