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
- Christine Gajewski ICF, Contractor
- Gabrielle Jette ICF, Contractor

Admin:

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

Not a Member? Join Today to Support Recycling in Maryland! www.marylandrecylingnetwork.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 freezers9 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?



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



Reselling old, inefficient units

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- Old, inefficient appliances that are put back on the grid consume excessive amounts of electricity

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



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"



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- → Waste of landfill space and energy



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



→ Environmental and human health impacts

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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



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



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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



What is RAD?

 A voluntary partnership program that helps protect the ozone layer and reduce emissions of greenhouse gases

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 <u>273</u>, <u>279</u>, <u>761</u>)



In addition to complying with federal regulations on recovery of refrigerant, used oil, mercury, and PCBs, RAD partners:



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- 2) Promote **recycling** of all durable goods



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- 3) Promote the permanent retirement of old, inefficient appliances to save energy





RAD Affiliates promote the program to potential partners and increase environmental benefits for their networks and communities. Affiliates may:

1) Recruit **new partners** to the RAD program



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- 2) Disseminate information on the RAD program to current clients or customers who may be interested in a partnership



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



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- 2) Disseminate information on the RAD program to current clients or customers who may be interested in a partnership
- 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?

What are the Benefits?



✓ Ozone layer protection



- ✓ Ozone layer protection
- √ Climate benefits



- ✓ Ozone layer protection
- √ Climate benefits
- ✓ Cleaner, safer communities



- ✓ Ozone layer protection
- √ Climate benefits
- ✓ Cleaner, safer communities
- ✓ Landfill space savings



- ✓ Ozone layer protection
- √ Climate benefits
- ✓ Cleaner, safer communities
- ✓ Landfill space savings
- ✓ Energy savings



From 2007-2016, partners recycled nearly <u>7 million</u> refrigerated appliances the "RAD way"





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 25

MILLION MILLION POUNDS PLASTICS GLASS

prevented from going to landfills



A reduction of 31.6 million MTCO₂eq 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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Over **37.2 million** acres of forests in one year—approximately the size of Florida...



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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?



DELAWARE DEPARTMENT
OF HEALTH AND SOCIAL SERVICES:

The "First State" Becomes the
First State Partner in EPA's
Responsible Appliance Disposal Program

EPA's RAD program launched in October 2006 to protect the coone layer, cut greenhouse gas (GHC) emissions, and benefit communities. The RAD program invites utilities, retailers, manufacturers, state and local governments, universities, and other qualifying organizations to become partners. The RAD program also invites states to be come RAD affiliates to promote the program to proteinst partners.

Services (DHSS) as th effort to protect the o reduce emissions of o (GHGs) by properly di refrigerators, air cond other refrigerant-cor These old appliances chemicals-like chloro (CFCs), hydrochloro (HCFCs), and hydroflu (HFCs)-that have glo notentials thousands than carbon dioxide it atmosphere. DHSS op services, senior living, facilities comprising o across the state. By py with RAD, DHSS has c to collecting and disp refrigerated appliance environmental practic going beyond what is

federal law.



In 2007, one of the nation's leading home appliance retailer—Sears Roebuck and Co. (Sears)—became the first broadine resulter to partner with the U.S. Environmental Protection's Agency (EPA) as part of the Responsible Appliance Disposal (RAD) Program. With over 2,500 retail locations and 38 distribution centers, Sears Holdings (the parent company to Sears) recognized the opportunity to make a large, beheficial environmental impact by becoming a RAD partner and providing customers with the ability to responsibly dispose of their refrigerated appliances. As a leader in the promotion of energy-efficient appliances, Sears' membership is the RAD program appliances.

"Protecting the environment, and inspiring consumers to protect the environment, through avoided emissions from substances with high global warming and ozone depletion potential is important to us," said Bill Hutchinson, President of Supply Chain. "We aspire to have a positive impact by mitigating climate change and to encourage our industry to do the same."

TURNING VISION INTO REALITY: PROGRAM LAUNCH

Sears' RAD program began as a combined effort between Sears, appliance haulers, and utilities. By teaming with utilities that offer rebates on the removal of old, inefficient populances from the electricity grid as part of Demand-Side Management (DSM) programssimed as reducing electricity use through energy efficiency or conservation. Sears has been able to make their appliance recycling program coroneurs. Bears first rolled out utility half-away programs on the West Coast through a partnershy birth ACC Demonmental (JACO) and the Secramento Municipal Utility District (SMUD), involving two recall ideators and one



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Partners and affiliates are **publically recognized** by EPA for:



Protecting the ozone layer and reducing GHG emissions



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sears*

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Protecting the ozone layer and reducing GHG emissions



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



DELAWARE DEPARTMENT OF HEALTH AND SOCIAL SERVICES: The "First State" Becomes the First State Partner in EPA's **Responsible Appliance Disposal Program**

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Partners and affiliates are publically recognized by EPA 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





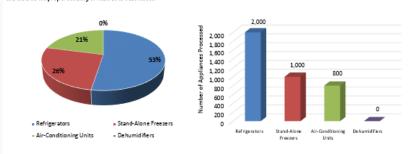
RAD helps partners achieve and <u>track</u> environmental benefits

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

Instructions: No action is required. The information below is for reference only and is self-populated based on data entered in the Step 3 worksheets. The purpose of this worksheet is for EPA to provide RAD partners with key messages and figures to promote the benefits of their appliance disposal program.

RAD Results

In 2017, ICF collected and processed a total of 3,800 refrigerant-containing appliances using best environmental practices. As a result, ICF successfully reduced emissions of oxone-depleting substances and greenhouse gases as well as reduced energy consumption, increased the recycling of durable materials, and ensured the proper handling of hazardous substances.



Climate Benefits

In 2017, ICF achieved a reduction of 8,416 metric tons of carbon dioxide equivalent, which is equal to:

• greenhouse gas emissions from 1,776 passenger vehicles driven for one year. (-or-)

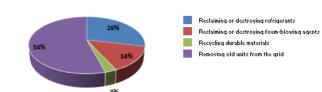
• carbon dioxide emissions from 892 homes' energy use for one year. (-or-)



carbon dioxide emissions from 297,931 incandescent lamps switched to LEDs.



Of these emissions reduced, 28.6% can be attributed to reclaiming or destroying refrigerants, 14.4% to reclaiming or destroying foam-blowing agents, 2.7% to recycling durable materials (which avoids the need to produce virgin materials), and 54.3% to removing old units from the grid.





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



RAD Web Button

EPA's Responsible Appliance Disposal (RAD) Program: A Win-Win for You and the **Environment**



What is RAD?

RAD is a voluntary partnership program that works with utilities, retailers, manufacturers, states, affiliates, and others to dispose of old refrigerated appliances using the best environmental practices available—going beyond federal requirements to protect Earth's climate and ozone layer.

- · Complying with laws on the recovery of refrigerant, used o and PCBs
- · Recovering appliance foam
- · Promoting recycling of all durable goods
- · Promoting the permanent retirement of old, inefficient appliances to save energy



RAD partners have recycled Z1 million refrigerated appliances since program inception, resulting in 31.6 million metric tons of greenhouse gas (GHG) emissions avoided—equivalent to the carbon dioxide emissions from the annua electricity use of 4.7 million homes.

Why Join?

- ✓ Partners are publicly recognized by EPA for:
- · Protecting the ozone laver and reducing
- · Saving landfill space and energy by recycling rather than landfilling durable materials
- Keeping communities safe by avoiding the release of used oil, mercury, and PCBs
- ✓ Partners gain access to the EPA RAD logo
- . Distinguish your organization as an
- . Show others how you are protecting the environment and benefiting communities
- Document your RAD achievements in reports and benchmark progress over time

- ✓ EPA provides partners with a variety of tools and resources related to responsible appliance disposal, including:
 - · Partner case studies
 - · Disposal and recycling fact sheets
- Guidance document
- · Materials communicating the benefits of RAD
- √ RAD provides access to a national network of like-minded organizations
- . Exchange information and best practices with
- . Participate in partner-only webinars and meetings
- · Leverage partnerships with utilities, appliance manufacturers and retailers, recyclers, and others to make your program more efficient and effective

For more information about joining the RAD program, contact Sally Hamlin at Hamlin Sally@epa.gov or visit the RAD website at https://www.epa.gov/rad

Partner Recruiting Toolkit



Thank you for recycling your refrigerated appliance with a proud partner of EPA's Responsible Appliance Disposal

practices. Recycling with a RAD partner will:

- Reduce your household energy
- Avoid the release of ozone-depleting
- Save landfill space and energy by your appliance
- Avoid the release of used oil, mercury, and polychlorinated biphenyls (PCBs) which

Benefits Achieved by RAD (2007-2016)



To learn more, visit: epa.gov/rad

Appliance Recycling Flyer



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





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

1. Review and sign non-binding partnership agreement





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

- 1. Review and sign non-binding partnership agreement
- 2. Report program information annually





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

https://www.epa.gov/rad/example-radpartnership-agreement-form







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



























































THE POWER OF ACTION











PPL Electric Utilities







Unitil

An Exelon Company

























Questions?

For More Information



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