



Recycling in California

**THE CRISIS NO ONE IS
TALKING ABOUT**

INSIDE: Find out what 3 factors are driving change in the recycling industry, and what YOU can do to help!



The State of Recycling

California is doing the right thing, but it comes at a cost

BY MATT JOCKS

For decades, California has been on the right road when it comes to recycling. The freeway, however, is transitioning to a toll road — and turning around is not a viable option.

California has seen a collapse in foreign markets for its recyclables and the ripple effects have brought reality home. The idea that recycling would always be a moneymaker for recyclers and a nearly free service for consumers was never realistic.

“Being green isn’t easy,” said Christy Pestoni, State President of the California Refuse Recycling Council (CRRC). “It’s actually pretty expensive.”

The state has been a leader in recycling from the early days, which centered around bottles and cans, through the development of mixed paper as a major product. Now

“The recyclable commodities market collapse is the national crisis no one is talking about.”

Fiona Ma
California State Treasurer

California is headed to the next major area: organic waste.

Progress was made — there was a reduction in litter and a green industry was created — but the market collapse has raised costs and slashed or eliminated revenues.

“The recyclable commodities market collapse is the national crisis no one is talking about,” said State Treasurer Fiona Ma. “Californians have been and always will



California State Treasurer Fiona Ma has said that we must invest in technology and infrastructure to make recycling markets viable.
COURTESY PHOTO

be eager to do the right thing by recycling, but without markets available to accept and process recyclable commodities, their efforts will be for naught when recyclables end up in the landfill instead of on store shelves or in delivery trucks as new products.”

Adjusting to new realities will have to take place on multiple fronts.

Tom Vogt, Southern District President of CRRC and Vice President of Operations for Burrtec Waste Industries, Inc., said new markets can be built. However, the process won’t be easy. It will involve increased

investment in the state and increased fees for consumers.

“In the short term, it’s going to be painful,” he said. “But it’s something we have to go through to get to the other side.”

Pestoni said everyone needs to rethink what they produce and what they consume. But she remains optimistic.

“It’s an opportunity,” she said. “Bright minds and investors with money have always come up with answers. The next bright mind is out there.”

DRIVERS FOR CHANGE:

Disruption leads to innovation, and there are three factors putting pressure on California to rethink its waste management systems



CHANGING MARKETS

For many years, California recycling has been dependent on the Chinese market as the largest buyer of recyclables. China utilizes U.S. recyclables to create new products that are sent back to the U.S. However, China’s decision to severely limit the recyclable materials it accepts has led to widespread rejection of shipments. The long-term dependence on the Chinese market has also led to the shrinking of domestic markets, leaving fewer buyers for these recyclables at home or overseas.



LACK OF INFRASTRUCTURE

With a lack of recycling infrastructure to process recyclables domestically, California lacks the ability to “close the loop.” Most of the state’s paper mills have closed. A collapsing market has made it difficult for the recycling industry to make upgrades to meet future needs. Recyclable materials such as paper and plastic need new processing equipment to make streams cleaner, as well as domestic markets to provide more diverse markets. In addition, the newest major effort in recycling — organic waste — requires expensive technology, such as anaerobic digestion. CalRecycle estimates \$20 billion will be needed to build or expand organics recycling facilities over the next 10 years.



STATE POLICY GOALS

State lawmakers have recently passed several laws mandating the reduction and diversion of waste. Beginning with the landmark AB 939 in 1989 (which set a 50 percent waste diversion target by 2000), California has led the way in diverting waste from landfills. Upcoming targets of 75 percent waste reduction by 2020 (AB 341) and 75 percent reduction of methane emissions from landfills by 2025 (SB 1383) are quickly approaching in a market that has drastically changed from the one that existed when those bills were passed. Investments and permit streamlining are two measures that can help achieve these goals.

Greg Kelley, General Manager at Napa Recycling & Waste Services, says he has struggled to find buyers for bales of plastic ever since China tightened its standards for the recyclable materials it accepts.

PHOTO BY ISRAEL VALENCIA

Changing Markets, Increased Costs

China's National Sword policy makes the recycling business tougher

BY MATT JOCKS

Greg Kelley has been in the recycling business long enough to see the market swing from one extreme to another. Now he wonders if it will disappear entirely.

"When I started in 1987, about 90 percent of the market was domestic and 10 percent foreign," said Kelley, General Manager of Napa Recycling & Waste Services. "By the last 10 years, it was 90 percent foreign and 10 percent domestic."

Overwhelmingly, "foreign" meant China, which became the dominant buyer of recyclables, particularly paper and plastics. In the past decade, however, China has moved to severely tighten its standards, requiring "cleaner" loads that contain fewer contaminants like food residue. This has led to large-scale rejection of loads and a resulting collapse of the markets.

China's National Sword policy, which followed a similar policy called Green Fence, went into effect at the start of 2018. It further lowered the allowable levels of contamination and banned more than 20 types of materials.

For American recycling processors like Kelley, the changes in the market have been stark.

"When the market was good, we were getting more than \$200 a ton for newspaper," Kelley said. "Now we are paying to get rid of it."

Having China as a market made sense because China was a large exporter of finished products. Once the American ships containing recyclables were unloaded in China, the now-empty cargo ships were ready to be filled with new products returning to the U.S.

Because of that, other markets either shriveled or weren't developed. Kelley said there were 17 paper mills in California in 2000 and "today, there might be four."

With the disappearing Chinese market, other Asian countries, such as Vietnam and Malaysia, have been seen as potential replacements. Kelley, however, said those countries don't have the capacity to produce the finished products that made the China system work so well.

American processors, meanwhile, face a dilemma. Some like Kelley have upgraded their equipment to produce a cleaner product. In an effort to do a better job of sorting for contamination, processors can either add workers or, as Kelley has done, add hours by slowing the process. Each costs money and is only of marginal value.

"That can definitely help us on the cost end," he said. "But it doesn't help the market at all."

In the short term, Kelley said local jurisdictions will have to consider limiting what products customers can toss in their recycling bins in an effort to cut

down on contamination. That will mean more waste headed to landfills.

"This is a huge dilemma," Kelley said, "and it's not a short-term blip. It's something that is going to go on."

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Greg Kelley

General Manager, Napa Recycling & Waste Services



WHAT IS CONTAMINATION?

In the recycling business, contamination is a dirty word.

Contamination happens when something is placed in a recycling bin that doesn't belong. Some types of contamination are easy to see, such as the results of picking up after your dog at the park or the greasy remains of a pizza in a cardboard box.

Others are not so obvious. A cup from your local coffee hangout may be made from both paper and plastic, which would need to be separated to be recycled. The plastic container you bought blueberries in looks recyclable, but it is made from a type of plastic that no one wants to recycle.

Veronica Pardo, Regulatory Affairs Director for the California Refuse Recycling Council Northern District, said consumers can play a significant role in reducing contamination by putting unacceptable items in the trash.

"It really comes down to, **when in doubt, throw it out,**" she said.

Kris Anderson of New Indy Containerboard manages one of the few remaining paper mills in California. More processors of recyclable materials are needed in-state to handle the increased volume of recyclable materials, now that China is no longer accepting them.

PHOTO BY CARLOS PUMA

Closing the Loop in California

More infrastructure is needed to clean and process our recyclables

BY MATT JOCKS



If that large box the delivery truck left at your door looks familiar, it's probably because you may have seen it before. As you read this, somewhere in California, the cardboard boxes that we put in recycling bins are being turned into more boxes.

The problem is, there's too much cardboard and not enough recyclers.

New Indy Containerboard in Ontario is one of the few remaining paper mills in California. The plant takes cardboard boxes from recyclers and processes them into material for new boxes.

Not far away, Southern California based rPlanet Earth takes plastic bottles, decontaminates them to Food and Drug Administration cleanliness standards, and sells the material to bottlers to be repurposed.

Both plants are among the few processing plants in the state that have the ability to turn recyclables into new materials. California largely got out of that business as China became the dominant market for recyclables. Now that Chinese contamination policies have resulted in a severe drop in the market, California is left to try to "close the loop" locally.

"At first, people thought [the Chinese policy] might be temporary," said Kris Anderson, Plant Manager at New Indy. "But they have drawn a line in the sand, long-term."

Evan Edgar, Principal of Edgar & Associates, a waste management consulting firm, said the warning signs were

apparent before China executed its policy change. He said China's actions were completely understandable, but that California needs to respond.

Edgar said there is some public money on the table, as part of cap-and-trade programs, for investment in new and upgraded plants. More could be made available. But that's only part of the problem.

People are always talking about the tradeoff between the environment and jobs. We can do both."

Evan Edgar
Principal, Edgar & Associates

"The state needs to step up," he said. "There will be a number of benefits — creating jobs, improving recycling rates, reducing the carbon footprint."

There is reluctance for building new facilities in California because of the state's stringent environmental regulations and, for out-of-state firms, the high cost of living and labor. The first can be addressed through legislative relief, which would create more jobs in the recycling sector.

"People are always talking about the tradeoff between the environment and jobs," Edgar said. "We can do both."

Bob Daviduk, who co-founded rPlanet Earth, said that although his plant is doing well, he sees collection centers closing and slow progress toward a more advanced level of recycling that could take more plastic out of the waste stream.

WHY INVESTMENTS ARE NEEDED

Once recyclables leave the home, they travel to facilities like Material Recovery Facilities (MRFs), paper plants, plastic processors and glass processors. These facilities fight a daily battle to keep the recycling stream free of contamination with technology such as infrared optical scanners and robotics that can identify and clear contamination faster than the human eye.

As the state sets its sights on the next big goal — diverting organic waste from landfills in order to reduce greenhouse gas emissions — technologies like anaerobic digestion will be needed to turn that waste into biofuel or fertilizers.

The catch? Money is needed to either add or upgrade these facilities as well as other existing recycling infrastructure including paper, plastic and glass manufacturing plants at a time when the economics of recycling is at a low point.

"Recycling is dying on the vine without an infusion," said Jacob Panero, CEO at Varner Bros., a major hauler and processor of recyclables in Bakersfield.

The investment benefits are environmental and economic — the state has estimated that meeting its 2020 diversion targets could generate over 100,000 jobs.

A Consumer's Guide to Wasting Less

BY GAIL ALLYN SHORT

The cycle of “buy, consume, throw away” has become a habit for most of us. Recycling encourages people to *think* about what they purchase and how they use the goods that they purchase, said Rachel Oster, a recycling policy expert and Co-Principal of Diversion Strategies, a Sacramento-based recycling consulting firm.

We can all become more environmentally conscious consumers by paying closer attention to not only what we buy, but also the packaging and how we dispose of it.

Here, Oster provides some helpful tips on wasting less and recycling properly.

HOW TO BE A CONSCIOUS CONSUMER

USE REUSABLE SHOPPING BAGS

Although single-use film plastic bags are banned from most retail stores, there are plenty of other bags that can end up in the trash. Keep reusable bags handy for grocery shopping, picking up take-out food or other retail purchases.



BUY IN BULK WHENEVER POSSIBLE

Reduce the need for plastic packaging by purchasing bulk items like nuts, spices and even shampoo, and putting them in refillable containers. You'll save money, too!

OPT FOR REUSABLE BEVERAGE CONTAINERS

There are many stylish options for beverage containers that will keep your drinks hot and cold. Consider using them for your morning cup of coffee and to stay hydrated.

BUY LESS

Focus on source reduction and purchase just what you need.

PURCHASE RECYCLED MATERIALS

Look for paper products and other goods made from recycled materials instead of products made from virgin materials.



HOW TO RECYCLE THE RIGHT WAY

REUSE WHAT YOU BUY

Before you toss something out, ask yourself, “Can I use this again?” For example, try incorporating food containers in children's art projects or using old wine and beer bottles for flower vases.

CHECK YOUR LOCAL RECYCLING PROGRAM

Find out which items are accepted and which ones are not since rules can vary from city to city. Try to purchase items that are accepted for recycling in your community.

KEEP IT CLEAN

Thoroughly rinse away food and other contaminants from glass bottles and cans.



KNOW YOUR NUMBERS

Before tossing plastic beverage bottles into the recycling bin, check with your local community recycling program to find out what types of plastics are acceptable, which are indicated with numbers 1-7 inside a recycling symbol.

REMOVE LABELS

Although it is not mandatory, it is always a good idea to remove paper labels from bottles and cans if possible.



SEPARATE UNLIKE MATERIALS

Tear out and throw away the parts of the item that are not recyclable, like the plastic windows on envelopes or plastic bags inside cardboard cereal boxes.

KEEP OUT LINED PAPER

Avoid placing milk cartons and coffee house paper cups in recycling bins since most of these cups and cartons have plastic linings.

Lined paper products cannot go in recycling bins



TAKE HOUSEHOLD HAZARDOUS WASTE (HHW) TO SEPARATE FACILITIES

Batteries cannot go in your recycling bin — they must be taken to an authorized collector. Check with your local community recycling program to learn where to take HHW items like batteries and electronic waste. Also see if local retail stores have take-back programs where you can drop off items like light bulbs, paint and batteries at the same place where you purchased them.



Recycling Isn't Free

BY MATT JOCKS

How market change and contamination are affecting the cost of recycling

If you look at the 5-cent CRV on your soda can, you may assume that item has value. The reality is that collecting and processing that soda can has a cost that is only partially offset by the value of the aluminum it is made from. Now that the market for selling recyclables like plastic and paper has dwindled and stricter standards for cleanliness have been put in place, a greater cost burden is being placed on the recycling system.

“What was once seen as free, we’re now seeing as a major expense,” said David Button, Solid Waste Business Development Specialist and Accountant at Armanino LLP. “But it was never really free.”

Waste processors are trying to keep pace with these new demands, but recognize that investments must be made.

“If you were smart or lucky and got new equipment before the drop in market prices, you’re in better shape,” said Tom Barry, managing partner at Green Hasson Janks, an accounting firm that works with the recycling industry. “But good luck if you’re looking to borrow \$5 million or \$10 million to purchase upgraded equipment.”

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David Button

Solid Waste Business Development Specialist,
Accountant at Armanino LLP

COLLECTION

Waste haulers visit residences and businesses each week to take away trash.

WHY IT COSTS MONEY:

- Truck operators (labor)
- Environmentally friendly trucks

WHY COSTS ARE INCREASING:

Decreased ability to sell recyclables — Historically, haulers were able to offset some of the costs of their operation and often provide credits to offset customer rates, knowing that they would be able to sell recyclables. Changing markets and contamination have made that more difficult.



PROCESSING

Haulers take recyclables to a Material Recovery Facility (MRF), where they are sorted and cleaned.

WHY IT COSTS MONEY:

- Labor intensive process
- High-tech equipment
- Time

WHY COSTS ARE INCREASING:

Added manpower — Processors can reduce contamination by adding more workers, putting more eyes and hands on the sorting process.

Slower production — Processors can slow down conveyor belts, giving more time to catch contamination. However, that just means more man hours and more cost for the same amount of product.

Technology investments — Better-functioning traditional sorters, or high-tech options such as robotics or optical sorters, can improve cleanliness, however they cost millions.



SELLING

Materials are bundled by type and primarily shipped to foreign purchasers.

WHY IT COSTS MONEY:

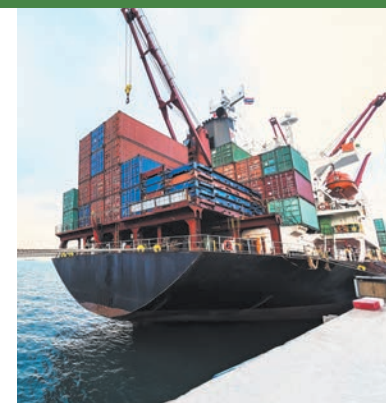
- Increased market volatility
- Transport of material (usually via freighter)
- Limited market options

WHY COSTS ARE INCREASING:

Rejected loads — Whole loads of recyclables are being rejected and shipped back without being sold.

Storage — If recyclables can't be sold, they can be stored and salvaged in the future, but they must be stored in an environment that keeps them clean and dry, which can be costly.

Landfilling — Recyclables that cannot be sold can be landfilled at significantly higher fees.



A New Era for Recycling

Q&A with CRRC leaders Tracy Adams and Art Peña

BY GAIL ALLYN SHORT

California has long been known as a leader in recycling. New challenges, like a shrinking recycling market and ambitious waste-reduction targets, are creating change in the state's recycling industry.

The California Refuse Recycling Council (CRRC) is working with local governments, collection companies and state policymakers to ensure continued success in this new era. In this interview with two industry members, CRRC Secretary for the Northern District Tracy Adams and CRRC 2nd Vice President for the Southern District Art Peña share how California recyclers are adapting to these changes and how innovation and investment can ensure the future success of recycling.

Q: HOW HAVE CHINA'S NEW RESTRICTIONS IMPACTED YOUR RESPECTIVE BUSINESSES?

PEÑA: They're only taking high-grade plastics now and very little of that. ... But the material is still coming into our waste stream, so we've had to slow down our equipment and put more people on the sort line in order to pick those materials clean. A lot of companies have optic sorting. We don't. We do all of our



Tracy Adams
Co-Chief Executive
Officer of GreenWaste
Recovery, Inc.
(San Jose, Calif.)



Art Peña
Vice President of
Peña's Disposal, Inc.
(Cutler, Calif.)

separation by hand, but we're able to get a pretty clean product.

ADAMS: We're seeing a huge financial impact. For many years, we've been able to sell the material, turn around and then offer discounted rates to the consumer. But over the last year, we've watched that dynamic change. It is our hope that domestic markets will emerge enabling us to not have to rely on overseas markets, which can affect us and ultimately the consumers.

Q: THE LATEST LEGISLATION CALLS FOR DIVERTING MORE ORGANIC MATERIAL FROM LANDFILLS. HOW IS THE LAW AFFECTING YOUR COMPANY?

PEÑA: You're creating a whole other stream of waste: organic waste. There are two types of waste. You have green organic waste which comes out of your backyard like lawn trimmings, and then the other is food waste and that's a bigger component of the law that's really going to impact consumers in the cost because you've got to put out another container just for that food waste and send out another truck. ... CalRecycle has figured that they will need about 100 new facilities to handle all of this material and the permitting process, and the costs to build these facilities is extremely high.

Q: COULD CUSTOMERS SEE HIGHER RATES?

ADAMS: Well, I think ultimately that's probably going to happen. I don't think that's what anybody wants to happen, but the reality of the world is that it's cheaper to put materials into the ground. It costs money to recycle and that's just the way that it is. In the past, we've had the markets to help offset those



costs. With these markets disappearing, there is no revenue to offset those costs without consumer rates increasing.

Q: SO WHAT NEEDS TO HAPPEN LEGISLATIVELY TO HELP?

ADAMS: We need to find a way to streamline the permitting processes to get these things done more quickly and more efficiently. It takes a long time to build these facilities.

PEÑA: There also needs to be funding available for [waste management and processing] facilities to be built. They're very expensive ... and I don't think a company can [recoup their costs] without charging extremely high tipping fees, which would make the costs even more burdensome for consumers. There needs to be some grant funding from the state in some form for the facilities to be built.

PAST TO PRESENT: For 30 years, California's recycling laws have sought to reduce solid waste going to landfills and lower greenhouse gas levels

1989

AB 939 (California Integrated Waste Management Act) established the California Integrated Waste Management Board (CIWMB) and a mandate to divert 25 percent of solid waste from landfills by 1995 and 50 percent by the year 2000.

2006

AB 32 (California Global Warming Solutions Act) required the state to lower its greenhouse gas emissions to 1990 levels by 2020.

2011

AB 341 (mandatory commercial recycling) required the California Department of Resources Recycling and Recovery (CalRecycle) to create and adopt regulations necessary for mandatory commercial and multi-family residential recycling.

2014

AB 1826 (mandatory commercial organics recycling) required businesses that produced a certain amount of organic waste to retain recycling services to dispose of the waste and for jurisdictions to implement those recycling services.

2016

SB 1383 (short-lived climate pollutants) requires that by 2020, California must achieve a 50 percent reduction in organic waste disposal from the 2014 level and a 75 percent reduction by 2025.



Get involved!

It's a challenging time for California's recycling industry, but everyone has a stake in meeting those challenges. What can you do?



STATE DECISION-MAKERS

Understand that investments and permit streamlining in the infrastructure of waste diversion will keep the state on the right path and have economic and environmental benefits, like jobs and lowering greenhouse gas levels.



CITIES AND COUNTIES

Learn about this vital industry. Develop local policies to support recycling. Establish recyclable purchase standards. Develop and implement programs to support state-mandated goals.



CUSTOMERS

Realize there will be costs in meeting the challenge, but that you can directly affect those costs. Educate yourself about how to properly recycle items and reduce contamination. Use your purchasing power to consume fewer products and products that are more recycle-friendly.

WHO IS CRRC?

With a history spanning 58 years, the California Refuse Recycling Council is a trade association of waste haulers and recycling processors that has been at the center of the dramatic changes in waste management.

From waste removal to recycling and repurposing, the association works to develop best business practices among its members and to help shape legislation that will support not only its members but its customers.

Originally formed in response to pending legislation, it now seeks to lead the way in shaping policy about one of the state's most important industries.

