

CommonWealth

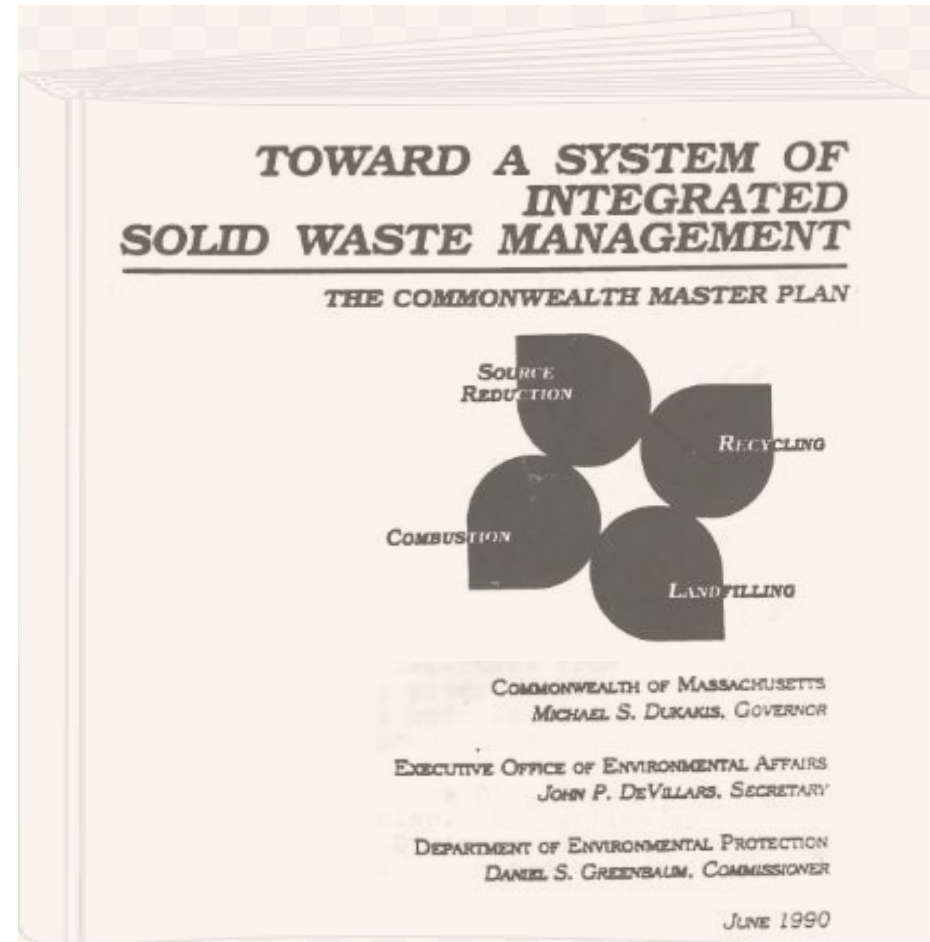
Resource Management Corporation

2020 Hindsight Lessons from the 1990 MassDEP Solid Waste Master Plan

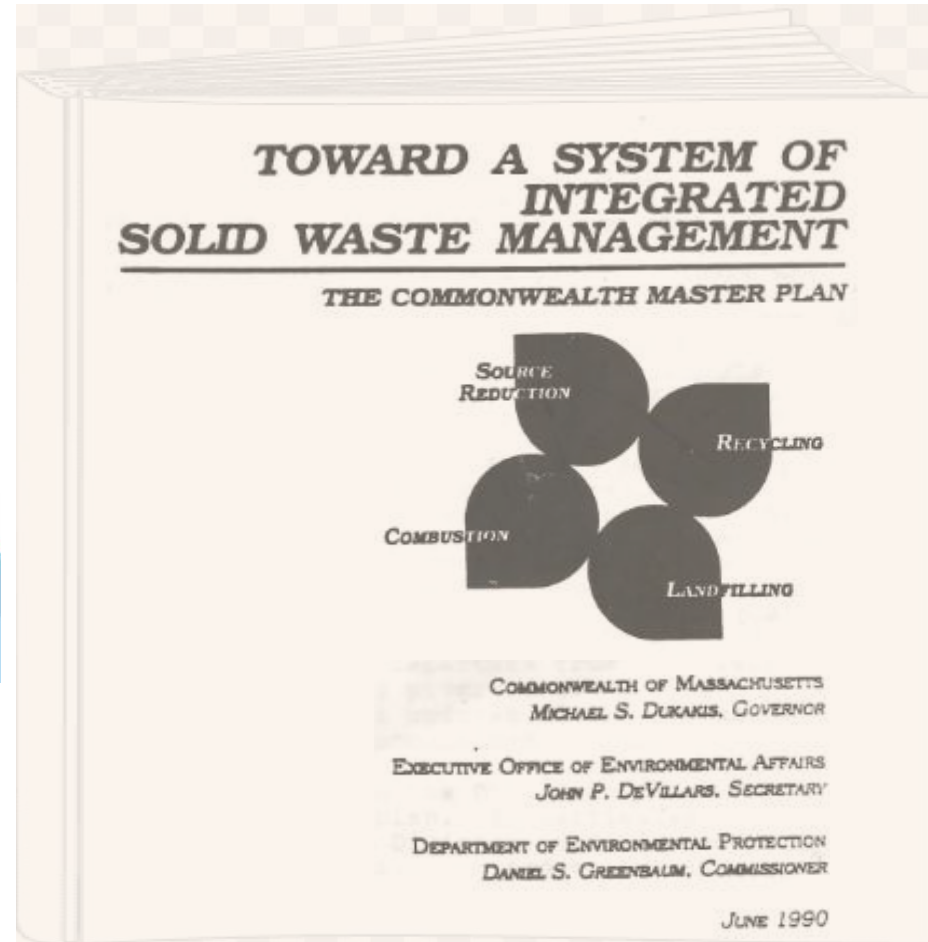
EBCNE

Solid Waste Management Webinar
2050 Future Outlook for
Solid Waste Management
in New England

12 November 2020



2020 Hindsight: The 1990 MassDEP Solid Waste Master Plan



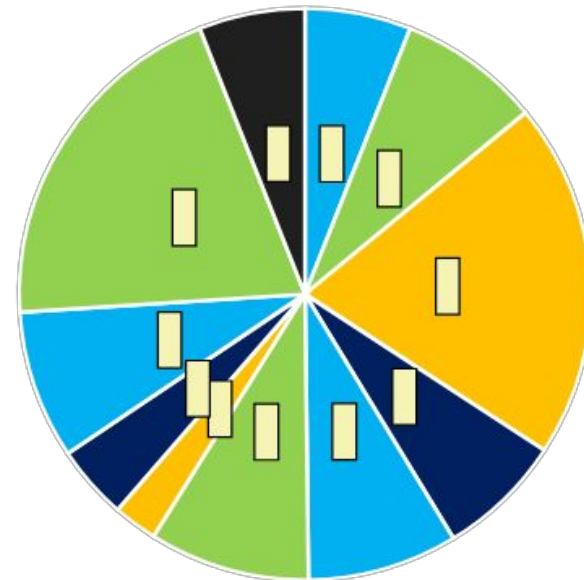
2020 Hindsight: The 1990 MassDEP Solid Waste Master Plan

Mass. solid waste generation from the 1990 SWMP

Solid Waste Quantities

Residential MSW	3.19 MM tons
Commercial MSW	3.46 MM tons
Other solid waste	3.35 MM tons
Total	10.00 MM tons

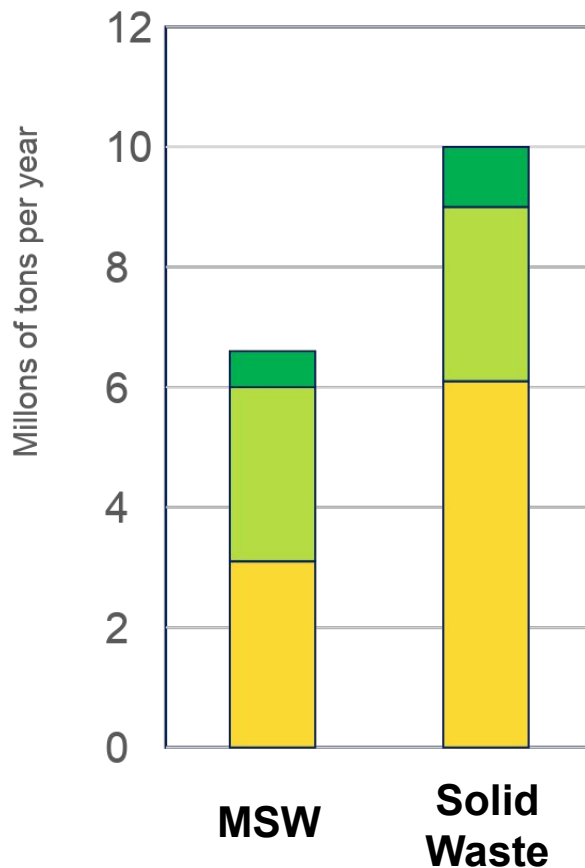
MSW Composition



Source: USEPA, Franklin Associates

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Mass. solid waste management facilities in 1990



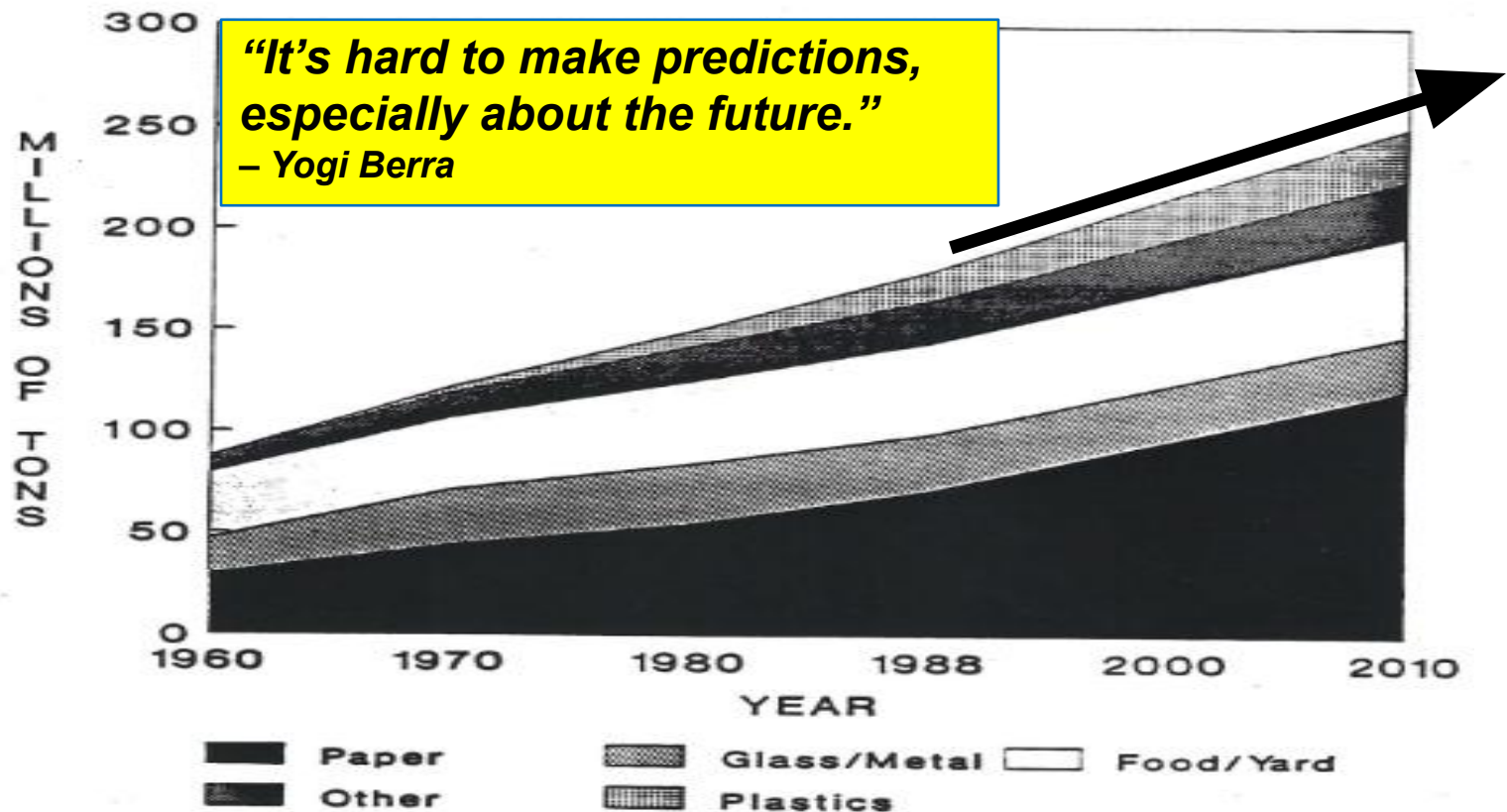
**Recycling: 1 new state-owned MRF, ~20 curbside programs, Bottle Bill, scrap industry, paper drives, leaf and grass composting
0.6 M tons MSW, 1.0 M tons solid waste**

**Combustion: 9 facilities, 8 made energy
2.9 tons MSW and solid waste**

**Landfill: 194 active, 166 unlined
3.1 tons MSW, 6.1 tons solid waste**

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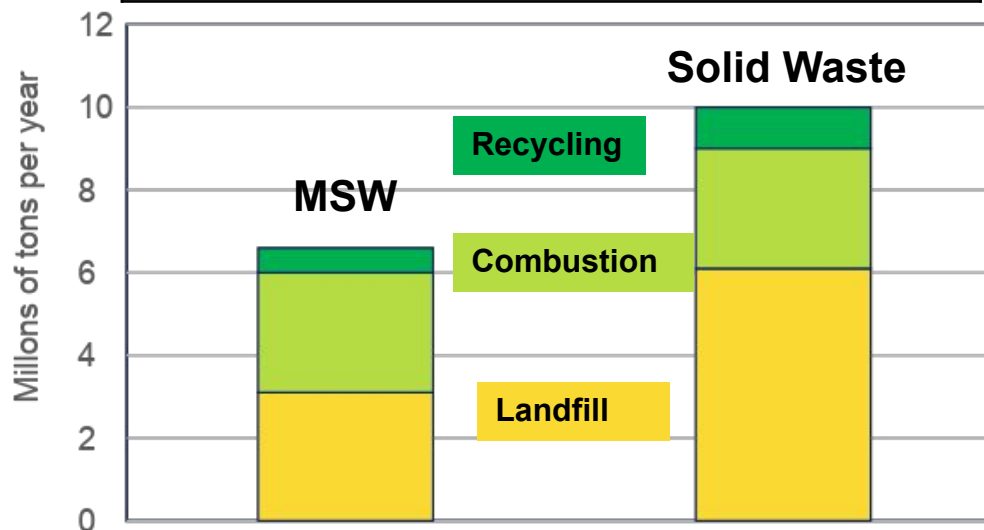
USEPA Forecast of MSW Generation, 1990 to 2010



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1990 SWMP waste management

	MSW	Solid Waste
Tons disposal per capita	0.99	1.50
Tons generated per capita	1.10	1.66



1990 SWMP Goals for the Year 2000

10% volume reduction from per capita generation rates

46% diversion from disposal to recycling and composting

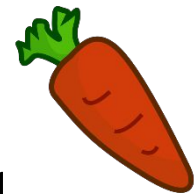
No permits for new waste combustion facilities

Close unlined LFs

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Programs to flatten the disposal curve

- Grants and financial incentives
- Consumer education: reduce, buy recycled
- New collection programs and MRFs
- Back yard composting
- MOU for 50% newsprint recycling
- Product and packaging reduction initiatives
- Waste bans – yard waste, recyclables, etc.
- Solid waste facility permits and enforcement



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1990 SWMP market development opportunities

Encourage manufacturers to use recycled materials

- 800,000 tpy paper @ 3 new paper mills
- 315,000 tpy glass @ 2 new manufacturing plants
- 115,000 tpy steel/aluminum @ 1 new mill
- 115,000 tpy plastics @ 1-10 plastics product plants



Invest \$1.595 billion capital, create 1,500 new jobs

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Unlined landfills have been closed!



1990 status: 194 landfills, 166 unlined, 3.1/6.1 M tpy

2020 status: 13 landfills, 0 unlined, less than 1 M tpy

- All remaining active landfills have lined cells
- Post closure uses of landfills include solar PV (>150 MW) and landfill gas to electricity (>20 MW)

**2020 Hindsight:
The 1990 MassDEP Solid Waste Master Plan**

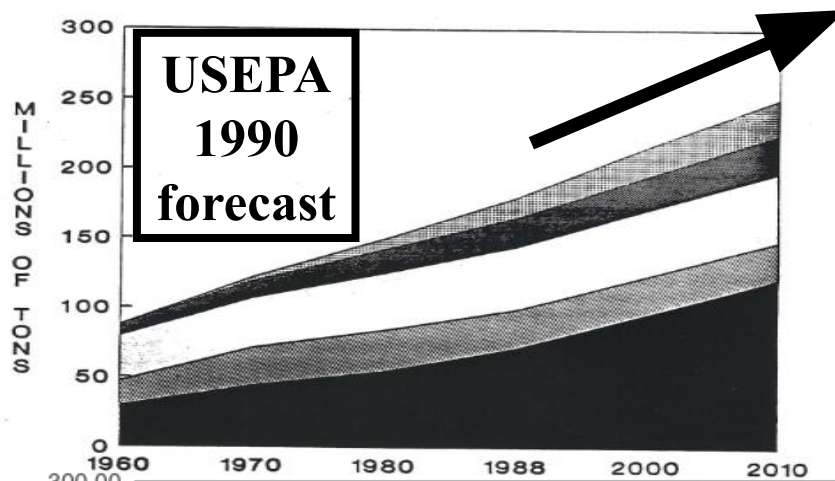
Real and per-capita disposal are down!

2020 status	1990 SWMP	Draft 2030 SWMP	Change
Solid waste disposal	9.0 MM	5.7 MM	- 3.3 MM
Per capita tons	1.50	0.82	- 45 %
MSW disposal	6.0 MM	4.5 MM	-1.5 MM
Per capita tons	0.99	0.65	- 34 %

1990 goals for comparison:

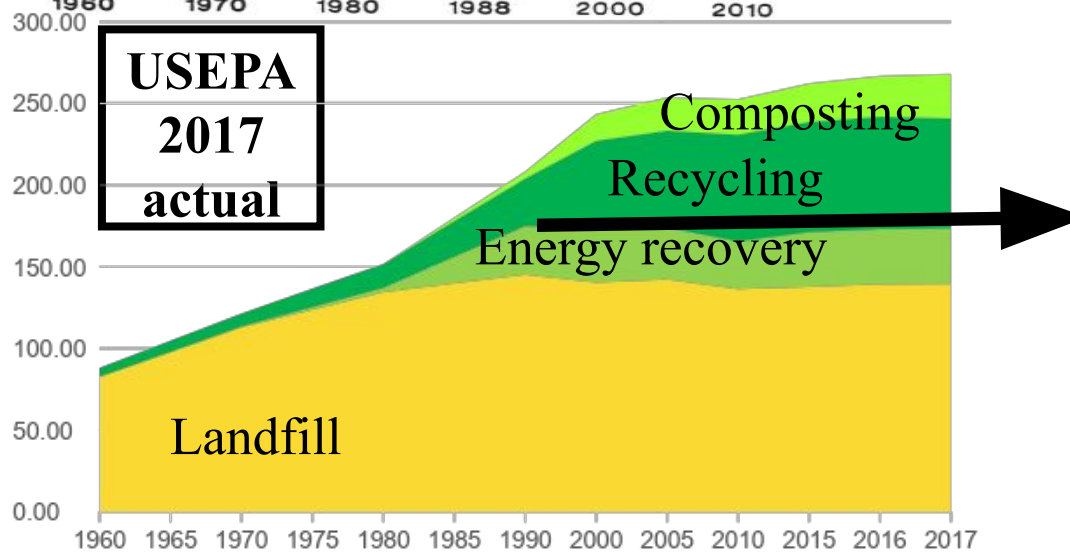
- 46% diversion from disposal (LF and combustion)
- 10% volume reduction from per capita rates

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USEPA then and now

- Recycling/composting have flattened the waste disposal growth curve

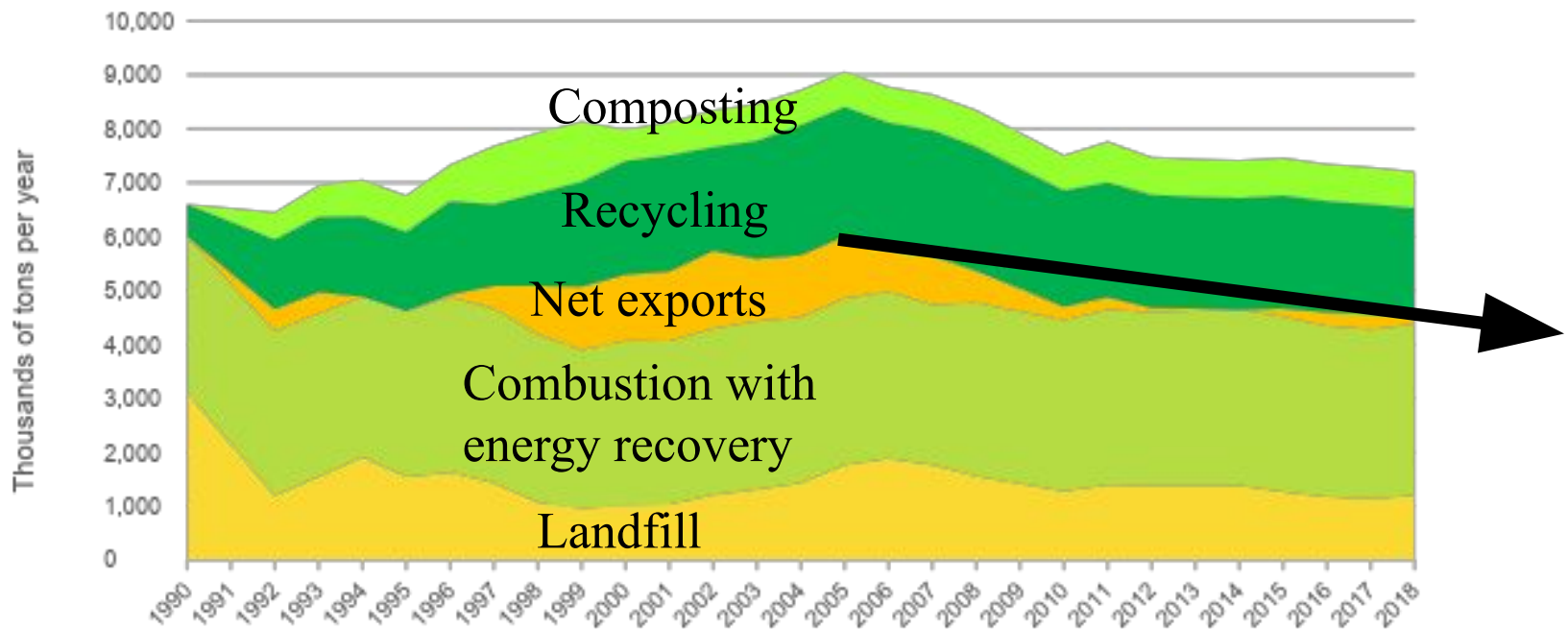


Source: USEPA Facts and Figures website

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Massachusetts MSW disposal and diversion 1990 to 2019

- Recycling/composting have more than flattened the MSW curve, but not enough to replace capacity and avoid exports.

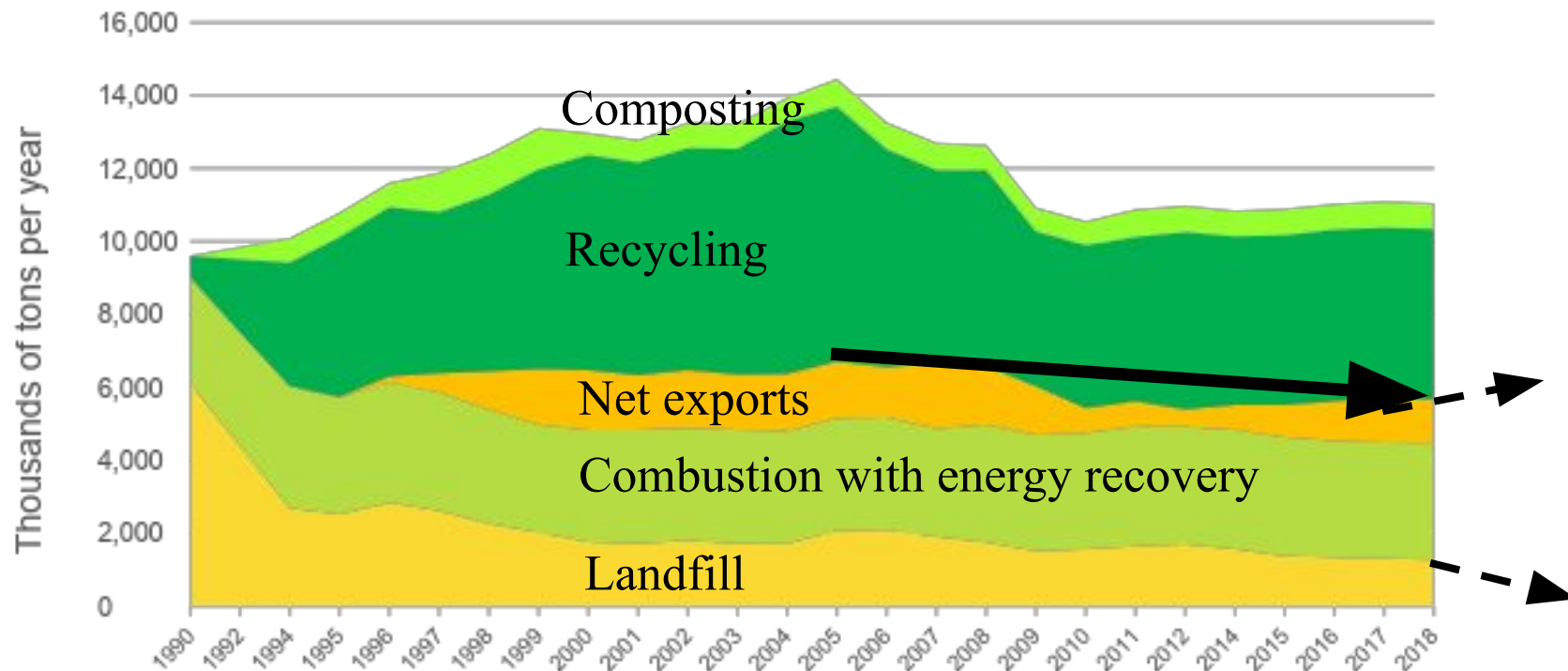


Source: SWMP updates, 1990 through 2020

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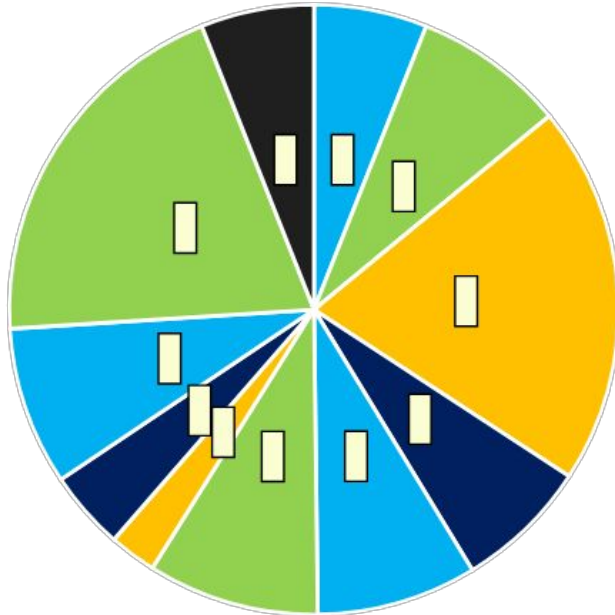


Source: SWMP updates, 1990 through 2020

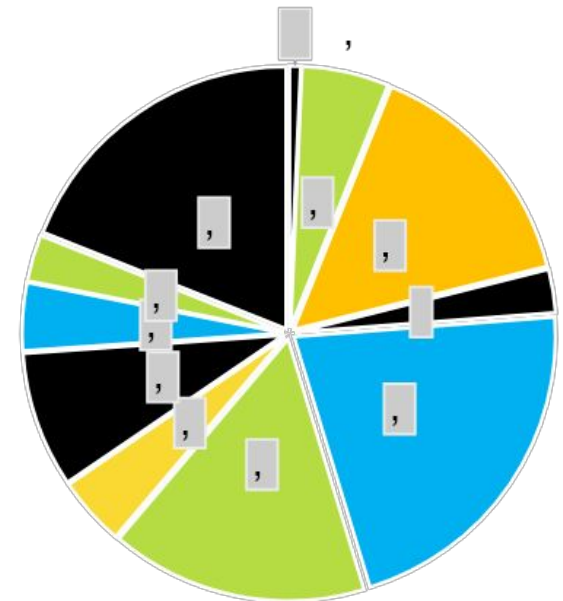
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Composition of MSW discards/disposal

USEPA 1990



MassDEP 2019



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MSW discards in 1990 and 2019

MSW component	1990 SWMP	2019 to WTEs	Causes
Yard waste	20.0%	2.5%	Waste ban
Metals	8.4%	4.0%	Reduction, recycling, substitution
Glass	7.1%	2.7%	
Plastics	9.1%	15.9%	
Newsprint	6.0%	0.7%	Recycling, less in MSW
OCC	8.0%	5.4%	Recycling, more in MSW

**2020 Hindsight:
The 1990 MassDEP Solid Waste Master Plan**

MSW discards in 1990 and 2019

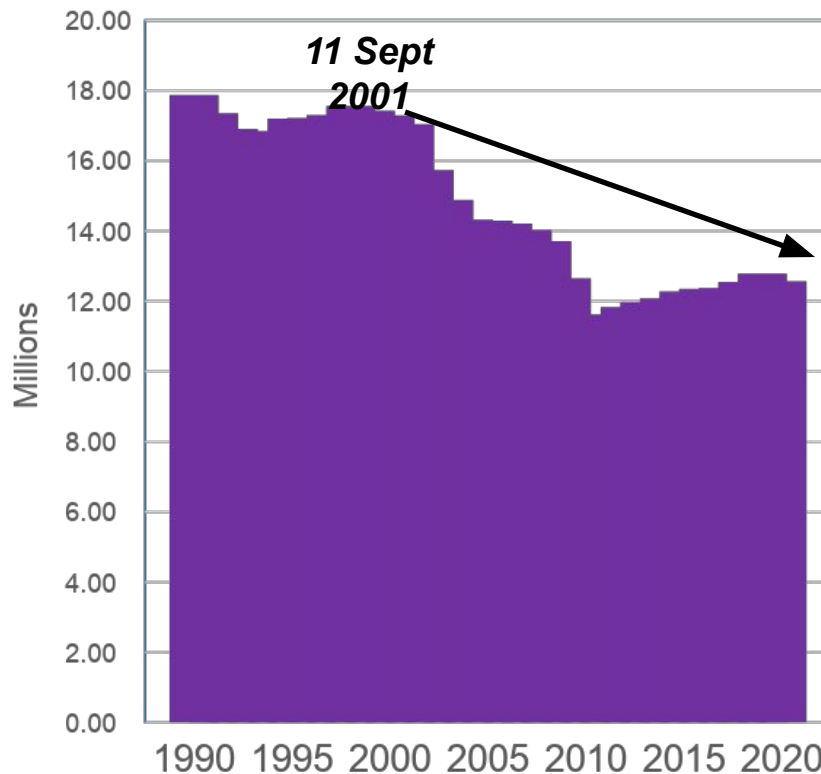
MSW component	1990 USEPA	2019 WTE data	Causes
Food waste	8.5%	21.5%	Poor data in 1990; Better data now
eWaste	?	0.8%	
Household hazardous	?	3.9%	
C&D waste	?	14.3%	

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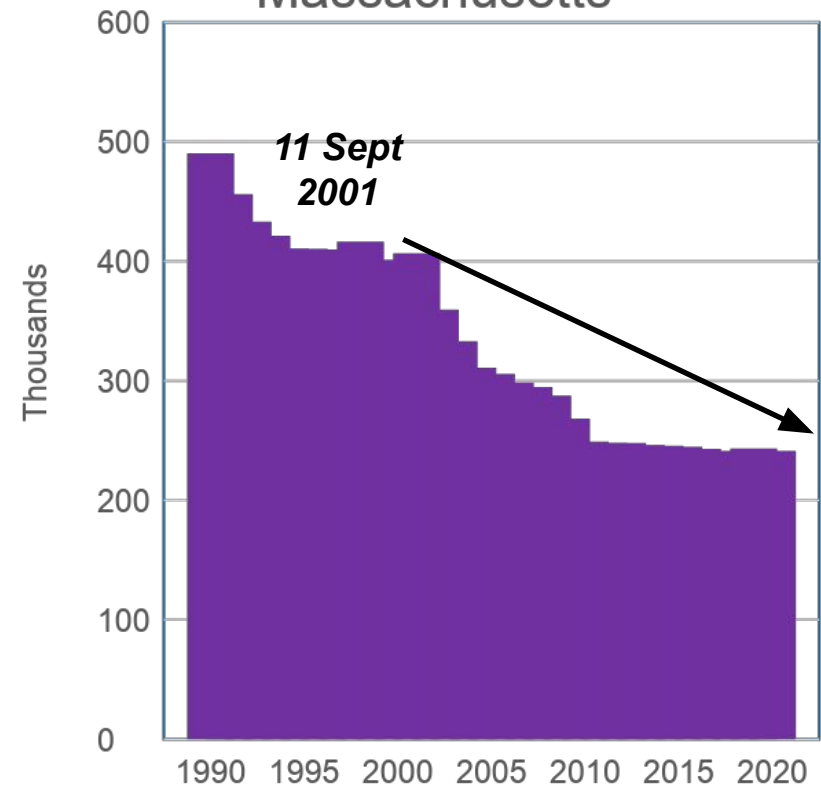
Manufacturing Employment, 1990 to 2020

Data from FRED – Federal Reserve Employment Database.

United States



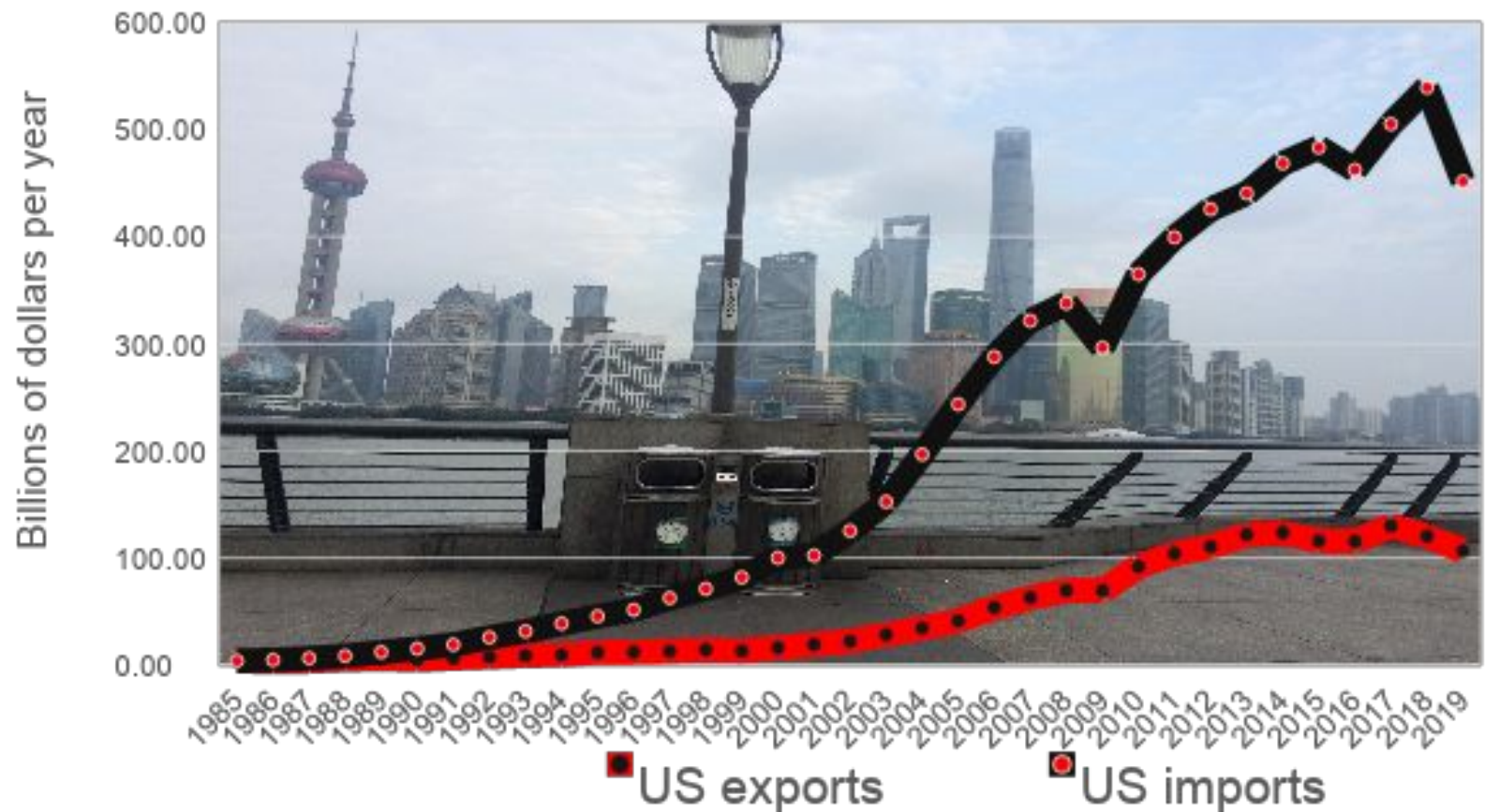
Massachusetts



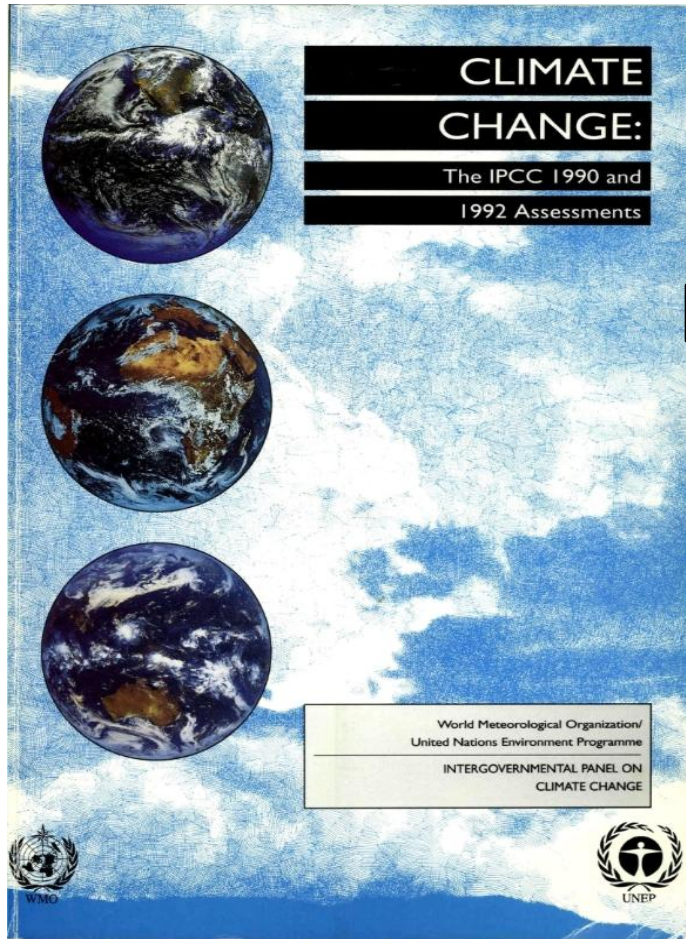
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U.S China trade, 1985 to 2020

Data from the U.S. Department of Commerce



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1990



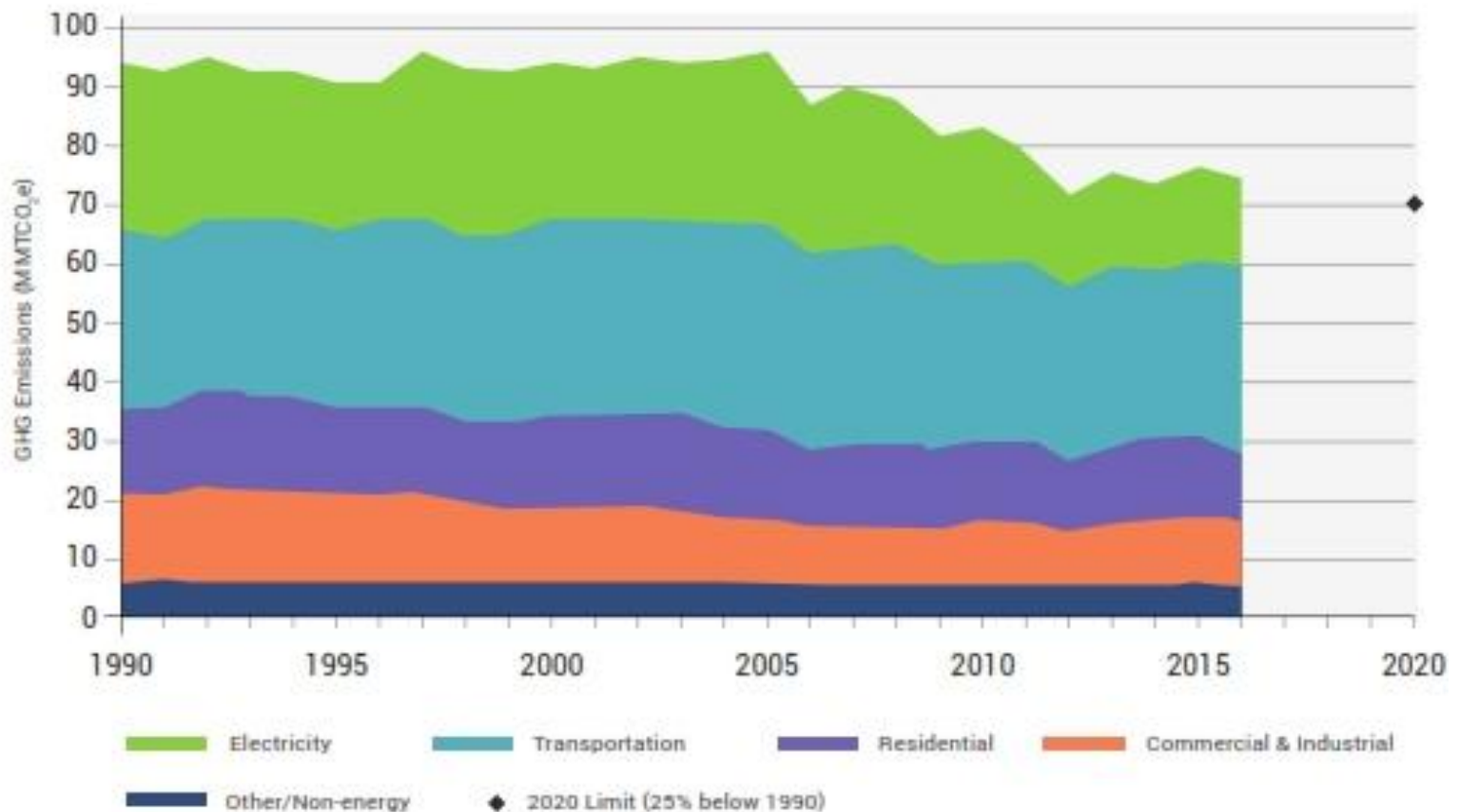
2008



- Emissions and energy use reduction
- Electrification
- Decarbonization

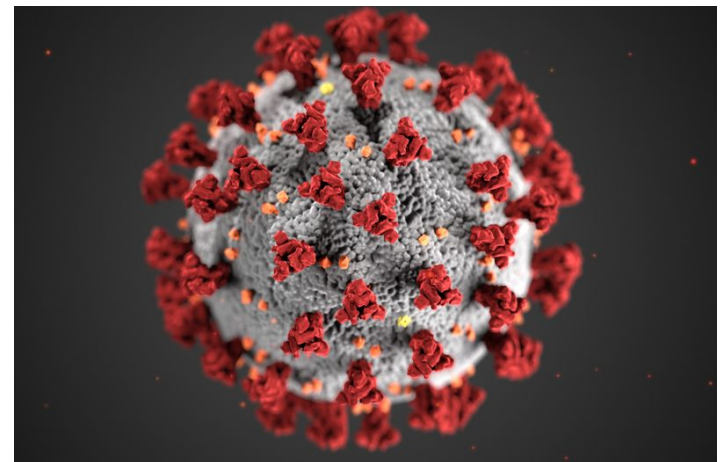
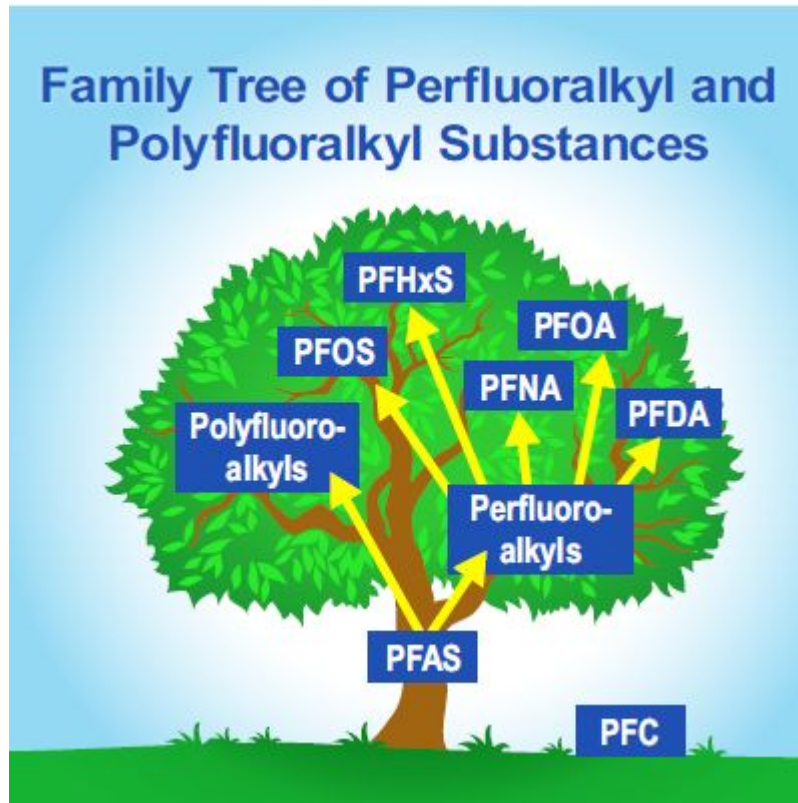
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Massachusetts GHG Emissions, 1990 to 2020



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Challenges for the 2020s Unforeseen in 1990



2020 Hindsight: The 1990 MassDEP Solid Waste Master Plan

2020 vs. 1990

- Different world with a longer planning horizon
- Much improved data and analytics
- Major changes in waste amounts/composition

Lessons

- Recycling/composting flatten the disposal growth curve – but can they replace closures?
- Local markets are best – but not easily grown
- Watch impacts of external one-time events
- Watch plans and trends outside the industry

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Thank you for listening and
SUPPORT THE EBCNE !!!



George Aronson, Principal

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Resource Management Corporation

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