Zero Waste Listening Session Feedback

RE: Draft Recommendations and Pathways
Description: To move towards zero waste and transition California to a more circular economy, the Zero Waste Plan has proposed 22 recommendations.

Dear CalRecycle 2026 Zero Waste Advisory,

The following submission is for responses to the 22 recommendations. I am following up from the March 2025 listening session. FYI, our family owned, operated a small but one of the most sustainable corrugated, paper, packaging plants in Canada, supplying the glass industry, in the Toronto area in the 70s-90s. We move the needle in circularity for customers such as Labatt's Beer, Coors, Bacardi Family, Smuckers Jam. We used the highest rates of recycled paper, paid into funds for planting trees for reforesting, I personally showed my Dad how to re-engineer our presses to collect our industrial corrugates waste, brought it back to the paper-pulper box supplier (between ages 8 – 11 years old). My late Father redesigned some of his customers boxes to ensure no tears in the handles to ensure bottles could be returned in the boxes we made, back for DRS at CRV sites like, The Beer Store. Offering recycled, sustainable natural resource packaging was extremely expensive, and with high interest rates and costs of energy (much like today) we survived on slim margins. Plastic packaging was our competition; we warned customers of the future plastic planet we would have today, if they switched to plastic. In 1992 we had to shut down, facing bankruptcy.

Sharing this, so you understand background on the following recs and innovative products. And why it is so important that the plastics industry provides both improved design for recycling and the funding necessary to clean up our plastic pollution planet.

The CalRecycle recommendations are on the left half of the document, with responses and potential scalable market application solutions on the right half of the document.

CircularSolar.net

Policy and Regulation

A. Review and refine existing policies, programs, regulations and statutes to align incentives and requirements with materials' highest and best use

1. Review and update key materials management targets, definitions and rules across state agencies and policies to align on definitions that drive materials to be used for highest and best use at each decision point.
2. Review existing statutes, regulations, and policies across state agencies to identify and address gaps / overlaps where policies are misaligned with optimal, circular behavior (e.g., policies that prevent reuse due to building code, food safety, etc.)

B. Adopt a California circular materials management framework to develop and implement policies that prioritize source reduction, waste prevention, and proactive circular materials management

1. Prioritize source reduction by using a circular-first lens in policy design and implementation and materials management within CalRecycle
2. Adopt state-wide strategy and associated policies to address influx of sources of high volume and/or valuable waste, or materials of concern
3. Incorporate circular considerations into design of policies influencing material consumption / generation

Project Circular Solar focuses on research, innovation and products for current recycled, new potential products, supporting and scalable globally for the UN Zero Waste Initiative, Renewable Energy, CDR (carbon dioxide removal) targets:

Materials:

Recycled glass, to support SB1013 Bottle Bill and for SB54 this project ensures higher rates of overall glass recycling eliminating “single use” in glass packaging.

Wind turbines composite fiberglass blades, nacelles which can fall under this bill that just passed, SB235 (“other similar valuable materials within products”). This bill includes requesting CalRecycle to take under consideration the opportunity CA has with EoL materials from energy which contain critical minerals, metals, such as REE (rare earth elements), and other materials, that are exported out of state for their recycling, businesses. Circular Solar takes it next level, with the ability to reuse, repurpose whole EoL wind blades, nacelles into negative emissions solar-battery power plants. Pitch deck with live tests available here

Concrete, certain construction waste: SB596 which is for low carbon cement, this may include circular concrete materials.

Certain **single-use plastic packaging:** Sb54

Nanotechnology for environmental remediation, carbon removal: which supports and should qualify for SB285

Circular Solar’s first concrete, glass example in a road installed in Fairfield in 2008 which was an early real-life example supporting: SB1013, SB596, SB285: https://youtu.be/I7ydpFWBpGo

To increase consumer participation of recycling, innovation is required where consumers feel moved to make additional effort. By seeing recycled glass materials cooling surfaces reflecting sunlight, heat back up into the atmosphere or into solar panels, simulating high albedo value fresh snow, this both cools the ground and surface (such as rooftops which means energy efficiency in the home; less A/C use) and produces higher solar efficiency. By adding these cooling, recycled products around roads, highways, ports or waterways (solar canals for example) along with carbon management nanotechnology, to break down exhaust emissions to toxic tire dust (6PPD-Q fatal to Coho Salmon, Trout), knowing it offers various climate, environmental, energy benefits; consumers will try harder to recycle. Additionally, Circular Solar is patent-pending for this technology added to Wind turbines in use, as carbon removal wind energy and negative carbon solar farms.

Financial Mechanisms

C. Establish sustainable public sector funding that supports California's circular transition

1. Redesign public sector funding for materials management to align with circular outcomes
2. Expand flexibility of funding use to align with circular principles
3. Integrate circular funding mechanisms into other agencies' programs

D. Align market signals with zero waste and circular behavior

1. Revise public sector-controlled price signals to incentivize circular behavior and disincentivize linear behavior along the value chain
2. Support local jurisdictions in expanding circular solutions and services while minimizing rate-payer burden
3. Support the financial viability and accessibility of circular business models to enable them to mature and scale

E. Reduce challenges for new and expanded infrastructure development

1. Minimize time and cost burdens for permitting new or expanded infrastructure development while ensuring meaningful tribal consultation and community engagement
2. Facilitate coordination of feedstock access and improved confidence in feedstock volumes and where it can be accessed
3. Address/mitigate negative impacts of decentralized infrastructure in local and tribal communities

C 3 and D3. could expedite funding opportunities. For example, CalRecycle, CEC, CARB would all review this project and by pooling time, funding between these agencies, lower cost innovation should scale. Perhaps expediting policy to permits?

Infrastructure for Circularity

F. Modernize and improve utilization of existing infrastructure while mitigating harms

1. Support infrastructure retrofitting to optimize utilization and meet needs of new materials or new types of circular solutions, while reducing impacts
2. Facilitate and formally identify the use of excess infrastructure capacity for circular solutions
3. Support infrastructure and technology upgrades to improve infrastructure efficiency and increase throughput

4. Make improvements to increase convenience and accessibility of infrastructure for customers/Californians

G. Spur the development and expansion of proven, equitable, and accessible circular business models for finished products

1. Facilitate the growth of new or expanded circular services (e.g., refill/delivery, lending libraries, repair businesses) that can become economically self-sustaining
2. Invest in and accelerate adoption for multi-use CRV containers

H. Expand and develop equitable, distributed ecosystems for source-separated material

1. Support expansion of and improvements for source separated materials' infrastructure (e.g., commercial food recovery ecosystems, material collection facilities)

2. Expand access to collection services and facilities for source-separated materials

3. Expand options for recovery

F.: If there are more options for moving heavy recycled materials by rail or future autonomous self driving EVs, this could support infrastructure retrofitting. DRS, CRV return locations, such as at Savers and Bottle Bank appear to have been successful but need expansion. Small e-mobility in urban areas can help run smaller loads to smaller bottle, container return locations.

Funding for reverse vending machines may be an option, but these are very, very high capex. I have been most impressed by JADO Recycling. In the Circular Solar bottle return at EV charging stations, urban areas may support high capex reverse vending machines, and rural JADO recycling type businesses, ideally near a rail spur. With major bottle producers in the Central Valley, such as Gallo Glass, O-I, Ardagh, rail is the lowest cost transportation for recycled cullet back to furnaces.

G-H.

EV charging stations, parking lots desperately need more bins for recycling. Urban recycling transportation could include autonomous taxis for cargo transportation during days with high rates of recycling. Such as on weekends in bar, restaurant areas. Waymo, Tesla autonomous taxis could work with Uber Eats as well, to somehow utilize consumer and business bottle returns.

They could do autonomous trips late at night or early morning for bottle, jar pickup and delivery to return locations like JADO recycling. Or in areas near glass producers, such as Modesto, Tracy, Fresno – directly return bottles to Gallo, O-I, Ardagh. This would give a pathway to bottle refill, and until then 100% clean cullet (as the glass producer can ensure no contamination).

This can launch utilizing the Circular Solar EV charging efficiency product, made with recycled glass from California, applied as a coating onto existing hot asphalt or concrete, below where autonomous wired or wireless EVs charge. It also offers CDR, carbon removal, breaking down airborne ICE vehicle exhaust buildup, brake dust (PFAS) tire dust (6PPD-Q associated as toxic to salmon, trout a source of revenue for Tribal nations). In that link, the charger on the ground represents wireless induction charging pads; which my product ensures it is cooler; faster charging.

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Partnerships

I. Nurture waste-free community and economic clusters grounded in circular economy principles

1. Facilitate coordination for industry symbiosis clusters in areas of high-volume, source-separated outflows

2. Support transition to zero waste operations for landmark California facilities (stadiums, universities, etc.) to model circular economy opportunities, value, and feasibility

J. Establish a culture of inter-agency collaboration that elevates circular economy throughout the state

1. Collaborate across agencies to share key materials management data to inform full picture of California materials consumption and management
2. Adopt proactive strategy for shared responsibility (new and existing) of circular materials management and responsible end market development across CalRecycle, other agencies, and local governments
3. Elevate the circular economy transition as a key avenue for meeting California's key environmental, economic, health, and equity goals

K. Lead local, national, and international multi-party collaboration to support zero waste implementation

1. Facilitate the development of public-private partnerships to accelerate common goals and share costs
2. Establish channels for national and international collaboration to tackle cross-border challenges

L. - K. 2:

Stadiums, Unis area ideal for bins to separate recyclables by materials; such as one bin for aluminum cans, other for glass, compost, landfill.

Homeless-to-housed can play a vital role in environmental clean-ups for DRS, CRV materials and their delivery. Once housed, easily trained for this new job, as waste, recycling management workers in urban areas, e-mobility can be deployed. Such as economic e-bikes with cargo trailers to move materials from bars, restaurants to return locations. Access to sidewalks and bike lanes makes this process faster.

And this is a solution for new workers with felony records, that may include DUI's creating issues with attaining or affording a drivers license, car, insurance to perform this work. Payments can be made using scan me codes and apps. Also ensuring no cash is required to prevent any theft, improving safety and include our crypto idea as well.

Kids in school can also participate on a smaller level using e-scooters, bicycles. These can be organized as school field trips to do ongoing beach, park cleanups after major holidays when litter rates are very high, such as July 4th weekend.

These are also examples where inter-agency development on these projects can help facilitate a circular economy and provide new jobs for unhoused to housed and transportation can be provided by major California automakers, Tesla Robotaxi, Waymo, and Rivian just launched Also, Inc. to produce e-bikes, e-scooters. Oh and here again, the Circular Solar recycled glass, EV charging product is well suited as infrastructure for charging this transportation and improving road markings (the CDR nanotech stays cleaner, more reflective road markings).

Research and Innovation

L. Support the adoption and scaling of circular innovation and learnings

1. Establish an innovation 'playbook' to guide areas for pilot investment via a standard innovation approach; establish standards for consistent designing, testing, and solution validation; and support subsequent scaling
2. Expand access to funding and financing solutions for circular innovation
3. Showcase circular solution successes from CalRecycle programs and elsewhere, which can be broadly applied to improve existing and develop new programs

M. Facilitate research initiatives to advance understanding of materials management and develop solutions

1. Identify, consolidate, and publish key research interests
2. Facilitate coordination between entities developing solutions and parties interested in piloting, testing or supporting solution development

N. Accelerate innovation in circular product and business model design

1. Establish innovation hubs and incubators focused on circular solutions and design to support startups and research institutions
2. Develop principles for incentivizing or requiring circular design innovation for which a single producer is largely responsible (e.g., consumer packaged goods)

During the listening session, I made the recommendation of creating a circular, recycling STEM hub in Sacramento (or LA) to demonstrate micro versions of projects which can scale. LA location would double for LA28.

Communication and Awareness

O. Tailor communication and education campaigns to audience-specific behaviors, barriers, and consumption patterns

1. Define target actions for each audience based on geographic and demographic trends identified through Community Engagement research
2. Develop messages that motivate action by appealing to what matters most to audience group
3. Align communication channels and messengers to best reach the target audience

P. Improve visibility and usability of circular resources and tools

1. Consolidate resources and tools to make them more intuitive to find and use
2. Develop additional resources and tools for awareness and utilization based on need determined via Community Engagement research

O. When me and my Engineer went to visit, tour Republic Services largest recycling plants in N. America in Las Vegas and then also SMI (nor Sibelco) and casinos to learn more about single stream recycling flow within Vegas (it is amazing, they really have it dialed in) one issue is lack of signage in various languages. For example, They have had more food waste or contamination of materials on days they pick up in the Chinese areas, or Latin areas where there may be misunderstandings because they are no signs or PSA advertisements in Mandarin and Spanish.

With phones and scan me codes this can be remedied. My recommendation is to promote scan-me codes on signs and online advertisements that ensure translation into the parties language. More signs in both English, Spanish, mandarin and more may also reduce contamination; thus landfilling.

Data and Monitoring

Q. Expand and standardize material flow data visibility across material types and management pathways

1. Incorporate external data from cross-agencies, local governments, and commercial sources
2. Expand collection and incorporation of voluntary disclosure data
3. Expand required reporting and disclosure
4. Conduct material characterization studies to estimate consumption and material flows beyond reported data
5. Proactively monitor emerging materials of concern

R. Improve and expand data analysis to inform new solutions and improvements on current systems

1. Revise and expand performance metrics to enable comparisons and shared learning between programs and interested parties
2. Expand data analysis to focus on identifying material priority areas and circularity opportunities
3. Establish a baseline to measure progress through source reduction, reuse, and remanufacturing

S. Stimulate bi-lateral participation in the circular economy through open and crowdsourced data

1. Transform current and new data into an Open Data solution accessible to all users
2. Develop matchmaking platforms for materials and collaboration
3. Facilitate the collection and use of crowdsourced data

Community Engagement

T. Deepen understanding of Californians' behavior patterns, consumption trends, needs, and interests to enable a human-centered circular transition

1. Conduct research to understand Californian's geographic and demographic patterns and differences in consumption, materials management, behavior change motivators / interests, zero waste challenges, and trusted mediums and sources for information
2. Establish baseline of Californian's familiarity with circular and zero waste topics and actions

U. Proactively engage and support capacity building for tribes, those in rural communities, and the environmentally burdened to participate in California's zero waste and circular transition

1. Amplify and identify connections to existing grassroots initiatives
2. Meet groups where they are—engage with existing groups through existing channels and establish liaisons for engagement and listen to what they need to accelerate circular change in their communities

V. Foster open dialogue with community members to promote continuous and inclusive input from all voices

1. Establish channels through which community members can share feedback, concerns, and ideas in a consistent way which is tracked and acted upon
2. Develop and share opportunities for individuals and communities to actively participate in California's circular transition
3. Proactively engage and educate communities on the opportunities and benefits of the circular transition and associated investments to build enthusiasm and momentum