

Recycling the RAD Way!

U.S. Environmental Protection Agency's
Responsible Appliance Disposal (RAD) Program





Welcome, Introductions & A Little Admin

Our Moderator:

- **Peter Houstle** - MRN Executive Director

Our Presenters:

- **Sally Hamlin** - EPA, RAD Program Manager
- **Gabrielle Jette** - ICF, Consultant

Admin:

- Post questions in chat box
- Recording will be posted on MRN website

Not a Member? Join Today to Support Recycling in Maryland!
www.marylandrecyclingnetwork.org





Sally Hamlin

RAD Program Manager since 2014

Physical Scientist at U.S. Environmental Protection Agency (EPA)

Agenda



- Background
- What are the concerns over appliance disposal today?
- How does RAD help?
- What are the benefits?
- Why join?
- Q&A

Background



13 million refrigerators and freezers



Background



13 million refrigerators and freezers
9 million window AC units

Background



13 million refrigerators and freezers,
9 million window AC units, and
1 million dehumidifiers
are disposed of annually in the United States.



**What are the concerns over
appliance disposal today?**

Concerns over Appliance Disposal Today



Reselling old, inefficient units

- An estimated 25% of refrigerated appliances collected through pick-up programs are refurbished and resold
- Old, inefficient appliances that are put back on the grid consume excessive amounts of electricity

Concerns over Appliance Disposal Today



Reselling old, inefficient units

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→ Higher energy costs for consumers and environmental and health impacts for all

Concerns over Appliance Disposal Today



Landfilling recyclable materials

- Units not fit for resale are typically sent to scrap metal companies, where valuable metals are salvaged, but plastics, glass, and other durable materials are typically shredded and landfilled
- The industry often refers to this practice as “appliance recycling”

Concerns over Appliance Disposal Today



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→ *Waste of landfill space and energy*

Concerns over Appliance Disposal Today



Releasing refrigerants and other harmful substances, against federal requirements

- Federal law requires that refrigerant is recovered prior to dismantling or disposal and that universal waste is properly managed

Concerns over Appliance Disposal Today



→ *Environmental and human health impacts*

- **Refrigerant:** Ozone depletion can lead to skin cancer, cataracts, skin problems, and immune system suppression

Concerns over Appliance Disposal Today



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- **Mercury:** Impairment of neurological development and other problems associated with the human nervous system

Concerns over Appliance Disposal Today



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- **Refrigerant:** Ozone depletion can lead to skin cancer, cataracts, skin problems, and immune system suppression
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- **Used Oil:** Damage to the liver, brain, immune system, and reproductive system

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- **Mercury:** Impairment of neurological development and other problems associated with the human nervous system
- **Used Oil:** Damage to the liver, brain, immune system, and reproductive system
- **PCBs:** Carcinogenic and non-cancerous effects

Concerns over Appliance Disposal Today



Releasing insulating foam blowing agents

- Federal law does not require the recovery of the insulating foam that lines the appliance walls of refrigerators and freezers
- This foam contains substances that are potent greenhouse gases and that may also deplete the ozone layer

Concerns over Appliance Disposal Today



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→ Contributes to stratospheric ozone depletion and climate change



How does RAD help?

EPA's RAD Program



- **What is RAD?**
 - A voluntary partnership program that helps protect the ozone layer and reduce emissions of greenhouse gases



EPA's RAD Program



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RAD Partners

RAD recognizes partners that commit to collecting and disposing of old refrigerated appliances using the best environmental practices available and going beyond what is required by federal law

RAD Affiliates

RAD recognizes affiliates that promote the RAD program



What is Required by Law?



- **Federal Regulations**

- Section 608 of the Clean Air Act requires the recovery of ODS and HFC refrigerant prior to appliance dismantling or disposal ([40 CFR Part 82 Subpart F](#))

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- 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?



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- 1) Recover appliance **foam**
- 2) Promote **recycling** of all durable goods
- 3) Promote the permanent retirement of old, inefficient appliances to **save energy**

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- 4) Encourage the use of RAD **marketing or promotional materials**

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- 3) **Raise awareness** on responsible appliance disposal practices among consumers
- 4) Encourage the use of RAD **marketing or promotional materials**
- 5) Include a link to the **RAD website**, or the **RAD widget**, on their websites



What are the benefits?

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- ✓ Ozone layer protection

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- ✓ Climate benefits

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- ✓ Energy savings



Partner Achievements

From 2007-2016, partners recycled nearly **7 million** refrigerated appliances the “RAD way”



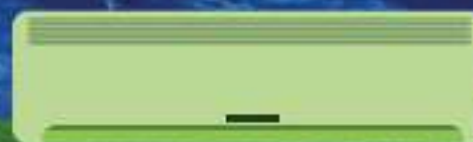
6,382,700
Refrigerators



656,100
Stand-Alone Freezers



11,900
Dehumidifiers



51,800
Air Conditioning Units

Partner Achievements



7
MILLION
refrigerated appliances
recycled the RAD way



31.6
MILLION

metric tons of GHG
emissions avoided

1,721
TONS

of ODS emissions
avoided

988
MILLION
POUNDS
METALS

159
MILLION
POUNDS
PLASTICS

25
MILLION
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GLASS

prevented from going to landfills

Partner Achievements



A reduction of 31.6 million MTCO_2eq is equivalent to the carbon emissions associated with...



Generating enough electricity to power nearly **4.74 million** homes for one year...

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Generating enough electricity to power nearly **4.74 million** homes for one year...



Over **37.2 million** acres of forests in one year—approximately the size of Florida...



Or consuming more than **3.6 billion** gallons of gas.



Why join?

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Partners and affiliates are publically recognized by EPA for:



Protecting the ozone layer and reducing GHG emissions



Delaware's Responsible Appliance Disposal (RAD) program is the first in the nation to be recognized by EPA as a RAD Partner. This recognition is a testament to the program's success in protecting the ozone layer and reducing greenhouse gas emissions.



In 2007, one of the nation's leading home appliance retailers, Sears, Roebuck and Co. (Sears), became the first retailer to partner with the U.S. Environmental Protection Agency (EPA) as one of the first in the nation to join EPA's Responsible Appliance Disposal (RAD) Program. This partnership allows Sears to help protect the ozone layer and reduce greenhouse gas emissions by ensuring that old appliances are properly disposed of through the RAD program. Sears' membership in the RAD program is a mark of leadership.

By joining the RAD program and leading consumers to proper disposal, Sears is helping to protect the ozone layer and reduce greenhouse gas emissions. This is a positive step in the fight against climate change and is a responsibility we all share.



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Saving landfill space and energy by recycling rather than landfilling durable materials



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In 2007, one of the nation's leading home appliance retailers, Sears Roebuck and Co. (Sears), joined the first in-state retailer to partner with the U.S. Environmental Protection Agency (EPA) as one of the first in the nation to join the Responsible Appliance Disposal (RAD) Program. This year, 2008, Sears Roebuck and Co. (Sears) and the EPA signed a partnership agreement. Sears Roebuck and Co. (Sears) recognized the opportunity to ensure a large, efficient, responsible and secure RAD program and creating customers' and the public's opportunity to recycle their refrigerators, air conditioners, and other energy efficient appliances. Sears' membership in the RAD program was a key milestone.

By joining the state's existing and leading electronics recycling program, the partnership will help create a more efficient and responsible electronics recycling program. The partnership will help create a more efficient and responsible electronics recycling program.



Why Join?



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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



Delaware Department of Health and Social Services press release text regarding the RAD program partnership.



Text describing the partnership between Sears and the RAD program, highlighting the benefits of responsible appliance disposal.



Text describing the program launch event, mentioning the presence of EPA representatives and the goal of increasing responsible disposal.

Why Join?



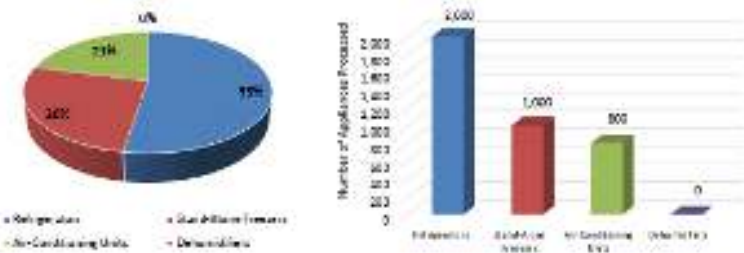
RAD helps partners achieve and track environmental benefits

Step 5: Key Messages and Figures to Promote Program's Benefits

Use the following key messages to promote the program's benefits to a target population based on demographics. Use the key messages to promote the program's benefits to a target population based on demographics. The purpose of this exercise is to help EPA to provide RAD partners with key messages and figures to promote the benefits of their program's special program.

RAD Results

In 2017, RAD calculated and processed a total of 2,000 applications containing special programs that were not eligible for RAD. As a result of RAD processing, the total number of applications that were not eligible for RAD was reduced to 1,000. The total number of applications that were not eligible for RAD was reduced to 1,000. The total number of applications that were not eligible for RAD was reduced to 1,000.



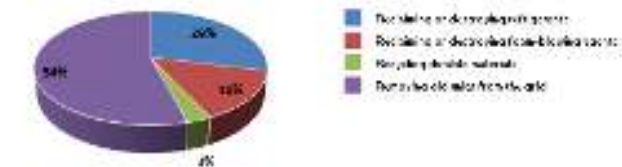
Climate Benefits

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- greenhouse gas avoided from 175 refrigerators (160 metric tons CO₂e)
- carbon dioxide avoided from 100 fewer refrigerators (100 metric tons CO₂e)
- carbon dioxide avoided from 200,000 fewer air conditioning units (200,000 metric tons CO₂e)



Of these applications, 2,000 were not eligible for RAD processing. As a result of RAD processing, 1,000 were not eligible for RAD. The total number of applications that were not eligible for RAD was reduced to 1,000. The total number of applications that were not eligible for RAD was reduced to 1,000.



Why Join?




RAD provides partners and affiliates with a variety of **tools and resources** related to responsible appliance disposal



RAD Web Button



Partner Recruiting Toolkit



Thank you for recycling your refrigerated appliance with a proud partner of EPA's Responsible Appliance Disposal (RAD) Program.

Partners of EPA's RAD Program commit to collecting and disposing of old refrigerated appliances using best environmental practices. Recycling with a RAD partner will:

- Reduce your household energy consumption, which will save you money
- Avoid the release of ozone-depleting substances (ODS) and greenhouse gases (GHGs)
- Save landfill space and energy by recycling—rather than landfilling—the metals, plastics, and glass contained in your appliance
- Avoid the release of used oil, mercury, and polychlorinated biphenyls (PCBs) which can cause adverse human health effects

Benefits Achieved by RAD (2007-2016)

7 MILLION refrigerated appliances recycled the RAD way	=	31.6 MILLION POUNDS OF ODS avoided	1,721 TONS OF ODS avoided
		988 MILLION POUNDS METALS prevented from going to landfills	159 MILLION POUNDS PLASTICS prevented from going to landfills
25 MILLION POUNDS GLASS prevented from going to landfills			

To learn more, visit: epa.gov/rad

Appliance Recycling Flyer

Why Join?



RAD provides access to a national network of like-minded organizations to encourage partners to exchange information and share best practices

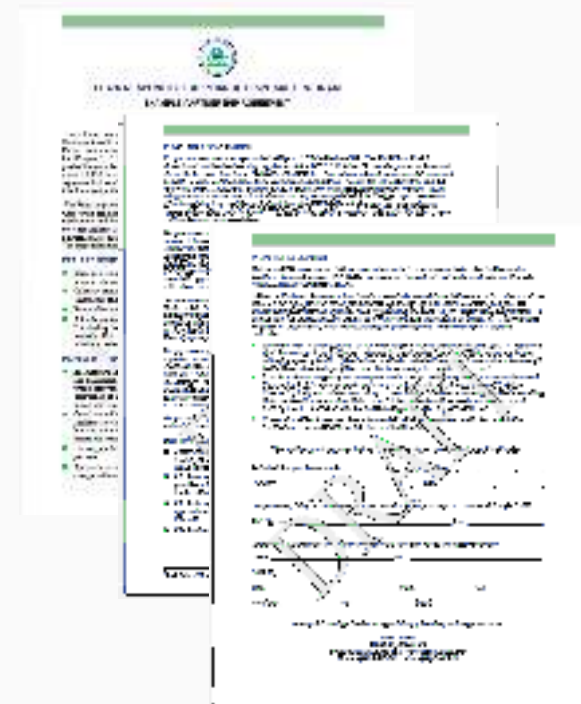


How to Become a RAD Partner



If your organization is already disposing of appliances using RAD best practices, it's easy!

1. Review and sign non-binding partnership agreement

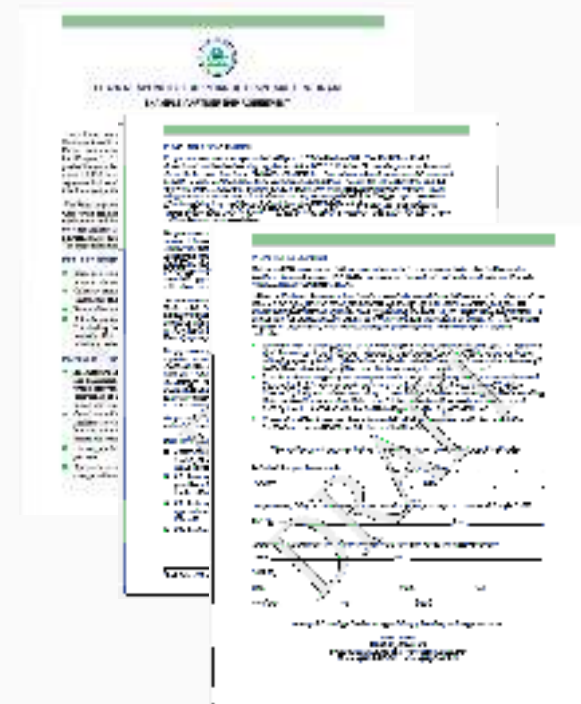


How to Become a RAD Partner



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2. Report program information annually



How to Become a RAD Partner or Affiliate



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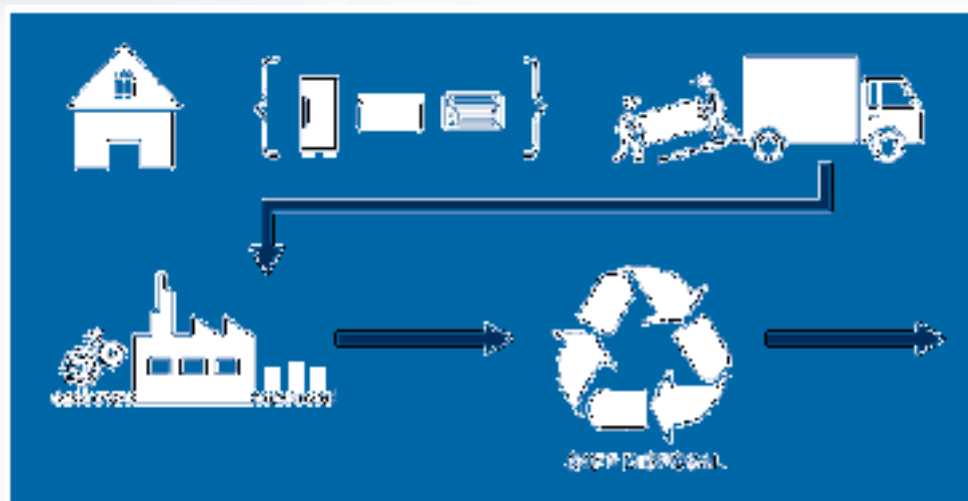
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An example partnership agreement is available on the RAD website at:

<https://www.epa.gov/rad/example-rad-partnership-agreement-form>



How to Become a RAD Partner or Affiliate

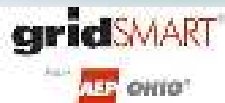


If your organization:

- Does not dispose of appliances and is interested in becoming a RAD affiliate, or
- Does not **yet** dispose of appliances using RAD best practices, but is interested in partnering with RAD,

Please contact Sally Hamlin at Hamlin.Sally@epa.gov.

Current RAD Partners & Affiliates



Holland Board of Public Works





Questions?

For More Information



Maryland Recycling Network

(443) 741-8740

info@MarylandRecyclingNetwork.org



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RAD Program Manager

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