

Becoming RAD

Sally Hamlin

RAD Program Manager

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Agenda



- Introduction to the RAD Program
- Overview of RAD Partners & Achievements
- Close-up on BGE's RAD Partnership
- Close-up on ComEd's RAD Partnership
- Questions



Introduction to the RAD Program



- **What is RAD?**
 - Voluntary partnership program that helps protect the ozone layer and reduce emissions of greenhouse gases (GHGs)
 - Recognizes partners that ensure the disposal of refrigerant-containing appliances by using the best environmental practices available and going beyond what is required by federal law

What is Required by Law?



- **Federal Regulations**

- Section 608 of the Clean Air Act (CAA) requires recovery of ODS and HFC refrigerant prior to appliance dismantling or disposal (40 CFR Part 82 Subpart F)
- Subtitle C of the Resource Conservation & Recovery Act (RCRA) and Subpart D of the Toxic Substances Control Act (TSCA) require proper management and storage of universal waste (e.g., **mercury**), **used oil**, and **PCBs** (40 CFR Parts 273, 279, 761)

How Do Partners Go Beyond?



- In addition to complying with federal regulations on recovery of refrigerant, used oil, mercury, and PCBs, partners:
 - Recover appliance **foam**
 - Promote **recycling** of all durable goods
 - Promote the permanent retirement of old, inefficient appliances to **save energy**

What are the Benefits?



- ✓ Ozone Layer Protection
- ✓ Climate Benefits
- ✓ Cleaner, Safer Communities
- ✓ Energy Savings

Why Join?



- Partners are **publically recognized** for:
 - Protecting the ozone layer and reducing GHG emissions
 - Saving landfill space and energy by recycling rather than landfilling durable materials
 - Keeping communities safe by avoiding the release of used oil, mercury, PCBs
- RAD helps partners achieve and **track environmental benefits**
- RAD provides opportunities for partners to **exchange information and share best practices** with other RAD partners



Multifamily Appliance Recycling Programs

Sally Hamlin— U.S. EPA
Clint Stewart— PSE
Lupe Chacon— San Diego Gas & Electric

August 19, 2015



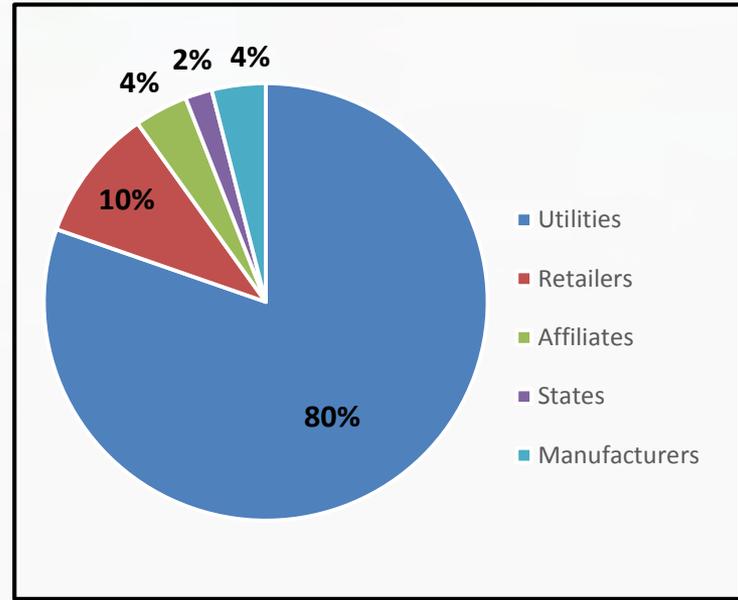


Overview of RAD Partners & Achievements

Partners & Affiliates



Delivering more than power.™



Partner Achievements



- From 2007-2015, partners recycled **6.5 million** refrigerated appliances the “RAD way” resulting in:
 - **30.2 million** tons of GHG emissions avoided
 - **1,645 tons** of ODS emissions avoided
 - **1.1 billion** pounds of material diverted from landfills
 - Proper handling of toxic or hazardous materials, including:
 - **628,000** gallons of used oil
 - **254,000** PCB-containing capacitors
 - **141,000** mercury-containing components
 - Removing old units from the grid, resulting in:
 - **22.8 billion** kWh saved
 - **\$2.8 billion** in consumer savings

Close-up: BGE's RAD Partnership Appliance Recycling Program

**Cynthia Edwards
Program Manager**



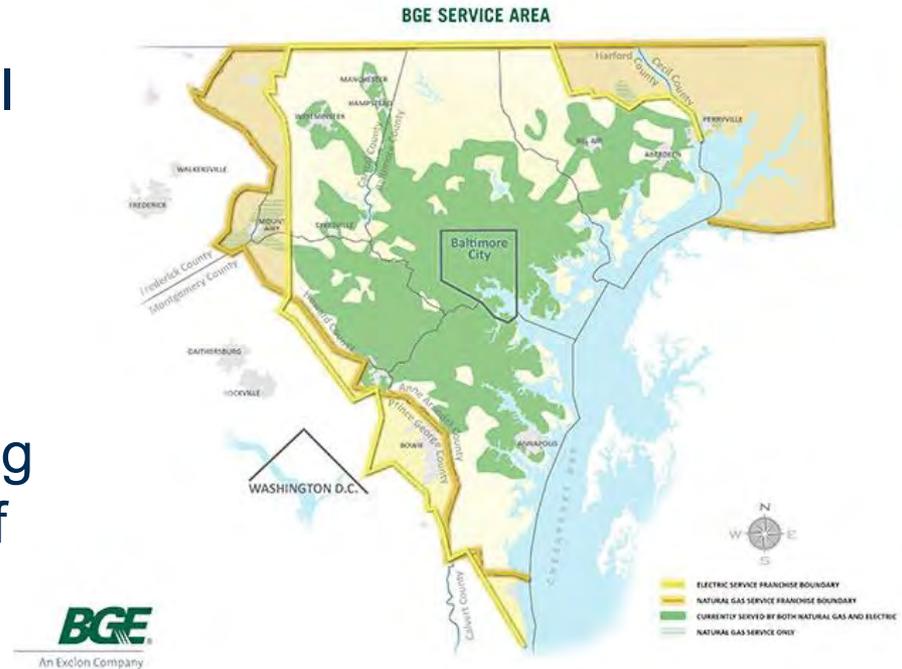
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BGE Service Territory

- BGE is the largest utility in MD, and serves more than 1.25 million business and residential electric customers, and more than 650,000 gas customers.
- The economically diverse service territory is a 2,300 square mile area encompassing Baltimore City and all or part of 10 Central Maryland counties.



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200 YEARS

BGE's Recycling Program

BGE SMARTENERGY
savers
PROGRAM

Get \$50

for your old fridge or freezer!





Let us pick up and recycle your old working refrigerator or freezer and get a \$50 reward. Turn in a room air conditioner and/or dehumidifier at the same time and get \$25 more for each.

Schedule Your Pickup Today!
Visit BGERecycleMyOldFridge.com or call **866.898.1901**.

This program supports
EmPOWER Maryland.



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Recycling has never been so rewarding!

If you have an old working refrigerator or freezer in your garage or basement, it could be costing you as much as \$100* a year in wasted energy. Why not recycle it? We'll pick it up for recycling at no additional cost to you, and give you a \$50 reward. Plus, if you recycle a room air conditioner and/or dehumidifier at the same time, we'll give you an additional \$25 reward for each. It's that simple.

Why Recycle?

Through BGE's recycling program, more than 95% of each appliance is properly deconstructed and recycled, preventing usable materials from entering a landfill, decreasing the demand for raw materials and reducing energy consumption in Maryland.

You Call, We'll Haul!

Visit BGERecycleMyOldFridge.com for details or call **866.898.1901**.

BGE-RCB11-01212015
♻️ Printed on recycled paper using environmentally friendly inks.

*You must be a BGE residential electric customer to participate. The refrigerator and/or freezer must be 10 to 30 cubic feet. Your appliances must be in working (cooling) condition and be plugged in at the time of pickup. Refrigerator or freezer must be drained out, and room air conditioner must be removed from window prior to pickup. Limit of two (2) large appliances (refrigerator and/or freezer) and two (2) small appliances (room air conditioners and/or dehumidifiers). See website for details. *Actual energy and cost savings will vary by equipment model and region. These estimates are conservative and based on national averages (www.energy.gov).

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Program Overview

- RAD Partner since 2009
- **\$50 incentive** for recycling an old, working refrigerator or freezer
- **\$25 incentive** for recycling an old, working room air conditioner and/or dehumidifier in conjunction with a refrigerator and/or freezer
- Sears Collection Model increases appointment availability for customers
- Recycling Turn-In Events for air conditioners and dehumidifiers



The advertisement features a top section with four circular icons: two labeled '\$50 REWARD' and two labeled '\$25 REWARD', each next to an illustration of a different appliance. Below this, the text reads 'We're all rewarded when old appliances are recycled!' followed by 'Ninety-five percent of each appliance is recycled, helping to reduce:' and a bulleted list: 'Energy consumption', 'Ozone-depleting emissions', 'Materials in landfills', and 'PCBs and used oil in the environment'. It also notes 'Demand for raw materials to make new appliances, such as steel, copper, aluminum, glass and plastic.' A small RAD logo is present. The middle section says 'Get rewarded for recycling your old working appliances.' and provides contact info: 'To schedule your pickup, call 866.898.1901 or visit BGESmartEnergy.com/WayToRewards.' It explains that BGE customers get \$50 for old refrigerators and freezers, and \$25 more if they recycle an old room A/C unit or dehumidifier at the same time. It adds that old models can waste as much as \$100 a year and that BGE will pick up and haul away old energy-wasters for recycling at no additional cost. The bottom left features the 'FLIP YOUR FRIDGE' logo with 'BGE RAD AND RECYCLE' below it, and a small disclaimer. The bottom right shows a white van with 'YOU CALL WE'LL HAUL' and '866.898.1901' on its side. The BGE logo and 'An Exelon Company' are at the bottom left, and '200' is at the bottom right.



Partnership Best Practices



- Marketing is the primary driver of the program
 - Direct mail and email marketing continue to drive participation
 - Leveraging utility-owned channels such as bill inserts and banner ads on the utility website have been extremely successful in 2016
 - Other tactics like FSI, targeted digital advertising and search ads have also been successful



Partnership Best Practices

- Promote recycling program through retail partnerships with POP
- Leverage partnerships with retailers participating in the Appliance Rebate program
- Seasonal Appliance Recycling Turn-In Events
 - Spring and Fall events are hosted with community partners
 - Customers can turn in an old working dehumidifier or room air conditioner without a larger unit and receive a \$25 rebate check



Partnership Best Practices

Sears

- **Saturday and Sunday, May 4 & 5 2013**
 - 412 A/C units = 60,000 kWh

h.h. Gregg

- **Saturday and Sunday, May 3 & 4 2014**
 - 205 A/C units = 29,000 kWh



Customers received \$25 for turning in an old working A/C and received an additional \$25 store rebate off the purchase of a new ENERGY STAR A/C unit

Partnership Best Practices

The Baltimore Energy Challenge

- ***Saturday, September 19, 2015***
 - 89 A/C units & 33 Dehumidifiers
= 26,000 kWh



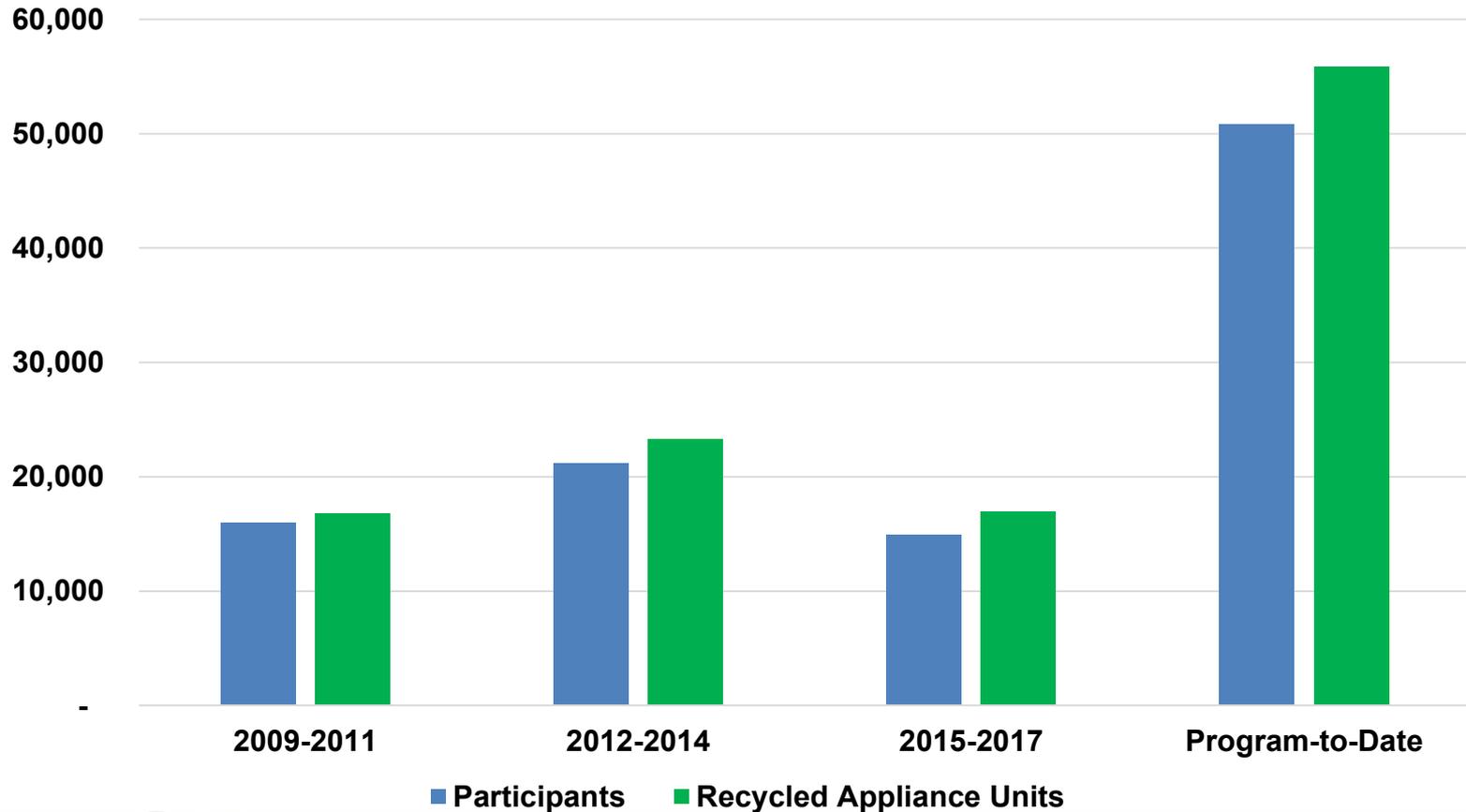
The Columbia Association

- ***Saturday, June 25, 2016***
 - 51 A/C units & 47 Dehumidifiers
= 28,000 kWh
- ***Saturday, June 13, 2015***
 - 111 A/C units & 102 Dehumidifiers
= 58,000 kWh



Program Achievements

BGE Appliance Recycling Participation



Program Achievements



- Recycled 47,000+ refrigerators, freezers, AC units, and dehumidifiers through 2015
 - Metal: 6,640,000 pounds
 - Plastic: 636,000 pounds
 - Glass: 146,000 pounds
 - Plus refrigerant, oil, and mercury containing devices
- 353 million kWh saved
- 364,000 metric tons of GHG emissions avoided, which equals:
 - Nearly 38,500 homes' energy use for one year
- 15.5 tons of ODS emissions avoided
 - Ozone depletion causes increased amounts of UV radiation to reach the Earth's surface which can cause a range of health effects, including skin cancer, cataracts, and suppression of the immune system



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200 YEARS

Benefits of RAD Partnership

- Leveraging partnership through use of the RAD logo on marketing materials
- Recognition on the RAD Partner website
- Accountability and tracking of environmental benefits through annual reporting
- Opportunities to collaborate with other RAD partners on new ideas and ways to improve the programs





Close-up: ComEd's RAD Partnership Fridge & Freezer Recycling (FFR) Program

**Mike Butkus
Senior Program Manager**

Program Overview



smart ideas®

ComEd® Energy Efficiency Program

WAYS TO SAVE



Assessments



Rebates



Discounts



Recycling



My Account

Partnership Best Practices



- ComEd manages all program marketing efforts
- Monthly bill inserts serve as a foundation
- Key message elements:
 - Free pickup
 - Get \$50
 - Environmentally responsible recycling (FAQs)
- FFR is consistently recognized by our customers as providing their strongest connection between ComEd and EE

Program Overview



- RAD Partner since 2008
- **\$50 incentive** for recycling an old, working refrigerator or freezer (increased from \$25 on 6/1/2015)
- 2007 legislation required IOUs in Illinois to offer energy efficiency (EE) opportunities to their customers
- First programs launched on 6/1/2008 and included “appliance” recycling

Partnership Best Practices



The advertisement is for the ComEd Smart Ideas Energy Efficiency Program. It features a white refrigerator on the left with a green recycling symbol on its door. A \$50 bill is shown emerging from the refrigerator. The text "smart ideas" is at the top right. The main headline reads "RETIRE ME AND GET \$50". Below this, it says "Retire your old, working fridge through the ComEd Smart Ideas Energy Efficiency Program and get \$50. We'll pick it up for FREE and recycle it, too." The contact information is "SCHEDULE YOUR FREE PICKUP 855-433-2700 ComEd.com/FridgeRecycling". The ComEd logo and "powering lives" tagline are at the bottom right. Small print at the bottom left reads: "© Commonwealth Edison Company, 2018. Size and other restrictions apply. Call or visit our website for details. Smart Ideas Energy Efficiency Program is funded by ComEd customers in compliance with Illinois law."

smart ideas

RETIRE ME AND GET \$50

Retire your old, working fridge through the ComEd Smart Ideas Energy Efficiency Program and get \$50. We'll pick it up for FREE and recycle it, too.

SCHEDULE YOUR FREE PICKUP
855-433-2700
ComEd.com/FridgeRecycling

ComEd powering lives
An Edison Company

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Size and other restrictions apply. Call or visit our website for details.
Smart Ideas Energy Efficiency Program is funded by ComEd customers in compliance with Illinois law.

- ComEd FFR bill insert
- Size: 3.5" x 8.5"
- Reach: 1.9 million SF households each month

Partnership Best Practices

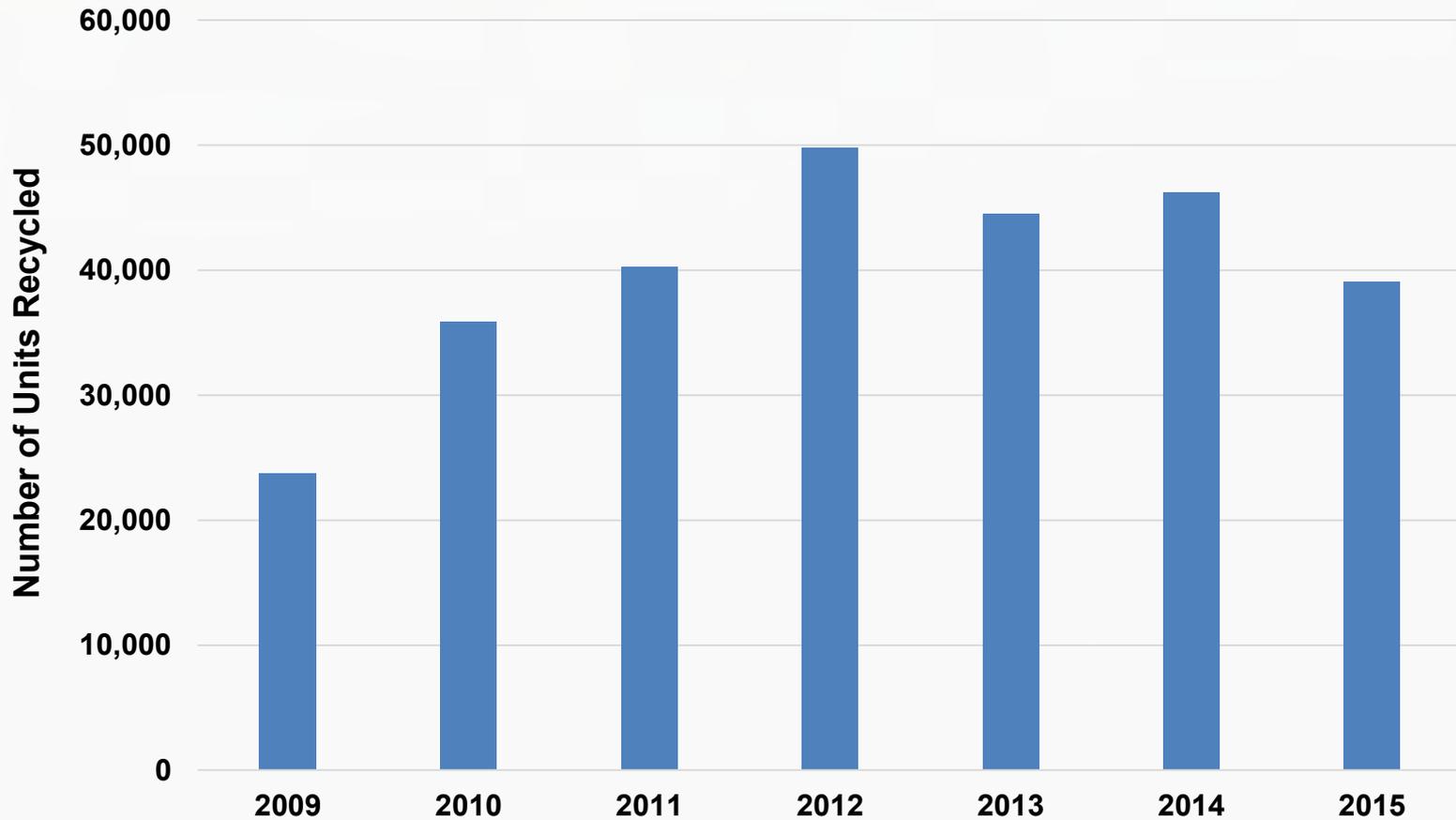


- Enrollment
- Establish Pickup Window
- Day of Collection
- Resolve Customer Issues (if any)
- Incentive Fulfillment



Program Achievements

ComEd Appliance Recycling Program Achievements



Program Achievements



- Worked with JACO Environmental until Nov 2015
- Recycled 279,000+ refrigerators, freezers, and AC units through 2015
- **Program suspended and re-launched with Recleim in Apr 2016**
- Recycled 20,000 refrigerators & freezers during past 5 months (Apr-Aug)
- PY9 goal is 45,000 units, including room ACs

Program Achievements

- 279,439 units collected
 - Metal: 36,604,000 pounds
 - Plastic: 5,842,000 pounds
 - Glass: 754,000 pounds
 - Plus refrigerant, oil, and mercury-containing components
- 2.6 billion kWh saved
- 2.8 million metric tons GHG emissions avoided, which equals:
 - Nearly 295,000 homes' energy use for one year
- 123,000 tons ODS emissions avoided
 - Ozone depletion causes increased amounts of UV radiation to reach the Earth's surface which can cause a range of health effects, including skin cancer, cataracts, and suppression of the immune system

Benefits of RAD Partnership



- Reclaim provides a clear chain of custody
 - Enrollment
 - Collection
 - De-manufacturing



Benefits of RAD Partnership



- Reclam provides an improved, advanced recycling process from the previous “bag & burn” method
 - More automated
 - Foam blowing agent from all units is processed/neutralized onsite
 - Materials are pelletized and well-segregated
- Material outflow destinations – domestic & international



How to Become a RAD Partner

How to Become a RAD Partner



If your utility is already disposing of appliances according to RAD standards, it's easy!

- Review and sign partnership agreement (non-binding)
- Report program information annually



Questions?

For More Information



Sally Hamlin

RAD Program Manager

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EPA'S RESPONSIBLE APPLIANCE DISPOSAL PROGRAM

EXAMPLE PARTNERSHIP AGREEMENT

This voluntary partnership agreement (“Agreement”) between _____ (Partner name) (herein referred to as the “Partner”) and the U.S. Environmental Protection Agency (“EPA”) reflects the Partner’s commitment to participate in EPA’s Responsible Appliance Disposal Program (herein referred to as the “Program”). The Partner and EPA are referred to collectively as the “Parties” in this Agreement. The goal of the voluntary Program is to reduce emissions of ozone-depleting substances (ODS) and greenhouse gases (GHGs) through the collection and proper disposal of refrigerant-containing appliances. This Agreement takes effect when signed by both Parties. As described in the “Dispute Resolution” section of this document, either Party can terminate this Agreement.

The Program promotes the proper disposal of older household appliances, namely refrigerators, freezers, window air conditioning units, and dehumidifiers, in order to prevent emissions of ODS and GHG refrigerants and foam-blowing agents. The Program is also expected to save landfill space, save energy used by older appliances, lead to the recovery of valuable materials for use in making new products (e.g., metals, plastics, glass), and prevent the release of hazardous substances—including PCBs, mercury, and used oil. The responsibilities of each Party are summarized below.

EPA'S RESPONSIBILITIES

- Serve as a technical clearinghouse on responsible appliance disposal program development and implementation.
- Calculate annual and cumulative Program benefits in terms of ODS and GHG emission savings and equivalents and, as available, potential cost savings.
- Provide Partner recognition for achievement through press releases, brochures, articles, and awards.
- All information submitted to EPA will be treated in accordance with the EPA regulations at 40 CFR Part 2, including the provisions on protecting confidential business information (CBI). For information to be treated as CBI, it must be designated as CBI at the time of submittal. EPA will protect CBI to the maximum extent of the law.

PARTNER RESPONSIBILITIES

- Encourage the retirement of old, energy inefficient refrigerators, freezers, window air conditioning units, and dehumidifiers, and implement best practices for the recycling/disposal of these units, including: proper recovery and reclamation or destruction of refrigerants; proper recovery and reclamation or destruction of insulating foam; safe disposal of hazardous waste products, including PCBs and mercury; proper recycling of used oil; and recycling of all recoverable, durable materials.
- Consistent with the Program objectives, report available information annually including: the number of appliances collected; type and quantity of refrigerants reclaimed/destroyed; type and quantity of foam blowing agent reclaimed/destroyed; weight of metals, plastics, and glass recycled; and quantity of hazardous waste products managed and used oil recovered.
- Exchange information on Program development/implementation and best practices with other Program partners.
- Appoint a representative as Responsible Appliance Disposal Program Coordinator and notify EPA of any change in the designated liaison.

PROGRAM EXPECTATIONS

Proper recovery and management of refrigerant: Under Section 608 of the 1990 Clean Air Act Amendments and the implementing regulations at 40 CFR Part 82 Subpart F, no refrigerant may be vented during the disposal of appliances¹ (40 CFR § 82.154); therefore, refrigerant must be recovered at equipment end-of-life. Refrigerant must be properly recovered, meaning that at least 90% of the refrigerant must be recovered if the compressor is operating, and at least 80% must be recovered otherwise; alternatively, the refrigerant can be evacuated to four inches of mercury vacuum (40 CFR § 82.156(h)). Refrigerant must either be reclaimed by an EPA-certified reclaimer (see 40 CFR §82.164) for reuse, or destroyed using approved destruction methods (see 40 CFR Part 82 Subpart A) in accordance with applicable federal, state, and local environmental regulations.

Proper recovery and management of mercury: Mercury waste, such as switches and relays, must be recovered from appliances prior to disposal or shredding, sent to a qualified recovery facility that has appropriate hazardous waste management permits, and managed in accordance with applicable federal, state, and local hazardous waste regulations (e.g., waste must be properly packaged prior to transport) (40 CFR§273). The federal hazardous waste regulations under the Resource Conservation and Recovery Act (RCRA) can be found in Title 40 of the Code of Federal Regulations, Parts 260 - 279. The Partner should consult the appropriate state agency to determine whether the state regulatory hazardous waste requirements differ from federal requirements.

Proper recovery and management of used oil: Any used oil recovered from refrigeration units must be managed in accordance with the federal standards outlined in 40 CFR 279 or the equivalent state regulations. Before recycling and disposal, used oil must be stored in appropriate containers in good condition and with no visible leaks (40 CFR 279). Per the RCRA used oil rebuttable presumption, refrigerant contaminating the used oil should be recovered. Used oil removed from refrigerated appliances cannot be mixed with used oil from other sources (40 CFR 279).

Proper recovery and management of PCBs: PCBs are most likely to be found in a capacitor. If the capacitor does not state “contains no PCBs” or the capacitor (or refrigerator) was manufactured before 1979, assume that the capacitor contains PCBs (see 40 CFR 761.2 (a)(4) for PCB concentration assumptions and 40 CFR 761.3 for definitions). If the capacitor contains PCBs, which are regulated for disposal, and is leaking, then disposal of the capacitor must be in accordance with 40 CFR 761.62(a) or (c). If the capacitor contains PCBs, which are regulated for disposal, and is not leaking, then disposal of the capacitor must be in accordance with 40 CFR 761.60(b)(2). Storage of PCB capacitors, which are regulated for disposal, must be for no more than one year and must be in accordance with 40 CFR 761.65.

Proper recovery and destruction of foam blowing agent: Partner agrees to remove foam from appliances and reclaim or destroy foam blowing agent using approved destruction methods (see 40 CFR Subpart A).

GENERAL TERMS

- This is a non-binding statement of the Parties’ mutual understandings. This Agreement is not legally binding and does not create any right, obligation or benefit enforceable by law or equity against the EPA or the Partner, or any other person. This Agreement applies only to EPA and the Partner.
- The Partner agrees that the activities it undertakes connected with this Agreement are not intended to provide services to the federal government and that the Partner will not submit a claim for compensation to any federal agency/department.
- The Partner agrees that it will not claim or imply that its participation in the Program constitutes EPA approval or endorsement of anything other than the commitment to the Responsible Appliance Disposal Program.
- The Parties shall act in an independent capacity and not as officers or employees or agents of each other.

¹ See §82.154 for exceptions.

DISPUTE RESOLUTION

Partner and EPA assume good faith as a general principle for resolving conflicts under the Responsible Appliance Disposal Program. Both Parties will endeavor to resolve all matters through informal discussions before invoking the provisions below.

In the event informal discussions do not produce a mutually agreeable resolution to a matter in dispute, either Party can terminate this Agreement, without cause or penalty, and both will then cease to publicize the Partner's participation in the Program. A Party wishing to terminate this Agreement shall notify the other in writing as to the nature of the dispute, the specific corrective action sought, and, if applicable, their intent to terminate the Agreement, either as a whole or in part, unless specific corrective actions sought are undertaken:

- Within 30 days of receiving formal notification from a Party indicating intent to terminate the Agreement (the "Terminating Party"), either as a whole or in part, the other Party (the "Non-Terminating Party") will reply, agreeing to either (1) undertake in a timely and effective manner the corrective actions sought by the Terminating Party, or (2) terminate the Agreement, either as a whole or in part.
- If the Non-Terminating Party fails to respond within 30 days of receiving formal written notification of Terminating Party's intent to terminate the Agreement, either as a whole or in part, or if the Non-Terminating Party responds but does not agree to undertake corrective actions sought by the Terminating Party, or if the Non-Terminating Party agrees but does not initiate the corrective actions in a timely manner, then this Agreement shall be terminated upon the expiration of such 30 days.
- Termination of this Agreement does not preclude the Parties from reinstating the Agreement if all matters have been resolved to the satisfaction of both Parties.

The undersigned representatives execute this Agreement on behalf of the Parties.

Authorized Company Representative: _____ Title: _____

Signature: _____ Date: _____

Cindy Newberg, Chief, Alternatives and Emissions Reduction Branch, Stratospheric Protection Division, U.S. EPA

EPA Signature: _____ Date: _____

Please identify your organization's designated Responsible Appliance Disposal Program Coordinator:

Name: _____ Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____ Email: _____

For more information about the Responsible Appliance Disposal Program contact:

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