

Science Policy Outreach Task Force at Northwestern University

OVERVIEW ON THE STATE OF RECYCLING IN ILLINOIS



SPOTlight: Illinois needs to increase its recycling rate but also focus on reduction and reuse to cut down on waste generation and associated greenhouse gas emissions.

What is recycling?

- Recycling is the process of converting waste into reusable material, such as reforming aluminum cans or melting plastic containers. The ability to recycle waste is material dependent, and while metal and glass can be recycled endlessly, paper and plastics lose quality each time they are reprocessed. Paper can generally be recycled 5-7 times, and plastic 1-2 times [1].
- Materials recovery facilities (MRFs) group plastics into seven different resin types indicated by #1-7, and each type must be reprocessed separately. Types #1-2 are the easiest to recycle and are often accepted in recycling programs, but the ability to process types #3-7 depends on the specific MRF. Many products have parts made of different plastic types, which makes sorting more difficult and expensive [2].
- Recycling collection, sorting, and reprocessing are labor-intensive operations. To decrease sorting and reprocessing costs, the U.S. previously exported many materials to Asia. In 2018, governments heavily regulated the quantity, material types, and contamination limits for waste imports, which effectively dissolved the primary export markets. The U.S. is exploring local and international alternatives [3][4][5].

Why is recycling important?

- Recycling cuts emissions by reducing the need for virgin materials. A 2015 study estimated that the 7.2 million tons of material recycled in Illinois resulted in an effective emissions reduction of 17 million tons of CO₂e (equivalent to the emissions of 3 million passenger vehicles taken off the road per year) [6].
- Recycling cuts emissions by diverting waste from landfills and incinerators and extracting value from waste. The same 2015 study estimated that the 12.1 million tons of landfilled material in Illinois created 2.5 million tons of CO₂e (equivalent to 460,000 passenger vehicles added to the road/year). The market value of these materials if recycled was estimated to be over \$360 million/year [6].
- Recycling also decreases the amount of waste that ends up in landfills and in lakes and streams [4][5].

What is the state of recycling in Illinois?

- The goal of the Illinois Solid Waste Planning and Recycling Act is to recycle 25% of all waste generated for each county [7], and the national average in 2017 was 25.1% [8]. In 2018, Chicago only recycled 8.8% of all waste generated, suburban Cook County's rate was 19%, and DuPage County and Naperville had recycling rates of 29% [3].
- Many recyclable materials end up in Illinois landfills. A 2015 estimate found that only 43.5% of paper, 8.1% of plastic, 25.3% of glass, 57.4% of metal, and 14.3% of organics discarded were recovered [6].
- Contamination of unrecyclable materials in collection bins makes recycling more expensive, and a 2017 study showed that contamination rates above 8% can make recycling unprofitable [4]. Contamination rates of up to 12% were reported in a 2010 Illinois study [9].
- A lack of markets for recovered materials such as plastic, especially since the recent developments in Asian waste import markets, leaves materials recovery facilities (MRFs) with nowhere to send the waste once it has been collected [3][4][10].

What are methods to increase recycling rates?

- Increase access to recycling for residential and non-residential entities [4] and improve education to cut down on contaminants in recycle bins [11][12].
- State and local regulations have been proposed to increase recycling rates, but the effectiveness of such programs is debated. Bottle deposits [10][13], pay-per-bag systems [10][14], and bans on plastic bags and single-use plastics have shown success in some places. Regulations on manufacturers could require high-quality plastics that are more easily recycled [3][15].
- Creating local markets for recyclable materials such as requiring new products to contain a certain percentage of recyclable materials can be used to improve the economics of recycling [3][4].
- Investing in improved local collection, sorting, and reprocessing systems that result in less contamination can allow MRFs to extract more value from recycled materials [4].

References and Additional Resources:

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