Plastics Pollution: Impacts on Climate and Communities

Climate Action RI Community Meeting
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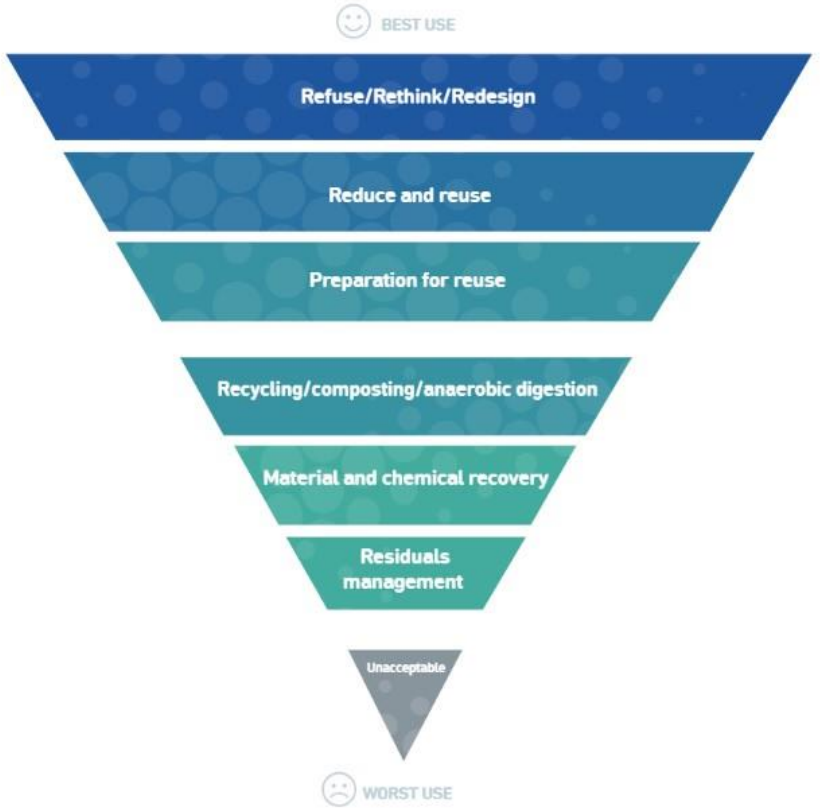
Protecting New England's environment for all people



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Problems with Plastics

- Background: the Plastics “Life Cycle”
- Plastics and Environmental Justice
- Plastics and Climate
- What Can We Do?
- The Plastics Industry and Covid-19

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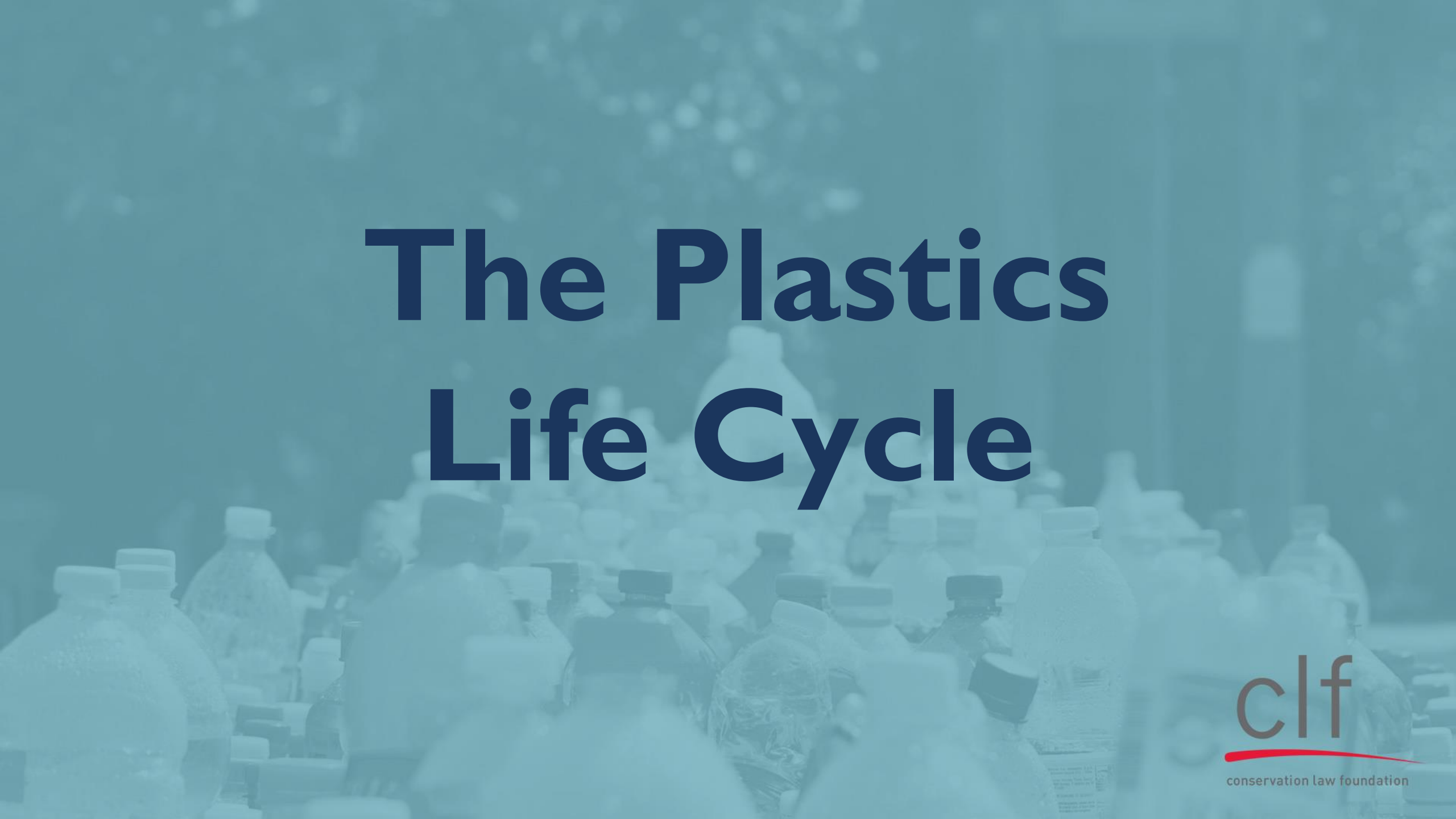
The Plastics Life Cycle



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What are Plastics?

- 99% of plastics are derived from fracked gas or crude oil
- Plastics are cheap because they are subsidized by the fossil fuel industry
- Plastics are often combined with additives to make them more flexible, more durable, fireproof, or a certain color

Plastics = Fossil Fuels

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The Plastics Life Cycle

Extraction

Refinement

Consumption

Waste

Environment

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Plastics Pollute at Every Stage: Extraction

Plastics Pollute at Every Stage: Extraction

- 170+ toxic chemicals in fracking fluid, including benzene, toluene, ethylbenzene, and xylene
- These chemicals cause cancer and liver, kidney, reproductive, and/or development toxicity
- Fracked gas extraction is a significant source of methane emissions

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Plastics Pollute at Every Stage: Refinement

Plastics Pollute at Every Stage: Refinement

- Refining fossil fuels into plastic resins releases hazardous air pollutants like 1,3-butadiene, benzene, styrene, and toluene
- Linked to cancers and neurological effects
- Refining process is energy-intensive and produces significant greenhouse gas emissions

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Plastics Pollute at Every Stage: Consumption

Plastics Pollute at Every Stage: Consumption

- We ingest micro- and nano-particles shed by plastic food packaging
- Chemical additives in plastic packaging leach into food
- 175+ known endocrine disrupters, carcinogens, and other hazardous chemicals used in plastic food packaging

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Plastics Pollute at Every Stage: Waste Management

Plastics Pollute at Every Stage: Waste Management

2,956,500 tons PET bottles in US in 2017

537,500 tons turned into flake

5.6%

166,500 tons into new bottles

Source: 2017 NAPCOR Report on Postconsumer PET Container Recycling Activity

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Plastics Pollute at Every Stage: Waste Management

62,000+ tons/year in the Johnston landfill each year

8,000 tons/year processed for recycling

Source: 2015 Rhode Island Waste Characterization Study

Plastics Pollute at Every Stage: Waste Management

- Incinerating, gasifying, and pyrolyzing plastic releases dioxins, furans, mercury, PCBs, and other toxics
- These pollutants are linked to cancers, neurological damage, and endocrine disruptions
- Per unit of energy generated, plastics incineration emits more carbon dioxide than coal-fired power plants

Don’t Burn Plastic!

Plastics Pollute at Every Stage: Plastic in Our Environment

Plastics Pollute at Every Stage: Plastic in Our Environment

Rhode Island's 2019 International Coastal Cleanup:

- 42,841 small pieces of plastic and foam
- 18,791 plastic plates, utensils, take-out containers, wrappers
- 6,842 plastic bottles
- 6,213 plastic bags
- More than 115,000 pieces of plastic (73% of all items collected)

Source: Save the Bay 2019 International Coastal Cleanup Rhode Island Report

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Plastics Pollute at Every Stage: Plastic in Our Environment

Degrading microplastics contribute to climate damage:

- Photodegradation of microplastics releases potent greenhouse gases like methane and ethylene
- Microplastics damage plankton, interfering with the ocean's ability to absorb carbon dioxide

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Plastics and Environmental Justice

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Plastics and Environmental Justice

- Nationwide, people of color are 75% more likely to live near polluting facilities like petrochemical plants[1]
- 80% of waste incinerators in the U.S. are located in environmental justice communities[2]

[1]Source: NAACP & CATF, Fumes Across the Fenceline
[2]Source: The New School, U.S. Municipal Solid Waste Incinerators: An Industry in Decline

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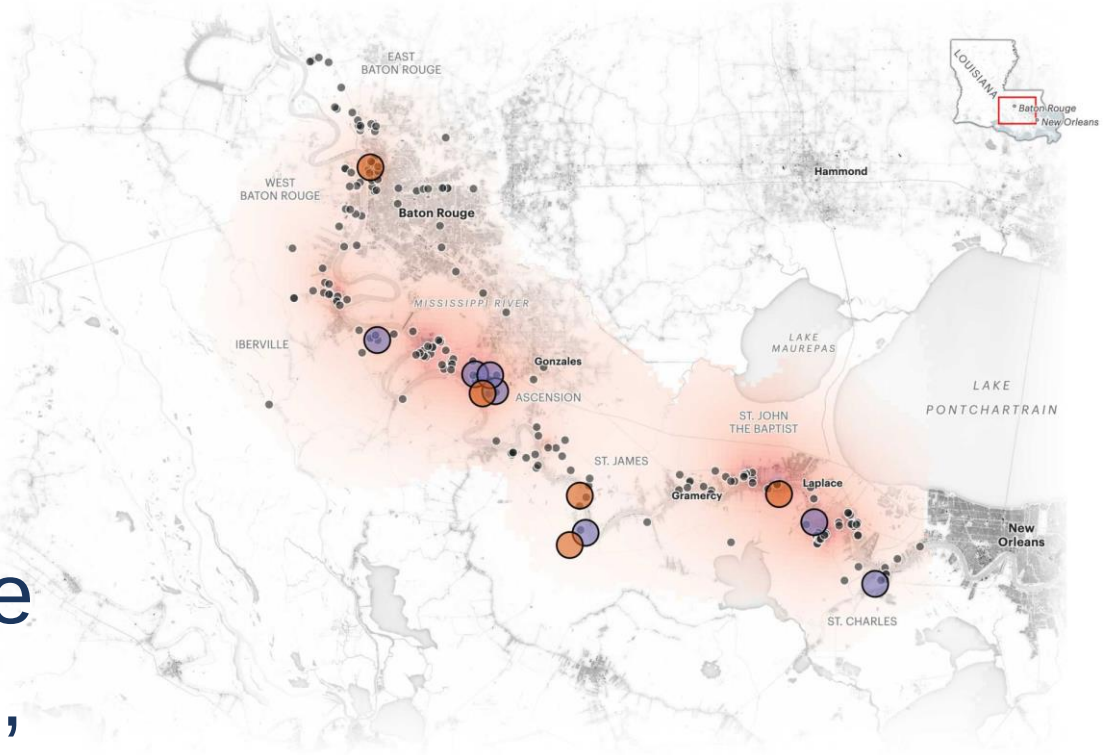
Plastics and Environmental Justice

- “Cancer alley” in Louisiana is home to more than 200 chemical plants
- More than 30 petrochemical plants—including the world’s largest polystyrene facility—are located near St. Gabriel parish, which has a 29% poverty rate and an average income half the national average



Source: ProPublica, Welcome to “Cancer Alley”

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Plastics and Climate

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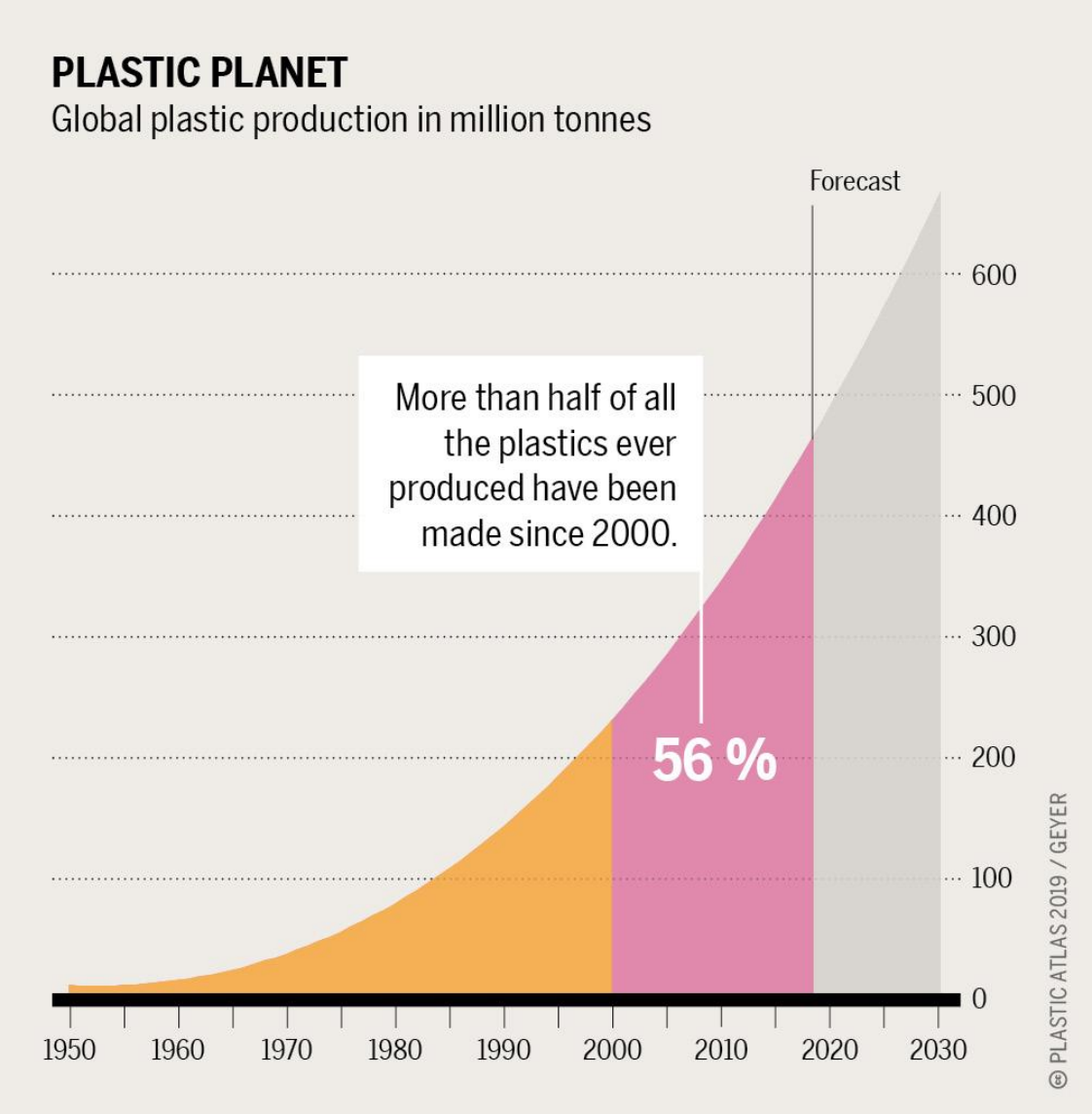
Plastics Production is Growing



Global Plastics Production:

1950 = 2,000,000 metric tons

2015 = 380,000,000 metric tons

2050 = 1,800,000,000 metric tons

Source: Azouly, Plastic & Health: The Hidden Costs of a Plastic Planet

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Plastics Production is Growing

- The U.S. petrochemicals and plastics industries plan to spend more than **$200 billion** on factories, pipelines, and other infrastructure by 2025
- This includes 12 new petrochemical facilities in “cancer alley” and $90 billion worth of facilities in the Northeast

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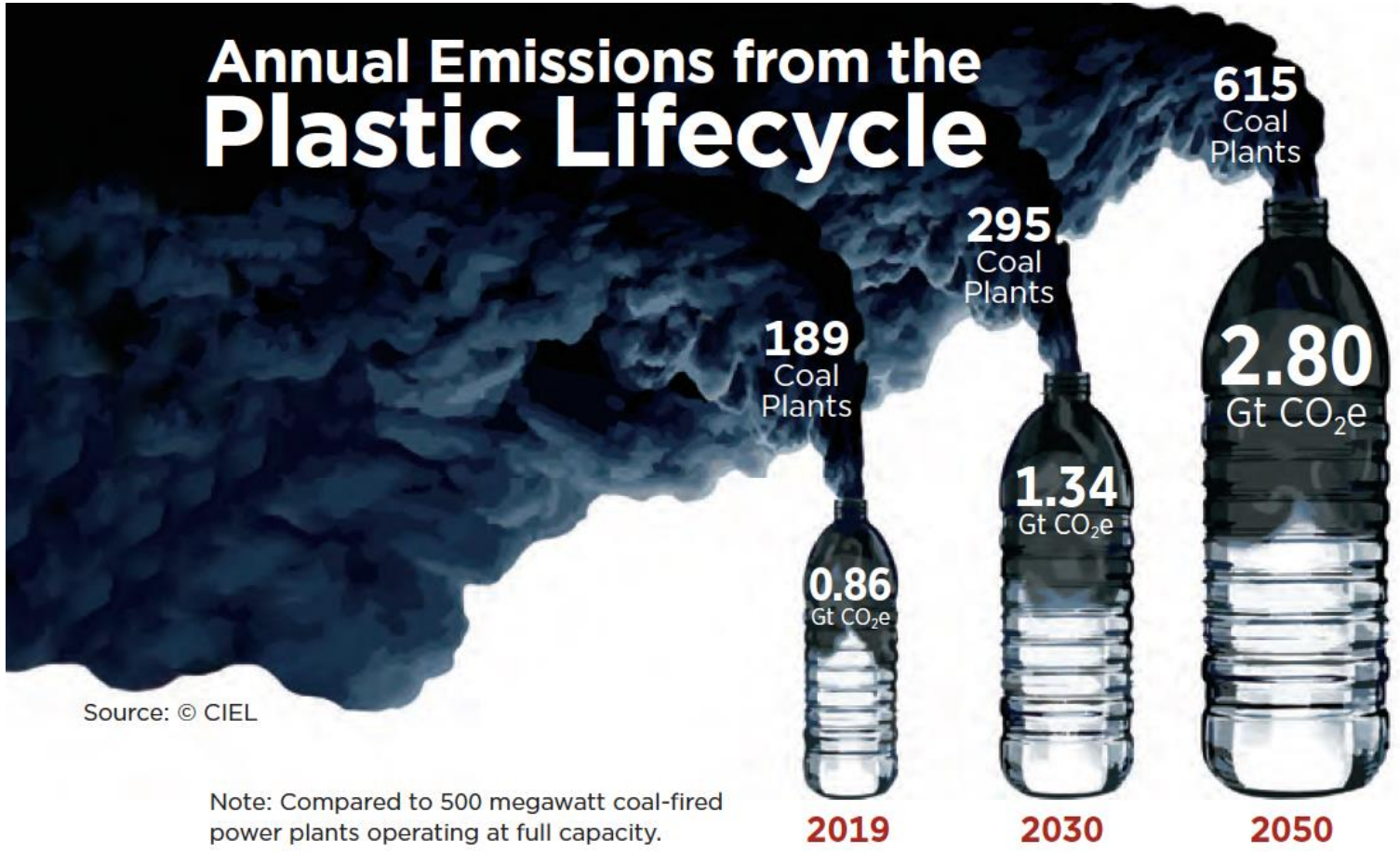
Plastics and Climate



If these trends continue, lifecycle emissions from plastics production and disposal will consume 10-13% of the planet's remaining carbon budget

Source: Hamilton, Plastic & Climate: The Hidden Costs of a Plastic Planet

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What Can We Do?

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We Have the Tools to Fix This

Better recycling is a start, but

we cannot recycle our way out of the plastics crisis

The path forward:

- Single-use plastics bans
- Deposit-return system (bottle bill)
- Extended producer responsibility for packaging
- Reusable and refillable containers and systems

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Bag Bans Work!

Rhode Island threw away more than 26,000 tons of plastic bags and film in 2015

- Starting with Barrington, towns throughout Rhode Island have stepped up and banned retail plastic bags

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Other Plastics Bans

- Polystyrene, straws, stirrers, food ware, and balloons
- Several towns in Massachusetts have banned single-use plastic beverage bottles:
  - Great Barrington, Lincoln, and Sudbury have banned single-serving plastic water bottles
  - West Tisbury has banned plastic water and soda bottles

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The Bottle Bill

Deposit-return systems effectively capture recyclables:

Michigan
10¢ deposit → 92% return rate

Oregon
10¢ deposit → 90% return rate

By contrast, Rhode Island recovers only 39% of its containers for recycling

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Transition to Refillables

- The deposit-return system can be used to support refillable containers
- If Rhode Island adopts a bottle bill, we will be in a better position to move to refillable beverage containers
- Quebec and Oregon have refillable systems supported by their existing deposit-return infrastructure

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EPR for Packaging

Producers Design Packaging ≠ Towns Handle Packaging Waste

Instead → producers manage collection and disposal of packaging waste **or** pay for the cost of recycling

Towns → COSTS → Producers

Goals → lift burdens off towns and incentivize reusable or easy to recycle packaging

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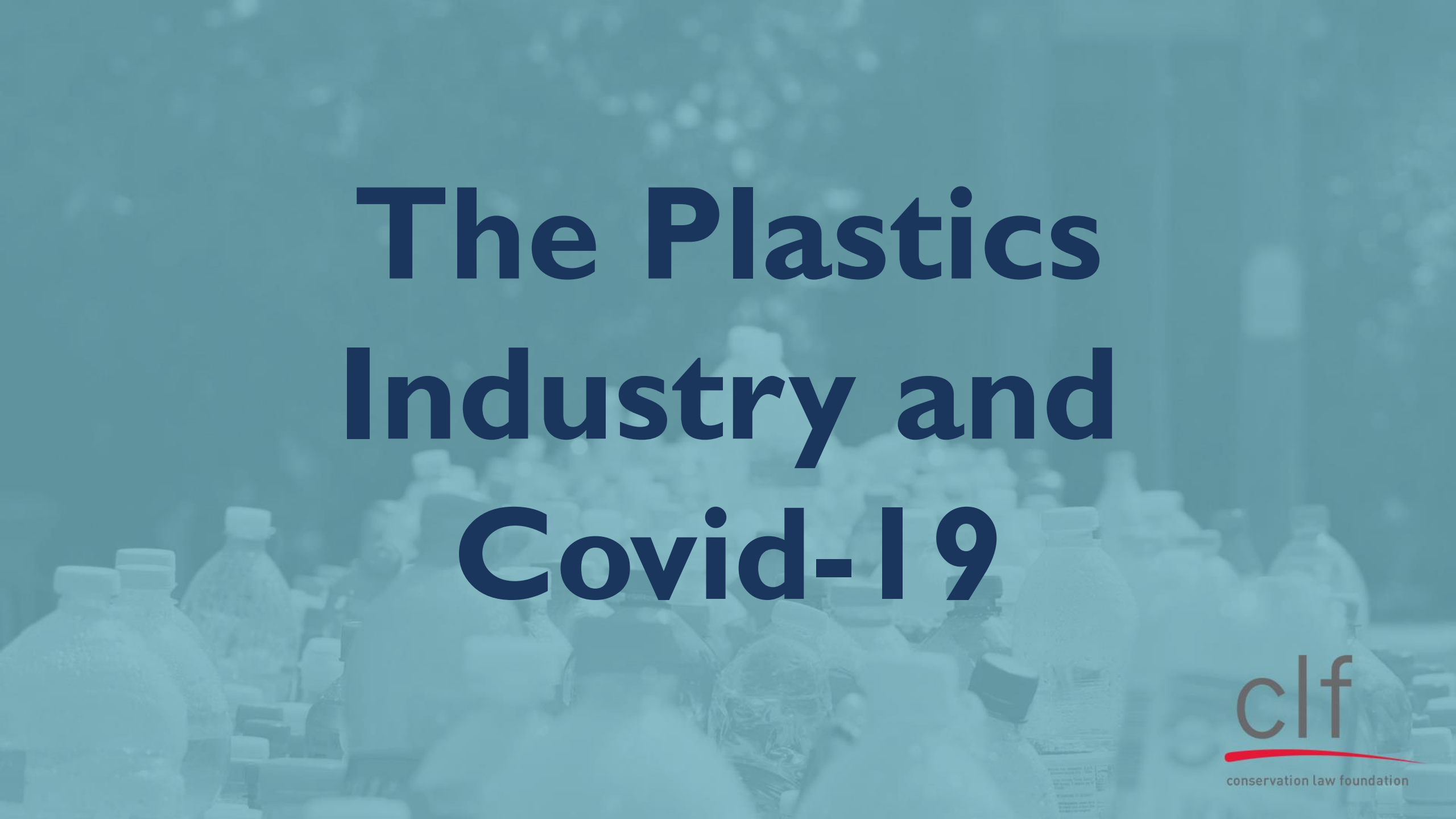
The Plastics Industry and Covid-19



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Industry Misinformation: COVID-19

The Boston Globe

Backlash grows against reusable grocery bags as virus spreads

By David Abel Globe Staff,Updated March 24, 2020, 6:23 p.m.. 49. Cambridge is temporarily forbidding the use of reusable bags at retail stores, amid fears that ...

1 month ago

- **Fear sells** → February 2020, industry seeded a media campaign linking COVID-19 and reusable bags

- **Not just reusable bags** → Plastics Industry Association request to Health and Human Services director Alex Azar to “make a public statement on the health and safety benefits seen in single-use plastics”

- **Rollbacks**
  - RI → Local bans lifted or delayed
  - ME → Statewide bag ban delayed
  - MA → Local bans lifted; temporary statewide ban on reusable bags
  - NH → Temporary statewide ban on reusable bags

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Industry Misinformation: COVID-19

Plastics do not protect public health!

- Primary industry study (2011) was partially funded by the American Chemistry Council
- New England Journal of Medicine: Coronavirus stable on plastic for 72 hours

Source: NEJM, Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1

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Financial Turmoil for Big Plastics

- Plastic is central to the growth of oil & gas majors
  - $200 billion currently invested
- Oversupply is meeting under demand → these industries cannot survive stagnation

Legislation is working!

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The Path Ahead

Single-use plastics bans, the deposit-return system, and EPR for packaging are all steps on a path that lead us away from wasteful, toxic plastics and toward refillable, reusable solutions

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Questions?

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