



# 2024 State of Recycling White Paper

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NEBRASKA RECYCLING COUNCIL



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The Nebraska Recycling Council is a statewide, member-based, 501(c)(3) nonprofit organization. Our mission is to maximize the economic and environmental benefits of resource recovery in Nebraska. The following document outlines historical context, problem materials, and important considerations regarding sustainable material management (SMM) in Nebraska. The content was developed collaboratively by industry professionals to educate residents, businesses, NGOs, local governments, and state senators. We ask stakeholders to participate in a strategic and systematic approach to sustainable materials management and economic development.

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### Historical context:

- [Integrated Solid Waste Management Act](#) is a broad Nebraska State statute that addresses requirements and authority associated with the proper management of solid waste, such as permitting municipal solid waste disposal areas and municipal solid waste processing areas.
- The Nebraska Department of Environment and Energy (NDEE) last completed a waste [characterization study in 2009](#), one of the oldest in the country. Waste streams continually evolve and without current information it is increasingly difficult to effectively manage waste and recognize diversion and economic development opportunities.
- [Legislative Bill 1101](#) tasked the Nebraska Department of Environment and Energy with conducting a study to examine the status of solid waste management programs operated by the department and make recommendations to modernize and revise such programs. Key outcomes of the 2017 study were:
  - Merge the Department's Grants Programs
  - Assess Data and Information Needs

- Prioritize Solid Waste Management Needs
  - Expand Educational and Outreach Opportunities
  - Evaluate the Department's Expertise
  - Strengthen State Agency Opportunities
- [Legislative Resolution 163](#) was introduced by Senator Jana Hughes in 2023 as an interim study to examine opportunities that increase recycling of municipal solid waste while also facilitating economic development and growth. [The Study's Final Report](#) has the following recommendations:
    - Conduct an updated, state-wide waste characterization study
    - Review Nebraska's Integrated Solid Waste Management Act
    - Create a favorable regulatory environment for value-added recycling systems
    - Encourage pilot programs
    - Develop Online Resources for Recycling
    - Support Nebraska State College and University Research
    - Encourage Public-Private Partnerships to Increase Recycling
    - Examine proposed legislation against the goals of the Integrated Solid Waste Management Act and NDEE Climate Action Plans
  - [Nebraska's State Climate Action Plan](#) "waste management" related objectives:
    - Establish Hub-and-Spoke Anaerobic Digester/Biogas Hubs for Agricultural Waste: Establish three regional biogas cleaning facilities near existing natural gas pipelines, with biogas supplied by digesters at nearby animal feeding operations to benefit multiple producers.
    - Incentives for Production and Use of Biochar to Reduce Organic Waste and Sequester Carbon in Soil

## **Resource Opportunities**

- **Batteries:** There are a wide variety of battery types and some of these are problematic when disposed of in the trash, resulting in fires in collection trucks, materials recovery facilities (MRFs), landfills, and elsewhere. Irresponsible battery disposal poses serious safety concerns to waste management professionals and the financial issues associated with facility downtime. Consumers generally don't (or can't) differentiate between the battery types, so a comprehensive collection of batteries is more effective, rather than relying on the consumer to differentiate. Current "best practice" is to establish State extended producer responsibility (EPR) laws.
  - Embedded batteries. These are batteries within products/devices and that are not designed to be removable/replaceable by the consumer. They are problematic in that some products/devices then have other regulatory requirements for disposal and/or there are simply no existing means for collection

and recycling. Embedded batteries are common in myriad products and EPR laws (excepting California) do not include these “embedded battery” products.

- **Vapes and similar products:** Vapes and similar products with batteries (many/most being embedded) contain nicotine or other chemicals/materials that fall under additional regulatory requirements, which makes the collection of these products problematic. The lack of a vape industry oversight association/organization is a major problem in addressing the embedded battery in vapes and related products. Safety is a concern for mismanaged products and improperly disposed vapes. Lithium-ion batteries are often used in vape devices and recovery of these valuable lithium-ion batteries and critical minerals is crucial for the green energy transition and decreased dependence on outsourced materials/mining.
- **Household Hazardous Waste (HHW):** HHW collection and handling in Nebraska is a combination of brick and mortar collection centers and special collection events. It is currently limited, for the most part, to residential HHW. Some collection centers (e.g. Lincoln/Lancaster County) have a very small quantity generator (VSQG) program that has an associated fee. HHW disposal in Nebraska is unsustainably dependent on grant funds with too few facilities currently open.
- **Agricultural chemical waste:** The HHW collection centers in the state generally do not take agricultural waste such as pesticides and chemical containers. There is currently no data on how these large amounts of hazardous waste are being disposed of. Irresponsibly disposal methods pose a significant threat to soil, water, and air quality.
- **Tires-Waste:** Tires are a challenging material all over the world. Tires are hard to recycle items and are often discarded illegally. Illegally discarded tires cost municipalities and taxpayer's money. They are also sizable and take up a lot of physical space if they end up in landfill. Tire ingredients can pollute soil, air, and groundwater resources when they degrade. Existing tire recycling and disposal options are retreading, powdering or crumbing, devulcanization, chemical recycling, pyrolysis, and incineration. Most of Nebraska's waste tires go out of state to be processed and then come back as crumb rubber for projects. Grant funding is available for the use of this material in turf fields, playgrounds etc. The Nebraska state legislature makes funding for tire derived fuel projects prohibitive. Other states can use scrap tires as an alternative to fossil fuels.
- **Mattresses:** Due to their size and composition, mattresses cost additional money for equipment and labor costs to bury. Mattresses can be a challenge to bury, as they do not compact easily, take up more space for their weight, can cause drainage issues, and the springs can become entangled in the landfill equipment. Therefore, instead of landfilling mattresses, the compositional materials of the mattress could be separated and recycled, such as steel, foam, cotton and wood. The fabric from mattresses, for example, could be used for moving blankets, floor liners, and weed barriers.
- **Paint:** Generally made of a mix of pigments, solvents, binders, along with other chemicals, which are often difficult to separate and process effectively. Depending on the type (oil-based, water-based, etc.) and composition, each requires a different handling and recycling method to dispose of safely. Due to this complexity, fewer facilities are equipped to responsibly manage waste paints.



- **Textiles:** Textiles are a rapidly rising category of waste, going from 9.5 million tons generated in the US in 2000, up to 17 million in 2018, making up 6% of the waste in 2018. A high percentage of the material are a blend of plastic and organic fibers, contributing to challenges in closed loop recycling and methane emissions when landfilled. Even if the estimated 95% of recyclable material was captured, there is no closed loop recycling for textile waste. Of the material captured in the recycling process, 45% is sent abroad for reuse - some countries (i.e. Ghana, Chile) have become overwhelmed and as much as 50% of that material is dumped, instead of reused or recycled. The remaining 50% of material is cut for single use wiping rags, or shredded into insulation, moving blankets, and other such products.
- **Glass:** Glass is highly versatile, 100% recyclable, and can be recycled endlessly. It is best to collect glass for recycling separately from other materials to maximize cleanliness, reduce contamination, and address safety concerns regarding processing. Due to its weight and therefore, the cost of freight to end markets, glass presents some challenges for effective recycling. Nearly all glass collected for recycling in Nebraska goes to Denver or Kansas City; it does not stay in Nebraska. In the future, NRC will support existing glass recycling programs and hopes to learn how to attract glass end markets to Nebraska.
- **Chemical Recycling:** Chemical recycling is an umbrella term used to describe processes that break plastic waste down into molecular building blocks with high heat or chemicals and convert them into fuel or new products. Chemical recycling has the potential to complement traditional mechanical recycling and address the limitations of mechanical recycling by breaking down plastics using heat and chemical processes. This method is particularly valuable for plastics that are challenging to recycle mechanically and for applications such as food-contact materials. The adoption of chemical recycling technologies must be scrutinized for their environmental impact, community effects, economic feasibility, and scalability. The Nebraska Recycling Council advocates for transparency and stresses the need for data and science-based assessments of new technologies to ensure they deliver genuine environmental benefits for communities and are economically viable. Additionally, the NRC advocates for the highest and best use of wasted resources, keeping materials in the economic value chain. Waste to fuel or landfill should be considered a last resort.
- **Organics:** A third of the world's food is wasted annually. Much of this food is still edible. This material loss and waste occurs all along the food supply chain, using natural resources like land, water, fossil fuels and is a major contributor to greenhouse gas emissions. Meanwhile food insecurity and inequality are globally rampant. Feeding the hungry should be top priority followed by ramping up solutions that already exist to convert organic waste. Anaerobic digestion turns waste into energy and composting and biochar are soil building and carbon capturing superstars. It is imperative to support this infrastructure now.
- **Construction and Demolition (C&D):** C&D debris was sighted in more than 75% of the sampled loads during the 2009 Waste Characterization Study. C&D material makes up a significant volume of total waste. [EPA estimated](#) that 600 million tons of C&D debris were generated in the United States in 2018, which is more than twice the amount of

generated municipal solid waste. Material not recovered for recycling or reuse is a resource lost. Additionally, according to the [EPA REI Report](#), the ferrous metals industry provides the largest contribution to all three categories (job, wage, and tax revenue), followed by construction and demolition (C&D) and non-ferrous metals such as aluminum. C&D landfills in Nebraska do not pay into NDEE grant funds.

### **Considerations:**

- Extended Producer Responsibility (EPR) \*insert definition from 2023 conference
- Right to repair \*insert definition
- Landfill bans
- Bottle Bill
- Nebraska Department of Environment and Energy (NDEE) Funds
- Nebraska Environmental Trust (NET) Funds
- Standardized reporting of recycled materials
- Standardized education and programming of NDEE grantees
- Economics
- C&D waste and landfills don't pay into grant funds
- Reframing how we view "waste" - changing the narrative to "utilizing resources" and using the \$\$ we currently spend on disposal on developing sustainable recycling/reuse infrastructure, etc.
- "Convenience" - consumers won't stop throwing stuff away if it's not convenient for them to do otherwise.

### **Priority Areas:**

- NDEE Sunset of Litter and Waste Funds. Many recycling and related programs utilize grants from the NDEE Funds. The current sunset date for the Funds is in 2025 so it is necessary to extend the sunset in the upcoming 2025 Legislative Session.
- Battery Extended Producer Responsibility (EPR). There is interest in pursuing battery EPR legislation in Nebraska as this would provide an avenue for mitigating the battery fire issue while not placing additional burden on public sector funding.
- NDEE received grant funding from the EPA to complete a Waste Characterization Study. The objectives are 1) Conduct a new waste characterization study, 2) Quantify the impact of existing recycling programs, 3) Identify opportunities to increase waste diversion and 4) Develop recommendations for programs and policies that reduce solid waste landfilled and increase the marketability of recycled materials. It is critical that a Statewide Waste Diversion Strategic Plan be developed by either NDEE or an entity such as the Nebraska Recycling Council. This plan should begin immediately and be updated once the waste characterization data is available.
- Revisit the recommendations made in LB 1101 and LR 163. Avoid analysis paralysis. The majority of the content and suggestions made in both studies is still valid and should be acted on. Nebraska is falling further and further behind our neighboring states regarding sustainable (environmental and economical) waste management.

- The Nebraska Recycling Council and stakeholders should take a formal position on “chemical recycling.”
- The general narrative of recycling needs to shift away from waste management to economic opportunity. Extensive collaborative efforts must take place in order to ensure progress is made in sustainable material management.
- **PFAS:** Stands for [per-and polyfluoroalkyl substances](#) but are often referred to as “forever chemicals.” This is because they do not break down easily in the environment, resulting in widespread and cumulative contamination. These can persist and accumulate in the environment, wildlife, and people. PFAS are endocrine disrupting chemicals and linked to a variety of health problems like birth defects and various types of cancer.