

# Can Count and Lease-to-Own Aluminum Can Recovery Project Playbook



This Playbook is designed for Material Recovery Facility operators who want to improve aluminum can recovery.

- 1) [Can Manufacturers Institute](#) (CMI), the trade association of the U.S. metal can manufacturing industry and its suppliers, is dedicated to increasing the recycling rate for aluminum used beverage cans (UBC). CMI recently announced U.S. aluminum beverage can recycling rate [targets](#) including a 70 percent rate by 2030, 80 percent rate by 2040 and a more than 90 rate by 2050. CMI seeks to heighten Material Recovery Facility (MRF) management awareness of UBC leak points and the [opportunity for revenue](#) they represent. MRF managers can remedy the issues involved and more recovery will occur through investments in maintenance or sorting equipment; especially if the assessment carries a return on investment (ROI).
- 2) Due to the popularity of CMI's recently completed [Can Capture Grant Program](#) (funded by Ardagh Metal Packaging and Crown Holdings in partnership with The Recycling Partnership), CMI is offering a follow up assistance project that:
  - A. Allows MRF managers through empirical testing to determine and quantify points in their processing systems that may "leak" valuable UBCs.
  - B. Provides an interactive, [online ROI calculator](#) to determine impact in tonnage and monetary losses a MRF may be experiencing by not capturing UBC lost during single stream material processing and quantify the potential net return from installing can capture equipment (e.g., eddy current).
  - C. Supports the capture of more UBCs through investing in strategically located sorting devices in an optional lease-to-own program. CMI would partially or fully fund the cost of the equipment and then the MRF would pay back CMI over time with a monthly fixed amount or some portion of the increased revenue from the captured cans with the new equipment. CMI plans to then reinvest the funds into can capture interventions at other MRFs.
- 3) UBCs may be lost in MRFs through mis-sorts and missed sorts.
  - A. A mis-sort is an automatic or mechanical sort in a MRF single stream processing system that inadvertently pulls and diverts UBCs along with a particular material at the point in the process where the particular material is sorted from the rest of the single-stream materials. CMI has identified three potential mis-sort opportunities where UBC may be lost. In some MRFs, UBC loss rates through mis-sorts may be significant:
    - i) When UBCs becomes embedded or entangled with paper through the single-stream collection and unloading processes. In this case, UBCs may be prevented from dropping through primary paper screens and are carried with either cardboard (OCC) to the OCC sort line, sorted residential paper and news (SRPN) to the SRPN sort line (if SRPN is sorted), or mixed paper (MP) to the MP sort line.
    - ii) When UBCs are crushed to <3" in diameter ("hockey puck"), and lost through the glass breaker screen opening, they are becoming mixed with separated glass.
    - iii) When UBCs are pushed by an optical sorter air jet or target plastic material inadvertently during the optical sorting process, UBCs consequently lands on plastic sort lines for PET, natural and colored High Density Polyethylene (HDPE), and/or polypropylene.

# Can Count and Lease-to-Own Aluminum Can Recovery Project Playbook



- B. A missed sort occurs on the residue line after the UBC eddy current sort system (ECS). This occurs when UBCs, which are repelled into the air by a rare earth electrical current, do not clear the baffle in an ECS due to interference from another object, shape of individual containers, residue in the container, or the baffle plate or current strength are not properly adjusted for present environmental conditions. This causes UBCs to drop in front of the baffle and onto the residue line for disposal rather than over the baffle to the UBC line for recovery.
  - C. Mis-sort and missed sort UBC leak points and their severity will be different for every MRF due to relative age and constant design changes over time. Though the greatest opportunity for increased UBC capture may be on the residue line, some facilities experience significant mis-sorted UBC loss on the glass, paper and plastics lines. These leaks at one or more locations may mean enough UBC loss to consider intervention.
- 4) CMI's ***Can Count and Lease-to-Own Program*** provides real time objective data on the recovery of UBCs from MRF processing system leak points. It has two components:
- A. **Counting Cans Exercise:** A simple Can Count is the best way to determine potential UBC leak points in a MRF. It can be fun and lead to a greater understanding of how your MRF is performing. In this process, a person is assigned to sample processing system sort locations to determine which ones may be leaking UBCs and whether the leak points are significant, over the course of one to one and a half days. The process is relatively simple:
    - (1) A candidate with good knowledge of the plant and interest in the project should be chosen to sample can leakage rates (The Sampler).
    - (2) Key line staff and management of the MRF should be consulted on where they have observed aluminum cans not being properly sorted by equipment to establish where the potential leak points may be occurring.
    - (3) The Sampler should use appropriate personal protection equipment, follow all safety and traffic rules, and bring a notebook for recording the test results.
    - (4) A hand-held, mechanical counter clicker is used to record visually sampled aluminum cans to calculate loss rates at each leak point. For the five-minute intervals involved, the counter will choose a location on the belt to observe and note each can that passes through that point. The Sampler will also need a stopwatch.
      - (a) The Sampler will record each aluminum can that is visually spotted at the specific conveyor location point with a click of the counter.
      - (b) The Sampler will record the number of cans counted, time the test began, the actual time that cans were counted from the stopwatch (which should be as close to five minutes as possible), and any unusual conditions for each five-minute test.
      - (c) The Sampler then repeats the five-minute tests at that location, and does at least 24 tests minimum, over the course of the day and a half, at different times during the shift. To complete 24 tests at one location takes approximately two hours of active presence at a sampling site. However, for accuracy, sampling should be spread throughout the day.

# Can Count and Lease-to-Own Aluminum Can Recovery Project Playbook



- (d) The Can Count data will then be summed and divided by the number of tests to establish a relatively accurate<sup>1</sup> loss rate average per test for both the cans counted and the actual time of the tests.
  - (e) After completion of all the tests at a particular leak point, The Sampler or other assigned person on the team calibrates the results to determine the average five-minute losses.
  - (f) For even better results, the Can Count can be repeated in other times of the year, and the new results averaged with existing data.
- (5) CMI recommends plugging the data collected into CMI's Can Capture [ROI Calculator](#) to determine the approximate loss of revenue and potential savings to your facility. The Calculator is an easy-to-use spreadsheet with instructions.
- B. Improving Can Recovery through the Lease-to-Own Program:** Once the MRF has done the counting and calculations, MRF operators may be interested in CMI's Lease-to-Own Program. If so, the first step is to schedule a meeting with CMI's Vice President of Sustainability Scott Breen at [sbreen@cancentral.com](mailto:sbreen@cancentral.com).
- (1) CMI will offer expertise to MRF management to discuss results and implications, going over the following questions:
    - (a) Is UBC loss significant through individual leak points?
    - (b) What can be done to improve UBC recovery at the leak point?
    - (c) Could the ROI warrant a secondary eddy current or other appropriate sorting device (robotics, optical sorting, different sized screen, etc.) that would most increase capture of UBC and subsequent revenue at a given leak point?
  - (2) **Optional Capital Equipment Lease-to-Buy Program:** In some cases, if financing for the purchase of sorting devices is not currently available for MRFs that see the opportunity and returns possible, CMI is offering a capital lease-to-own option for the appropriate sorting device(s), which may include full or partial financing of:
    - (a) Secondary eddy current systems.
    - (b) Optical sorter (as one part of a multiple sort opportunity).
    - (c) Artificial Intelligence image recognition robotic arms.

## Highlights

- (a) After initial discussions with CMI on the benefits of the program, MRF management will decide which equipment it needs to install to plug leak point(s) due to the estimated loss rates from the testing.
- (b) The MRF team then brings the proposal for discussion to CMI.

---

<sup>1</sup> UBC as a percentage of MRF throughput changes throughout the processing day, based on unprocessed single stream material density on the tip floor and where inbound deliveries of single stream are coming from, and throughout the year based upon the relative rate of UBC packaged beverage sales in the MRF's local marketplace.

# Can Count and Lease-to-Own Aluminum Can Recovery Project Playbook



- (c) CMI has a standard MRF lease agreement with simple terms, including equipment, price and length of the lease (e.g., three years). CMI and the MRF applying for the lease will negotiate the lease terms.
- (d) CMI approves the lease to pay for all or a portion of the sorting device (support equipment like takeaway conveyors are not included in this option) and leases the device to the MRF. CMI will not charge interest to the MRF.
- (e) Payments by the MRF for the equipment will be through monthly sharing of the increased revenue for UBCs coming from the installation of the sorting device at the leak point or from a fixed amount agreed upon by the MRF and CMI.
- (f) Because this is a capital lease, the MRF recognizes the processing equipment asset as owned upon execution and is responsible for every facet of the processing equipment's delivery, installation and operation. CMI retains actual rights to the equipment as a security against payment, and it becomes unencumbered upon full payment of the lease.
- (g) CMI recognizes UBC availability may change during individual years or from longer term trends. As such, within the lease agreement is a one-time option that allows for a change in the payment terms based on a performance test that shows lower UBC availability.
- (h) As part of the agreement, MRF participants agree to submit performance data on the capture of UBC from the equipment installed, as well as allow CMI to use aggregate data and report publicly on the improvement in capture rates from the use of the specific equipment installed.

For more information on CMI's efforts to catalyze additional can capture equipment installation in MRFs and to find tools including the ROI calculator, go to [cancentral.com/cansdriverecycling](http://cancentral.com/cansdriverecycling).