The Future of Circular Economy in Arizona

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Hazardous Waste Permits and Support

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Agenda

- The Linear Economy & Waste
- Principles of Circular Economy
- The 3 R’s
- Grants & Programs
- Market Gaps and Solutions
- Resources

Current Economic Framework

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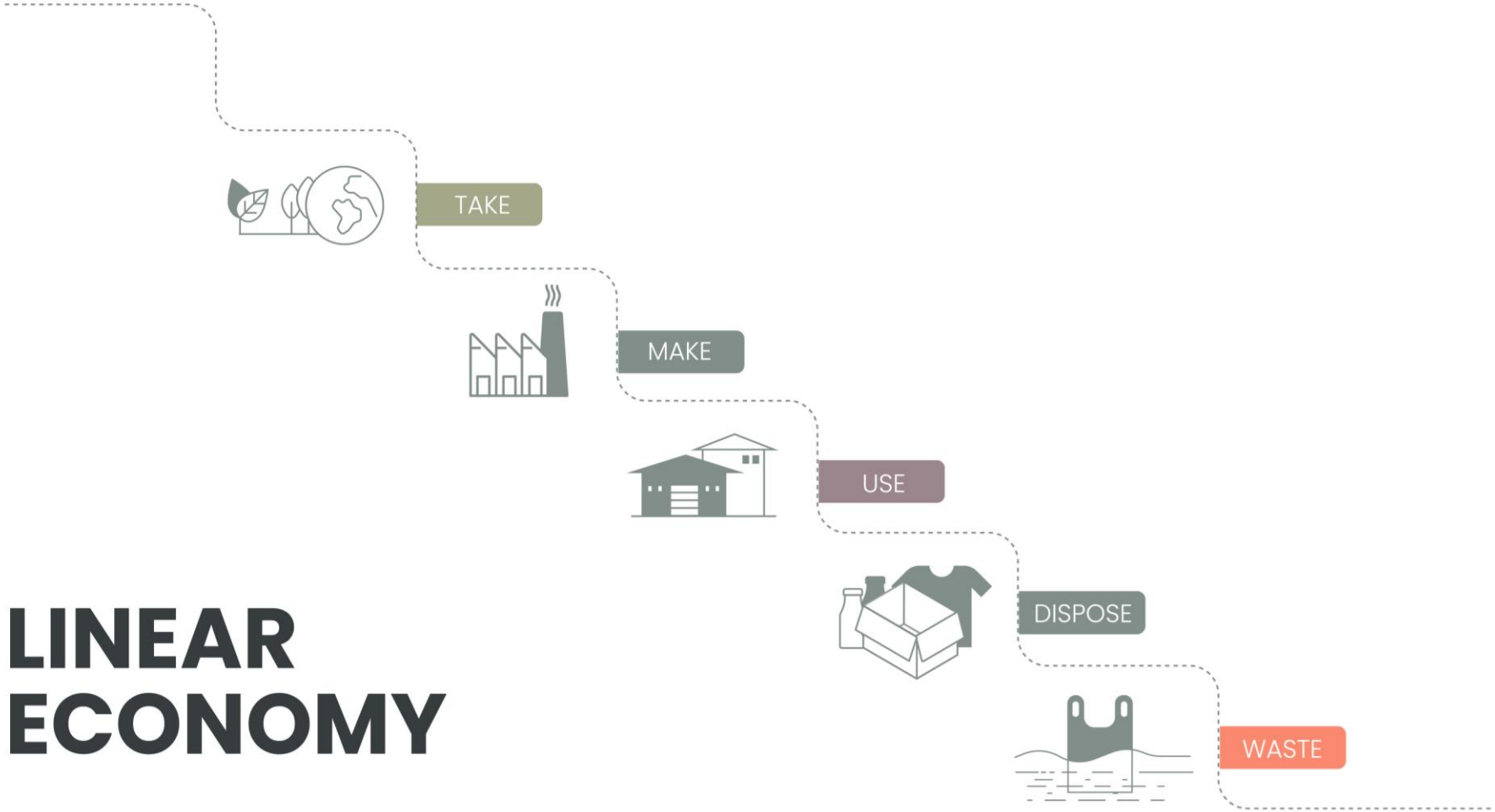
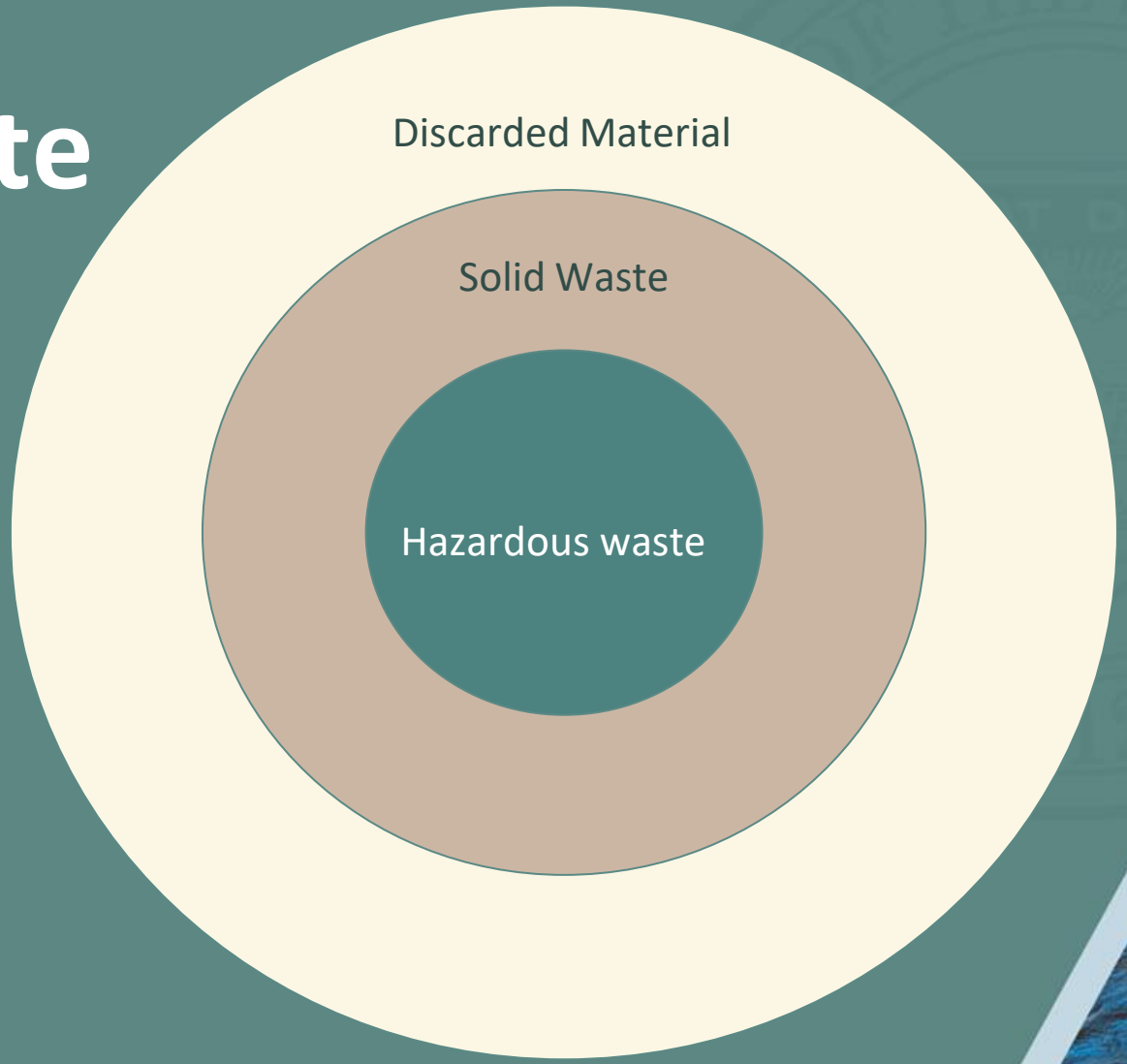
Linear Economy



Waste



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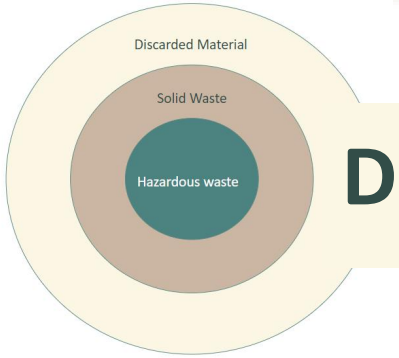
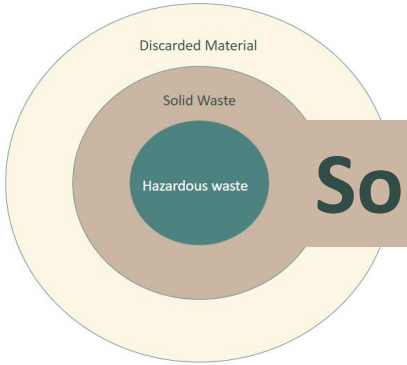
What is a Waste?



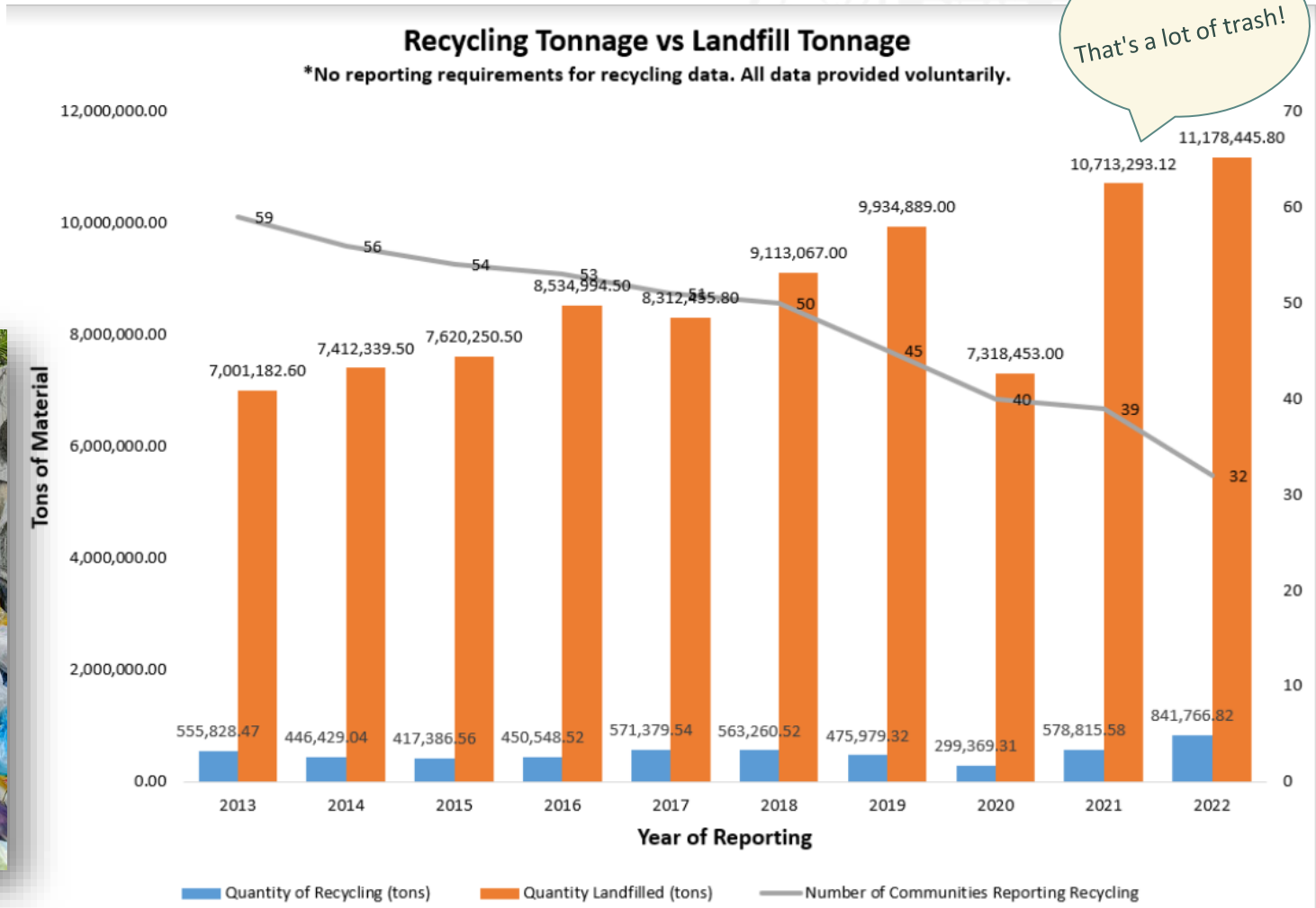
Discarded Materials

- Garbage, refuse, sludges
- Abandoned or destroyed
- Sent for disposal
- Spent materials
- Incidentally generated
- Intended, but not yet discarded
- Recycled items

Waste

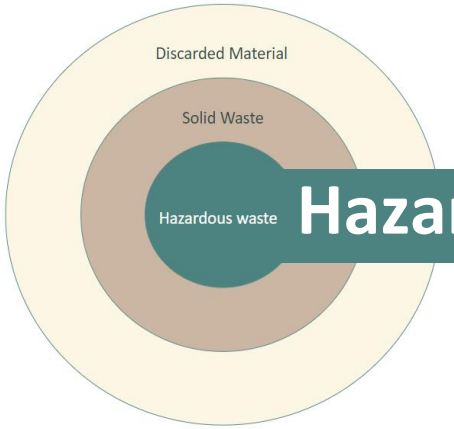


Solid Waste



ARS §49-701.01

Waste



Hazardous waste

1. **Specifically listed as hazardous by EPA or a state (F, K, P, and U)**
2. **Exhibit certain characteristics. A solid waste that exhibits any of the following characteristics is a hazardous waste**

To learn more, head to ADEQ's Hazardous Waste Management webpage

Circular Economy

Key Principles and Goals

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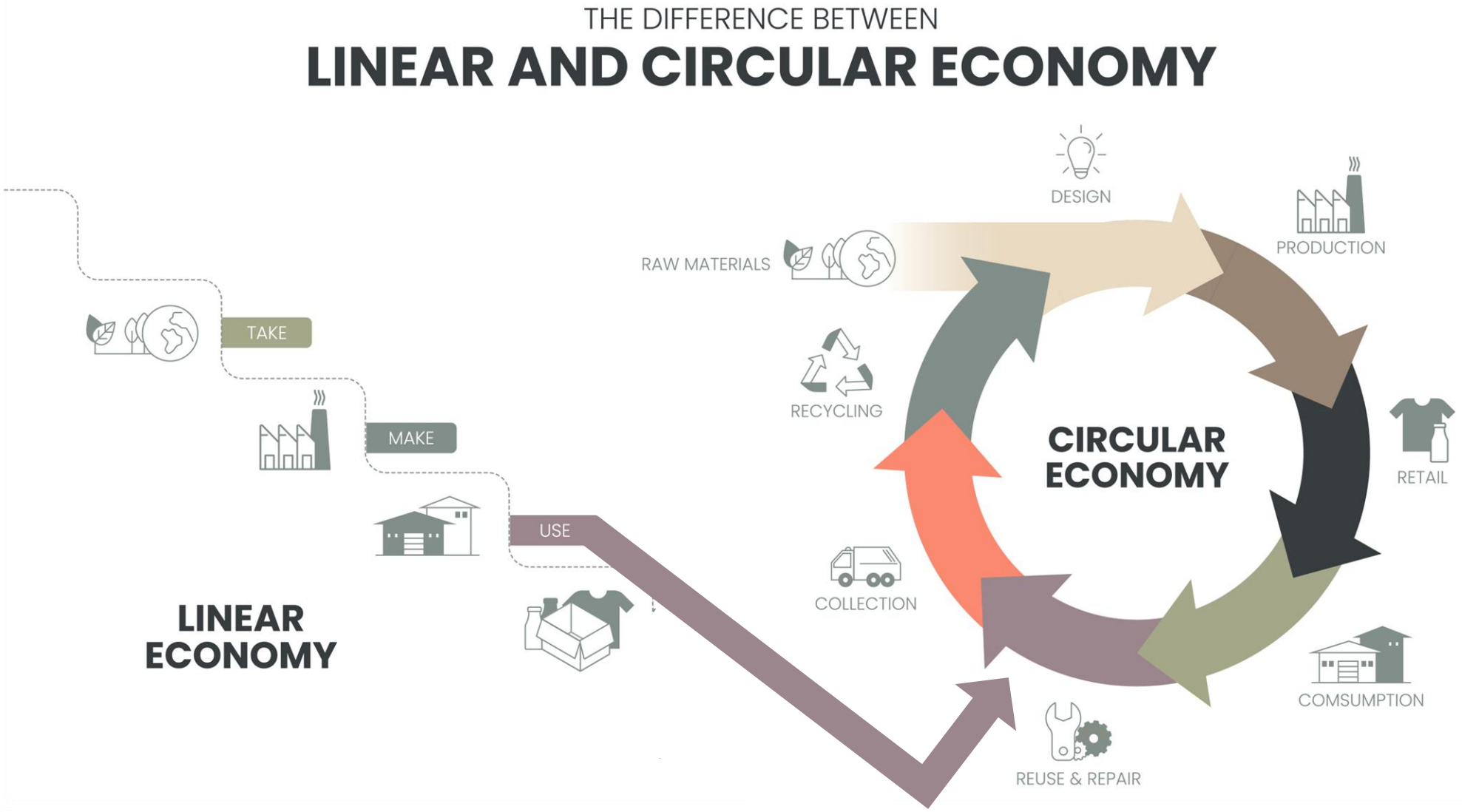
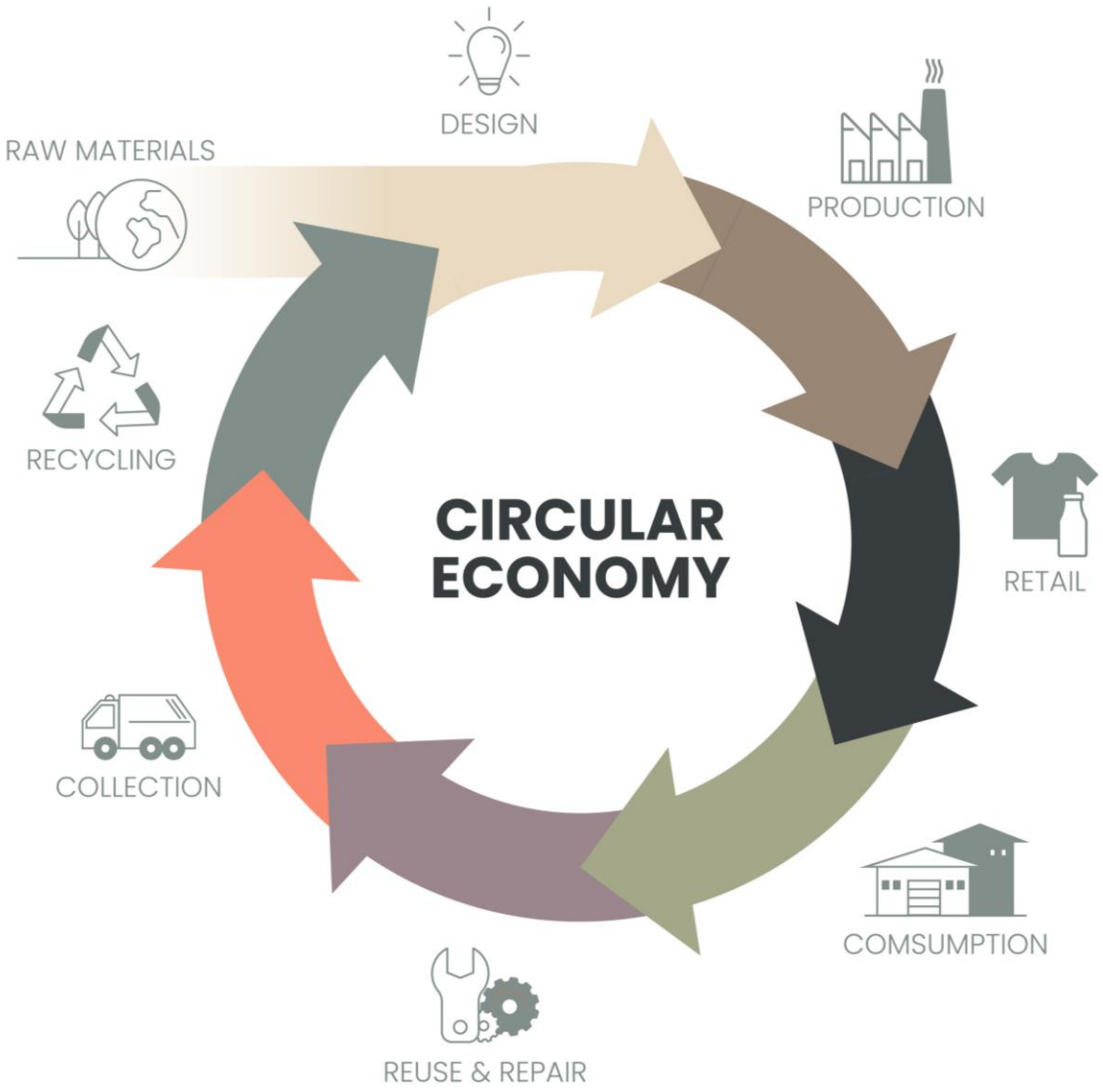
Closing the Loop



Circular Economy Principles



Key Principles

- **Eliminate Waste and Pollution**
- **Circulate materials**
- **Regenerate nature**

Circular Economy Goals

Reduce and Redesign

Reuse, Repair, and Refurbish

Recycle and Recovery

The Three R’s

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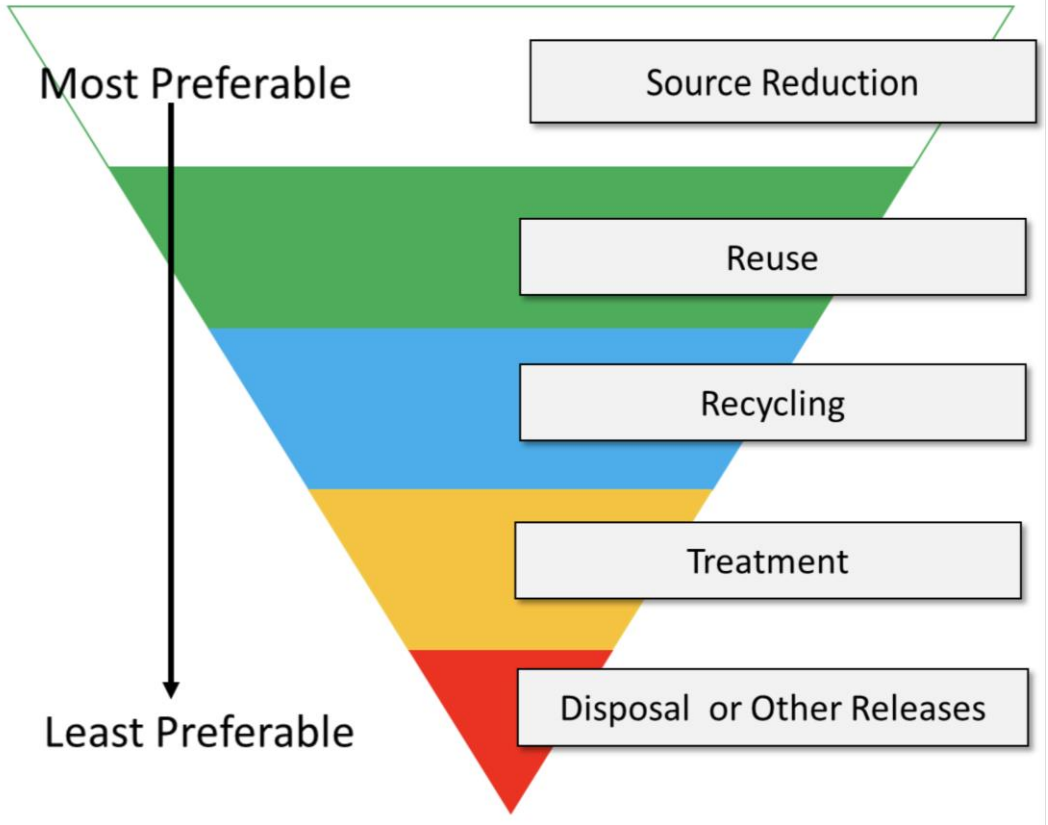
REDUCE: Source Reduction

Waste Management Hierarchy



Examples of Source Reduction:

- Process and equipment modifications
- Operating practices and training
- Inventory and material management
- Material substitutions
- Product modifications

REUSE

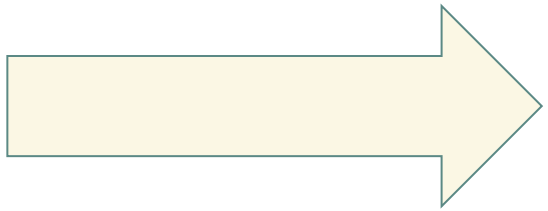
ADEQ's Ways to Reuse

- Donate older items to local donation centers
- Buy used items
- Buy reusable items such as reusable water bottles and shopping bags
- **REDUCE SINGLE-USE WASTE**

RECYCLE

Recycling in State of Arizona

- Allows for collection and remanufacture of material that would be buried in landfill or be incinerated
- Helps conserve natural resources by bypassing the need to harvest new raw materials
- Find your local recycling collector (bit.ly/AZRecyclingLocator)



Programs and Grants

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Pollution Prevention Planning Program

Pollution Prevention Program

Pollution Prevention Act of 1990

Pollution Prevention in AZ 1991

Arizona's P2 Program

- Reduce waste at the at the source and prevent the release of pollutants
  - Hazardous waste
  - Toxic substance
- Includes
  - Energy recovery
  - Recycling
- **Mandatory** for facilities who meet certain thresholds of HW generation and toxic substance use
- Found in Arizona Revised Statutes
  - (A.R.S. § 49-961- § 49-969)

Program Overview- Thresholds

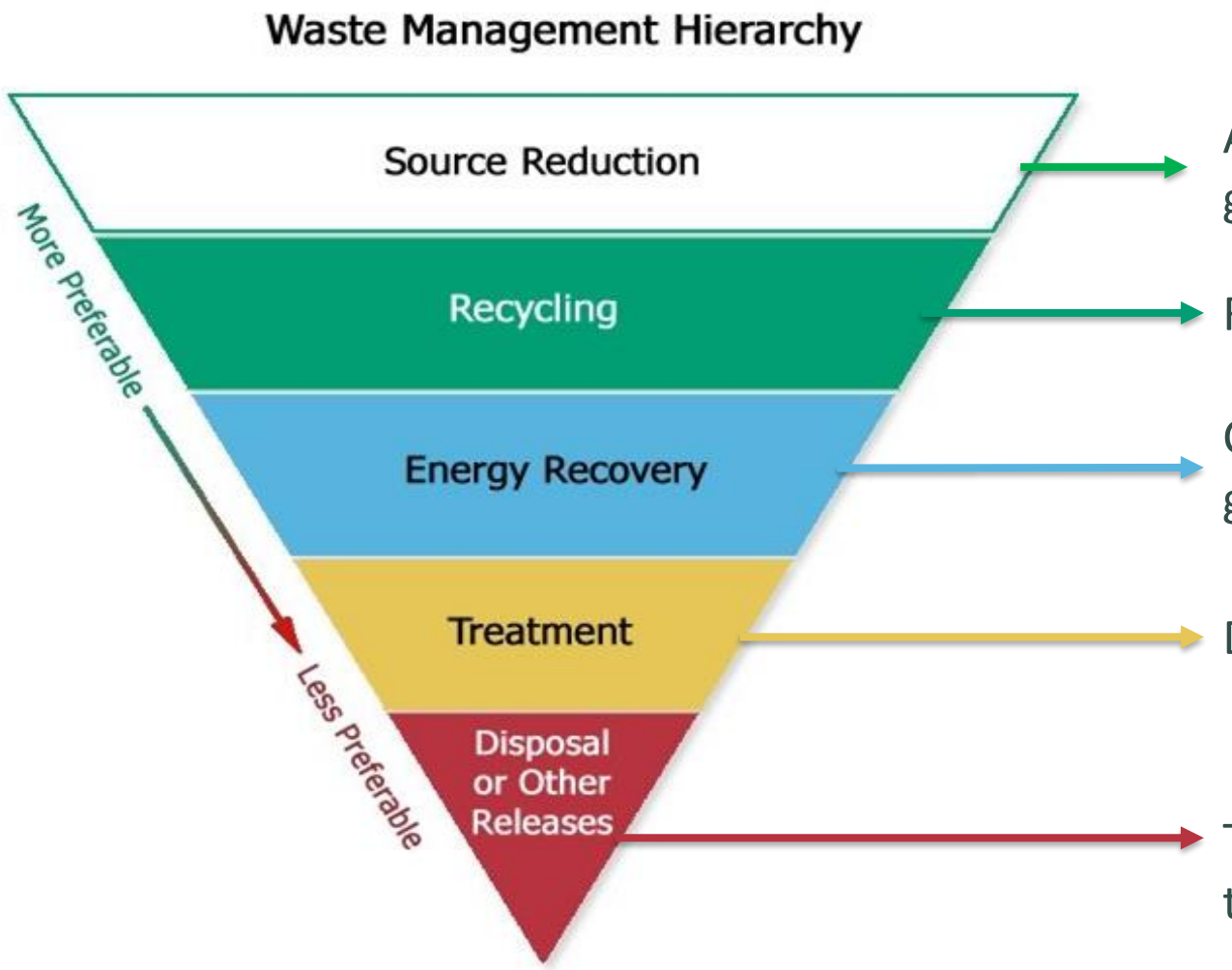
A P2 Plan is required if during the **previous** calendar year a facility:

- ✓ Filed a **Toxic Release Inventory** (TRI) Form (form R or A)
- ✓ Used in excess of **10,000 pounds** of a **TRI listed chemical**
  - See the *Interpretation of "use" of toxic substances in excess of 10,000 pounds for the P2 program*
- ✓ Generated or shipped off-site, for purposes other than recycling a total of
  - **26,400 lbs.** (12,000 kg) per year of **hazardous waste** or
  - **26.4 lbs.** (12 kg) per year of **acute hazardous waste**

Facilities only need to meet <u>any one</u> of the above thresholds to be required to submit a P2 Plan.

(A.R.S. § 49-962)

Toxics Release Inventory (TRI)



Activities that eliminate or reduce the generation of chemical waste

Recovery of a toxic chemical in waste for reuse

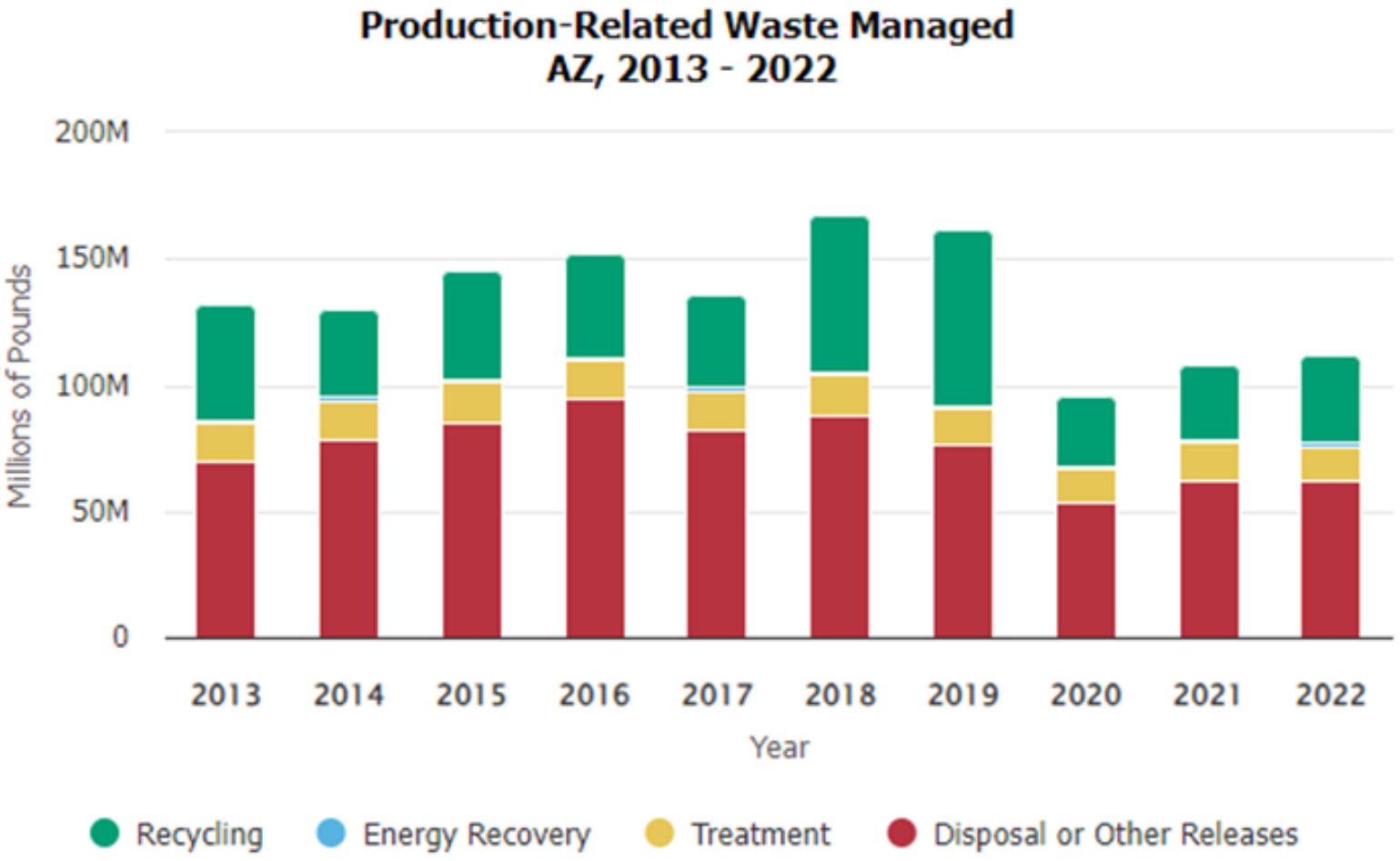
Combustion of toxic chemicals in waste to generate heat or electricity

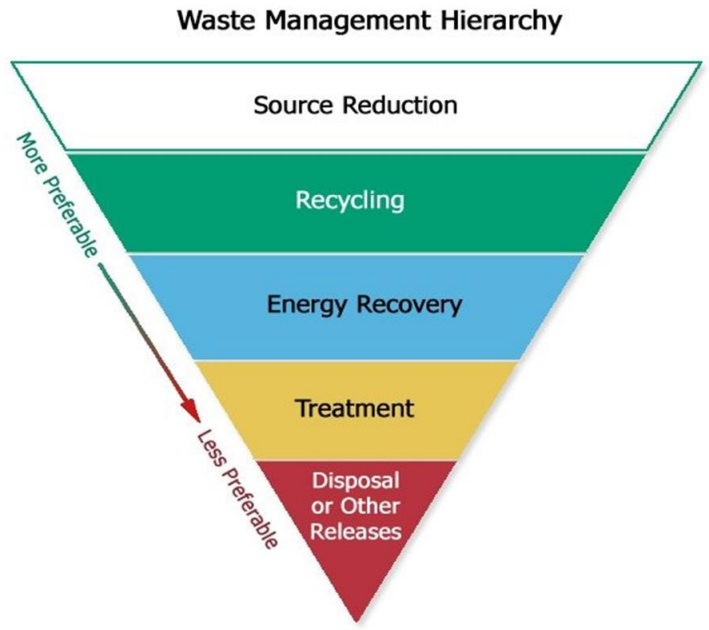
Destruction of a toxic chemical in waste

Toxic chemical quantities entering the environment

Learn more about TRI and P2

TRI In Arizona



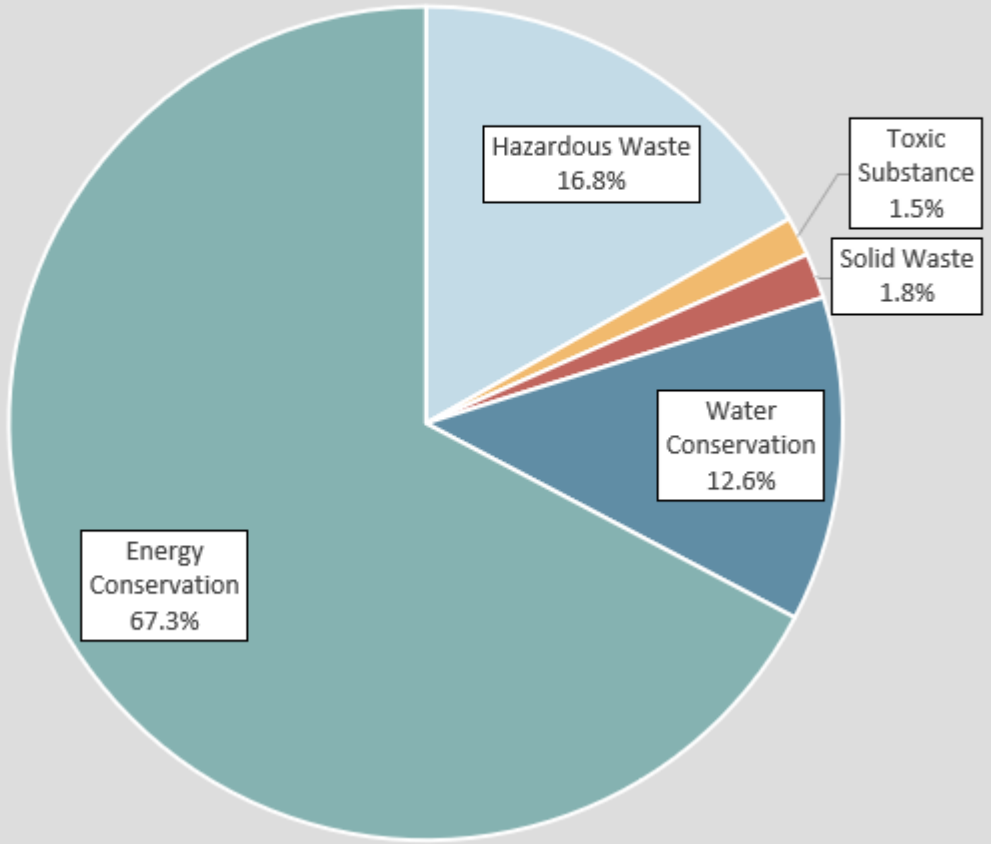


Production-Related Waste Managed
AZ, 2021
107.7 million pounds

P2 Successes: 2021

2021 Cost Savings

$6,453,340



2021 Reduction Totals		
Hazardous Waste	7,290,344	Pounds
Toxic Substance	210,799	Pounds
Solid Waste	4,150,497	Pounds
Water Conservation	207,422,012	Gallons
Energy Conservation	37,768,701	Kilowatt-Hours

Recycling Grant Program

Recycling Grant Program

After a decade ADEQ's very popular Recycling Grant Program is back!

- ADEQ is providing $1 million in funding from legislative appropriations for FY24
- Opportunity for every corner of our great state
  - Municipalities/counties
  - Non-profits
  - Private organizations
  - Tribal governments
  - Academic Institutions

- Many communities have struggled for recycling resources and this is ADEQ's opportunity to close this gap

Recycling Grant Program

- Recycling Infrastructure
- Recycling Education & Outreach
- Recycling Research & Development

Recycling Grant Program

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Waste Reduction Assistance: **WRA**	Waste Reduction Initiative Through Education **WRITE**	Recycling Research and Development **RR&D**
Max Award: $250,000 **Max Award for End Market** Development: $500,000	**Max Award**: $100,000	**Max Award:** $100,000

Recycling Grant Program

Funding is awarded and evaluated by ADEQ and advised by Arizona Recycling Advisory Committee (ARAC)

- Big success for FY24!
- Over $9 million requested in funds for FY24
- Over 61 Applications Received
- Need to continue receiving legislative appropriations into FY25 to fund Recycling Grant Program for the future

Can only apply for Recycling Grant Program if we have funding

Recycling Grant Program

Resources

- Grants Manual | View/Download >
- Terms & Conditions | View/Download >
- Frequently Asked Questions | View >

Forms

- Application Forms/Attachments Checklist | View/Download >
- Application Form for WRA, WRITE and RR&D | View/Download >
- Application Example Narrative | View/Download >
- Budget Form | View/Download >
- Timeline Form | Download (Excel) >
- Grantee Disclosure Form | View/Download >

Recycling Grant Resources

azdeq.gov/recyclinggrants

EPA's Solid Waste Infrastructure for Recycling (SWIFR)

EPA's Solid Waste Infrastructure for Recycling (SWIFR)

- State of AZ was selected for EPA's new grant program authorized by the Bipartisan Save our Seas 2.0 Act and funded through the Infrastructure Investment and Jobs Act
- Provides $275 million for Solid Waste Infrastructure for Recycling grants. Allocates $55 million per year from FY22-FY26
- Provides grants to implement the National Recycling Strategy to improve post-consumer materials management and infrastructure

SWIFR: For States

EPA's Solid Waste Infrastructure for Recycling (SWIFR):

- Arizona Solid Waste & Materials Management Plan (SWMM)
- Developed in 1981
- Modernize SWMM
- Focus on source reduction

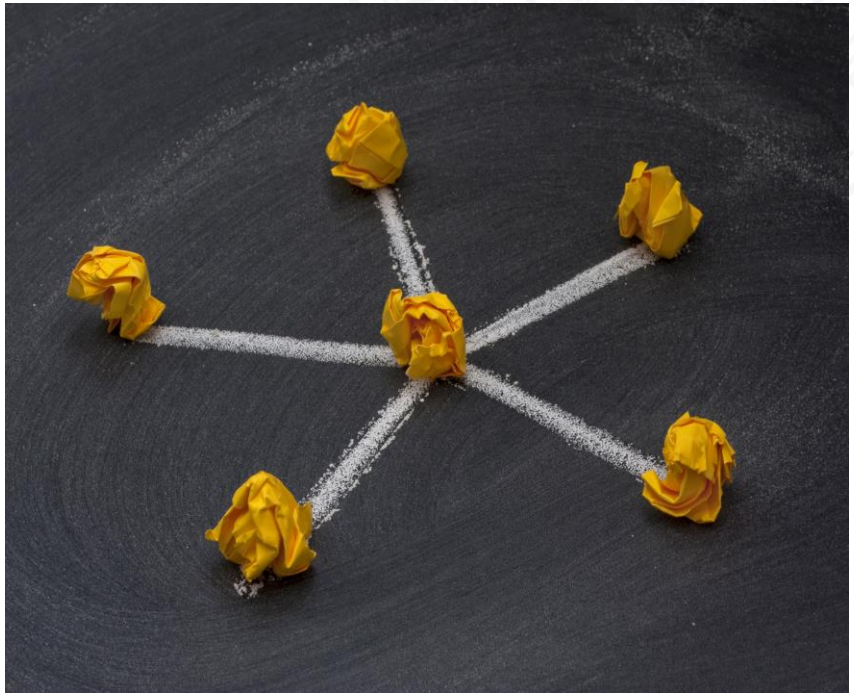
SWIFR: For States

Main Goals:

- **Eliminate Waste and Pollution –** reduce Green House Gasses across the processes
- **Circulate Products and Materials –** retain embodied energy; reuse
- **Regenerate Nature –** sequester carbon in soil and products
- **Assist and Empower Communities** in rural areas of Arizona to help provide equity of recycling by implementing hub and spoke models to increase diversion of recyclable and reusable materials

SWMM Plan

- Summarize and assess current efforts associated with post-consumer materials management
  - Municipal Solid Waste Stream
  - Commercial Solid Waste Stream
- Review ADEQ's current tracking system of using annual recycling surveys sent to municipalities, counties, and Tribes to recommend improvements
- ADEQ will increase support on helping disadvantaged communities in rural areas of the state to increase access to recycling, includes strategies on how to expand hub and spoke recycling to all regions of Arizona
- Create GIS maps highlighting organizations across Arizona working on various material streams



Market Gaps & Solutions

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Market Gaps

Arizona Waste Tires:

- 250 million scrap tires are generated annually in the U.S
  - 7% are exported to foreign countries
  - 8% are recycled into new products
  - 40% are used are tire-derived fuel (TDF)
- Arizona generates approximately 13 million scrap tires per year
- 45% of the 250 million tires generated are disposed in landfills, stockpiles or illegal dumps
- Top market categories for waste tires are tire derived fuel (TDF), ground rubber or asphalt and other civil engineering applications

Market Gaps

What We Need!

- State of the art recycling manufacturing facilities
- Industry Expertise
- Commitment to Environmental Stewardship

Market Gaps

Glass: We need more recycling!

- Demand for recycled glass exceeds current supply
- Heaviest material in the waste stream, capital intensive, high-quality glass = lower manufacturing costs
- Very fragile and breakable

Solutions

Solutions for Glass Recycling:

- Expand hub and spoke locations
  - Minimize tire waste and illegal dumping

- Educate public on proper waste disposal
  - Negative impacts
  - Where to find designated disposal facilities
- Glass can be recycled endlessly with no loss in quality or purity
  - Expand and add permanent and mobile collection points

- Examples:
  - City of Phoenix has a municipal program
    - City of Phoenix municipal program where individuals and businesses collect and sort own glass then transport to a designated drop-off
  - Case study in Prince Williams county North Virginia saw an increase of 137% year-over year increase in glass recycling with this method

Looking Forward

Resources

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Resources: EPA

- Green Chemistry
- Safer Choice
- Sustainable Materials Management
- ENERGY STAR
- WaterSense

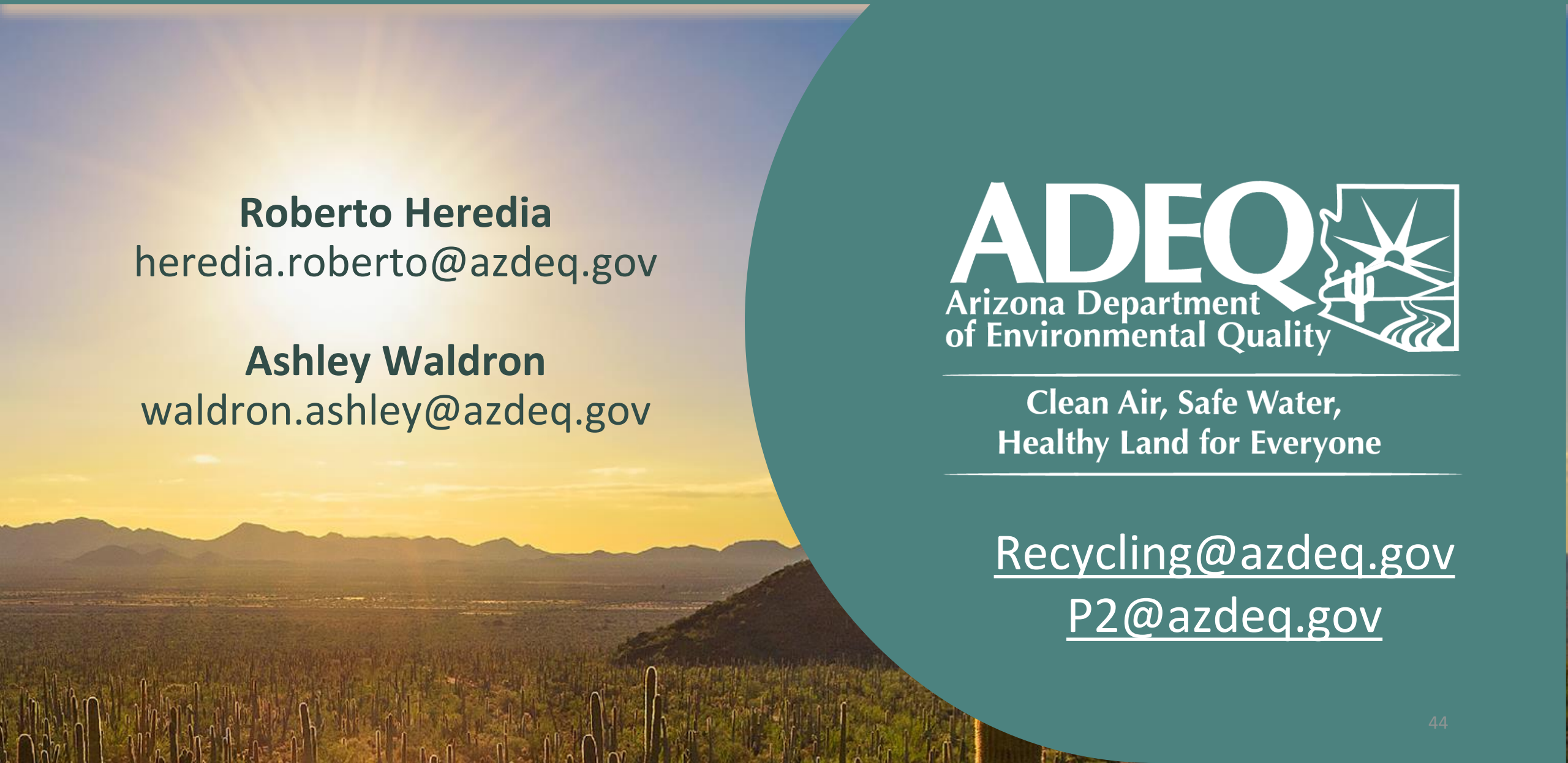
Resources: ADEQ

Resource Summaries help identify P2 opportunities on certain industries and topics

Resource Summaries Found HERE

Send your suggestions and successes to the P2 Team:
P2@AZDEQ.GOV

Thank you!



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