

Refrigerator Recycling Overview

A Presentation by
Michael Dunham, JACO Environmental
and
Andria Jacob, Ecos Consulting
to
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Discussion Topics

- Why Do Refrigerator Recycling?
- Recycling Process Overview
- Refrigerator Recycling Programs - Features and Current Implementations
- 2004 Nevada Program Description and Observations

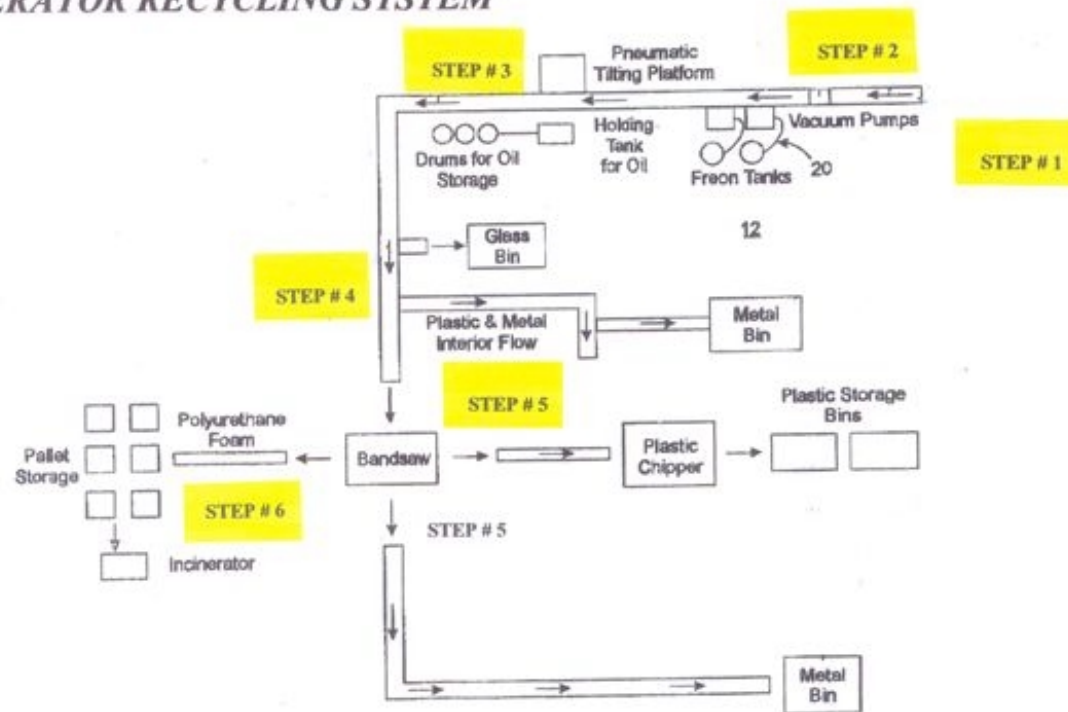
Why Do Refrigerator Recycling?

- Utility bill savings to the customer (get rid of the old “energy hog”)
- Secondary unit programs usually cost-effective to electric utilities where natural gas is marginal supply
 - Passes both societal (TRC) and utility cost tests even if significant free ridership occurs
- Environmental benefits
 - Properly dispose of oils, PCB’s, & CFC-11 foam
 - Properly recycle CFC-12, HFC-134a, steel, & aluminum
 - Avoided landfill (mainly foam, glass, & plastic)

Recycling Process Overview

JACO ENVIRONMENTAL

REFRIGERATOR RECYCLING SYSTEM



Recycling Process Overview

- Fully permitted
- Conducted in a clean, modern warehouse-like facility



Recycling Process Overview

- Step 1: Catalog Unit, and Drill Core Sample
 - Cataloging involves recording unit number and originating utility information
 - Core sample drilling involves boring 1” hole in unit side to inspect type of insulation (to see if CFC-11 present)

Recycling Process Overview

- Step 2: Evacuate Freon



Recycling Process Overview

- Step 3: Pump Oils from Compressor / Remove Capacitors



Recycling Process Overview

- Step 4: Remove Interior Shelving and Storage Bins
 - Harvests tempered glass, plastic, and metal

Recycling Process Overview

- Step 5: Cut Chassis into Pieces, and Harvest/Separate Foam, Metal, and Plastic



Recycling Process Overview

- Step 6: Seal CFC-11 Foam in Bags (for Shipment to Incinerator)



Refrigerator Recycling Programs – Where Demand Comes From



**We pick up your old fridge.
And you pick up 30 bucks.**

Chances are, that old refrigerator or freezer in your garage is running up your utility bill. That's because they can use three times as much energy as newer ones. But there's an easy solution. You can pick up \$30 in cold cash just by recycling your older appliance with Nevada Power. We'll even pick it up for free. Now you can do something good for yourself, good for the environment and lower your energy bills, too.

For more information or to schedule a pickup, call toll-free

1-877-811-8700


Nevada Power.
nevadapower.com

This program is funded by Nevada Power and is available on a first come, first serve basis until funding is exhausted. Refrigerators and freezers must be in working condition and at least 10 cubic feet in size. Customers must own the unit(s) being recycled. Limit two units per residential address. A check for \$30 per unit will be mailed to the Nevada Power customer within 4 weeks after the appliance collection. Some restrictions may apply.

Refrigerator Recycling Programs - Typical JACO Services

- Turnkey provisioning of:
 - Call center operation (inbound 800 #)
 - Web site (program details, reservation requests)
 - Onsite verification of unit working condition
 - Unit collection / transportation
 - Recycling processing (incl. CFC-11 incin.)
 - Incentive check processing
 - Reporting

Refrigerator Recycling Programs - Optional JACO Services

- Marketing
 - Non-pilot programs often utilize mix of newspaper and TV ads
 - Retailer point-of-sale materials typically play supporting roles in large-scale programs
- Linkages to E* programs (e.g., NV in 2004)
- Participant surveying

Refrigerator Recycling Programs – Current JACO Implementations (Partial Listing)

- PacifiCorp (Utah Power & Light)
- PG&E
- Nevada Power / Sierra Pacific Power
- Fort Collins Utilities
- Puget Sound Energy
- Snohomish County (WA) P.U.D.

2004 Nevada Program - Overview

Program Basics	Customers get a \$30 rebate for having old refrigerator picked up and recycled. Additional \$20 rebate for purchasing an ENERGY STAR refrigerator available ONLY to customers that recycled.
For Whom	Residential customers of Nevada Power and Sierra Pacific Power.
By Whom	JACO Environmental (recycling processing services and rebate fulfillment) Ecos Consulting (retail store marketing/promotions/ENERGY STAR verifications) Units are recycled at JACO facilities in Hayward, CA (northern NV customers) and Fullerton, CA (southern NV customers).
Actual Units (through 9/04)	~3,000 old refrigerators recycled (<i>note</i> : recycling continues through 10/04) ~850 E* new refrigerators
Recycling Program “Nuts and Bolts”	Old units must be empty and cleaned out. Working condition must be verified by unit collection technician. Recycled unit descriptive information tracked: manufacturer, model number, materials harvested.
Program Marketing	Primarily in-retail store point-of-sale materials, including refrigerator-mounted tear pads and rebate forms.

2004 Nevada Program – What Happened

- Approx. 28% of participants recycling refrigerators also bought new E* units (while both program elements active)
- Many retailers had difficulty understanding and communicating the program
 - POP not particularly effective – sales associates not able to “multi-task” E* appliance programs
- Many participants submitted claims for non-E* refrigerators
 - 64% fulfillment rate (v. 95% rate for E* clothes washers and dishwashers)

2004 Nevada Program – Lessons Learned

- Importance of good timing
 - A coupled refrigerator program should not run simultaneously with other E* appliance programs – sales associate confusion
- Coupled program is tricky to implement
 - Must have retailer buy-in and pro-active participation
- Mass marketing campaign was probably needed to attain greater E* unit quantities
 - 20/20 hindsight: should have used newspaper and TV ads in lead role, with POP in supporting role