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About this Report

U.S. Municipal Biosolids Management: Drivers, Trends, and Forecasts, 2025–2035

Released November 2025

Sections

- Top-Line Summary
- Drivers & Inhibitors
- Market Size and Forecasts
- Competitive Landscape & Company Profiles

Summary

BACKGROUND

More than 23,900 wastewater treatment plants across the United States treat wastewater effluent generated by 267 million people. A significant byproduct of this process is sewage sludge, which is further processed to become biosolids. The result is approximately 6.26 million dry metric tons of biosolids generated by water utilities. Because of the high nutrient content, these biosolids are applied to farmland as a soil amendment, converted into commercial fertilizer, incinerated, or disposed of in landfills.

Municipal biosolids management is undergoing a fundamental transformation as traditional disposal and reuse pathways are increasingly constrained. Heightened public concern over contaminants (e.g., PFAS) is limiting the use of land application, and aging incineration facilities face costly upgrades or decommissioning. At the same time, rising hauling costs and landfill disposal fees are creating significant economic pressure. Together, these trends are forcing utilities to rethink conventional approaches for managing biosolids.

In this evolving context, companies are reshaping biosolids management by deploying more cost-efficient treatment solutions like drying and dewatering, pursuing innovative delivery models to expand infrastructure capacity, and advancing emerging technologies that promise to redefine future disposal methods.

Through 2035, municipal spend on biosolids management is forecasted to exceed US$36.3 billion

report SCOPE

This 2026–2035 forecast assesses the growth potential of municipal spend on biosolids reuse and disposal by synthesizing municipal management contract data with state-level biosolids production figures, outlining state and regional hotspots over the next decade.

report HIGHLIGHTS

- Drivers and opportunities shaping municipal biosolids spending decisions
- Policy developments shaping municipal biosolids management decisions
- Regions and management pathways with highest planned spend
- Opportunities for new solutions and strategies amid changing conditions
- Market sizing and forecasts for the period of 2026–2035

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Research Methodology and Data Sources

Scope

This Insight Report offers an in-depth analysis of the U.S. municipal biosolids management market, including a comprehensive view of market trends, forecasts, competitive dynamics, and profiles of leading companies.

Key Assumptions And Methodology

- Derived unit costs for landfill disposal, incineration, agricultural land application, and Class A EQ biosolids production based on analysis of more than 36 publicly available municipal contracts and independent reports documenting biosolids management costs since 2022.
- Estimated current state-level biosolids production volumes for each management method based on National Biosolids Data Project figures, EPA biosolids annual reports, population growth, and other state documentation.
- To estimate municipal spend on the beneficial use and disposal of biosolids (2026–2035), Bluefield used derived cost tiers (assigned based on regional and state-level factors), estimated biosolids production volumes, and historical population growth to forecast state-level annual spend for each management pathway.
- To estimate the growth rate of biosolids management costs over the forecast period, Bluefield examined historical biosolids cost inflation rates, landfill capacity, and tipping fees, incinerator availability, state policy landscape (esp. PFAS-related policies regarding land application), historical population growth, and regional trends in management pathway availability.

Companies Profiled

WM, CAMBI, GFL, SYNAGRO, Komline, Lystek, centrisys cnp, VEOLIA, SCHWING BIOSET, MERRELL BROS., DENALI, ALFA LAVAL, casella

Data Sources

- U.S. Environmental Protection Agency (EPA)
- National Biosolids Data Project (NBDP)
- Public utility biosolids management contract documents
- State agency biosolids reporting
- Company materials (10Ks & Sustainability Reports, press releases)
- Industry interviews (biosolids handlers, state regulators, utilities)
- Bay Area Clean Water Agencies (BACWA)
- California Association of Sanitation Agencies (CASA)
- Clean Water SoCal
- Minnesota Pollution Control Agency, Judd & Judd Ltd.
- Environmental Council of the States, Environmental Research & Education Foundation, Toxic-Free Future

Insights

TAKEAWAYS

Total municipal spend on biosolids management to reach US$36 billion through 2035

Bluefield forecasts that U.S. annual municipal spend on biosolids management and disposal will grow from US$2.5 billion in 2025 to US$4.8 billion by 2035, with a CAGR of 6.2%. This growth reflects high cost inflation, particularly for incineration and landfill disposal. Utilities in the Northeast are projected to account for US$13.6 billion or 37% of national spend over the forecast period.

- **High level of interstate variability**. The municipal biosolids management market varies considerably in size between states that produce similar biosolids volumes. Municipal biosolids management strategies are heavily influenced by availability of local pathways, which is in turn influenced by state and local policy, climate, and economic activity.
- **PFAS concerns threaten beneficial use.** Public concern over the presence of PFAS in biosolids has led to public opposition to new and existing land spreading sites, even without formal regulation or definitive proof of contamination. Elimination of low-cost beneficial use pathways has the potential to substantially impact utility finances, especially in states and regions where utilities rely more heavily on land spreading. This policy landscape also varies considerably between states.
- **Market evolution hinges on technology and policy "wild cards."** Four potential disruptors could materially reshape biosolids market growth and economics: (1) new emissions data could force incinerator closures or retrofits; (2) evolving contaminant science could either tighten or relax regulatory restrictions; (3) potential CERCLA immunity legislation could reduce disposal costs and reopen beneficial use pathways; and (4) commercialization of emerging treatment and destruction technologies could redefine cost structures post-2030.
- **Patchwork of state policies will continue to govern municipal biosolids.** As the Trump Administration signals a continuation of the EPA's hands-off approach to biosolids, state-level regulations (particularly those concerning PFAS concentrations) will determine the degree to which land-based pathways will be restricted. This policy landscape varies considerably between states and continues to evolve.
- **Dewatering and drying are increasingly important for biosolids management.** Utilities use specialized equipment to remove excess water from biosolids. Doing so can reduce management costs considerably, as hauling is typically a large portion of disposal costs; utilities are increasingly incentivized to dry and dewater biosolids when the closure of local pathways increases hauling distances. Drying and dewatering can also unlock new disposal options, such as pyrolysis, gasification, or simply increased landfill acceptance.

Key Questions Addressed

- How do municipal biosolids management strategies tend to differ between states and regions?
- How do factors such as facility availability, emerging contaminants, and state policies influence municipal biosolids management decisions?
- What is the estimated total biosolids management spending of U.S. municipal wastewater utilities from 2026 to 2035?
- How do unit costs and total spend compare between different municipal biosolids management pathways?
- What factors may significantly increase or decrease municipal spending on biosolids management at the local, regional, or national level?
- Where are operating sludge incinerators located in the U.S.?
- What is the current competitive landscape and how are notable vendors responding to market trends and utility needs?

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List of Exhibits

Biosolids Management Market Drivers

Factors such as rising landfill disposal costs, aging incinerators, and public pushback against land application are driving substantial increases in utility spend on biosolids management.

Key Biosolids Market Drivers

Landfill Capacity

Tipping fees rise as landfill capacity declines; biosolid capacity may be further limited due to moisture content. Obtaining permits for new landfills and expanding existing facilities is often challenging and time-consuming.

Hauling Costs

Rising labor costs and higher prices for fuel and vehicle parts are driving up per-mile hauling rates. As traditional pathways become less accessible, biosolids must be transported over greater distances.

Aging Incineration Facilities

Many critical facilities, especially in the Northeast, are nearing capacity and are aging. The regulations under the Clean Air Act make it extremely costly (often prohibitively so) to upgrade current facilities or construct new ones.

Regionalization

In regions with high disposal costs and longer hauling distances, larger regional facilities that serve multiple communities can create economies of scale. This reduces both capital and operational expenses for utilities while potentially unlocking new disposal pathways.

Renewable Energy Demand

Rising electricity and fuel costs, along with societal demand for lower-carbon fuel sources such as RNG, increasingly incentivize utilities to use their biosolids as feedstock for generating power and heat prior to disposal.

Emerging Contaminants

Conventional wastewater treatment is often ineffective at removing certain pollutants—particularly PFAS, microplastics, and pharmaceuticals. Beneficial use or disposal of biosolids can result in the release of measurable amounts of these pollutants into the environment.

Public Opinion of Land Application

Although there are currently no regulations or solid scientific evidence regarding the risks of land application, many communities and political leaders have started to oppose this practice. Farmers have expressed concerns about the safety of their crops, the health of their livestock, and the long-term resale value of their land.

State-Level Biosolids Regulations

In the absence of direction from the federal government, states have begun to regulate emerging contaminants such as PFAS in biosolids. Some have restricted land application, and others have started to institute testing requirements.

Scientific Uncertainty

Decision-making by utilities and regulators is complicated by (1) disagreements about the sources of contaminants in municipal biosolids, (2) the risks to public health from nonindustrial municipal biosolids, and (3) the effectiveness of thermal destruction technologies.

State-Level Organics Management Programs

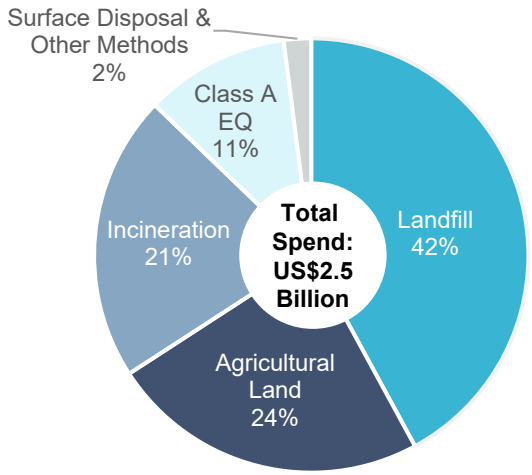
State laws mandating the diversion of organic waste from landfills may facilitate anaerobic digestion of biosolids at certain utilities by enhancing the local supply of organic feedstocks.

Source: Bluefield Research

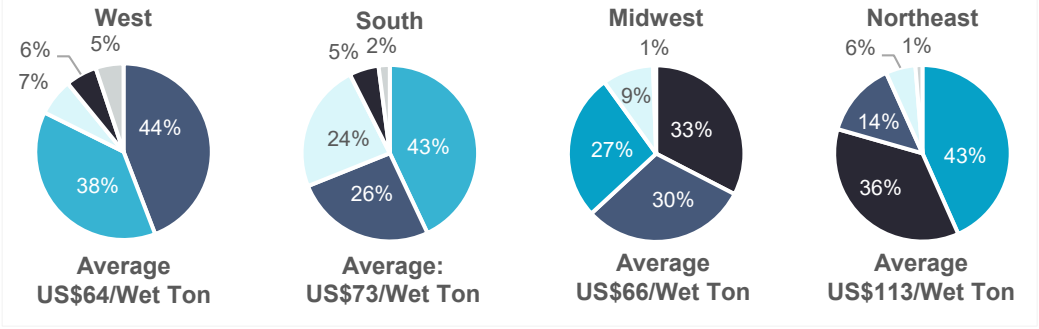
Market Snapshot – Current Municipal Spend on Biosolids Management

Bluefield estimates that U.S. municipal utilities will spend about US$2.5 billion to manage 6.34 million dry metric tons of biosolids in 2025, or $79.04 per wet ton (assuming 20% solids).

U.S. Municipal Biosolids Reuse & Disposal National Utility Spend as of 2025



Average Management Cost: US$79 per Wet Ton



Analysis

Landfills and incineration dominate annual utility spend, comprising an estimated 63% of total spend, while representing approximately 45% of biosolids by volume.

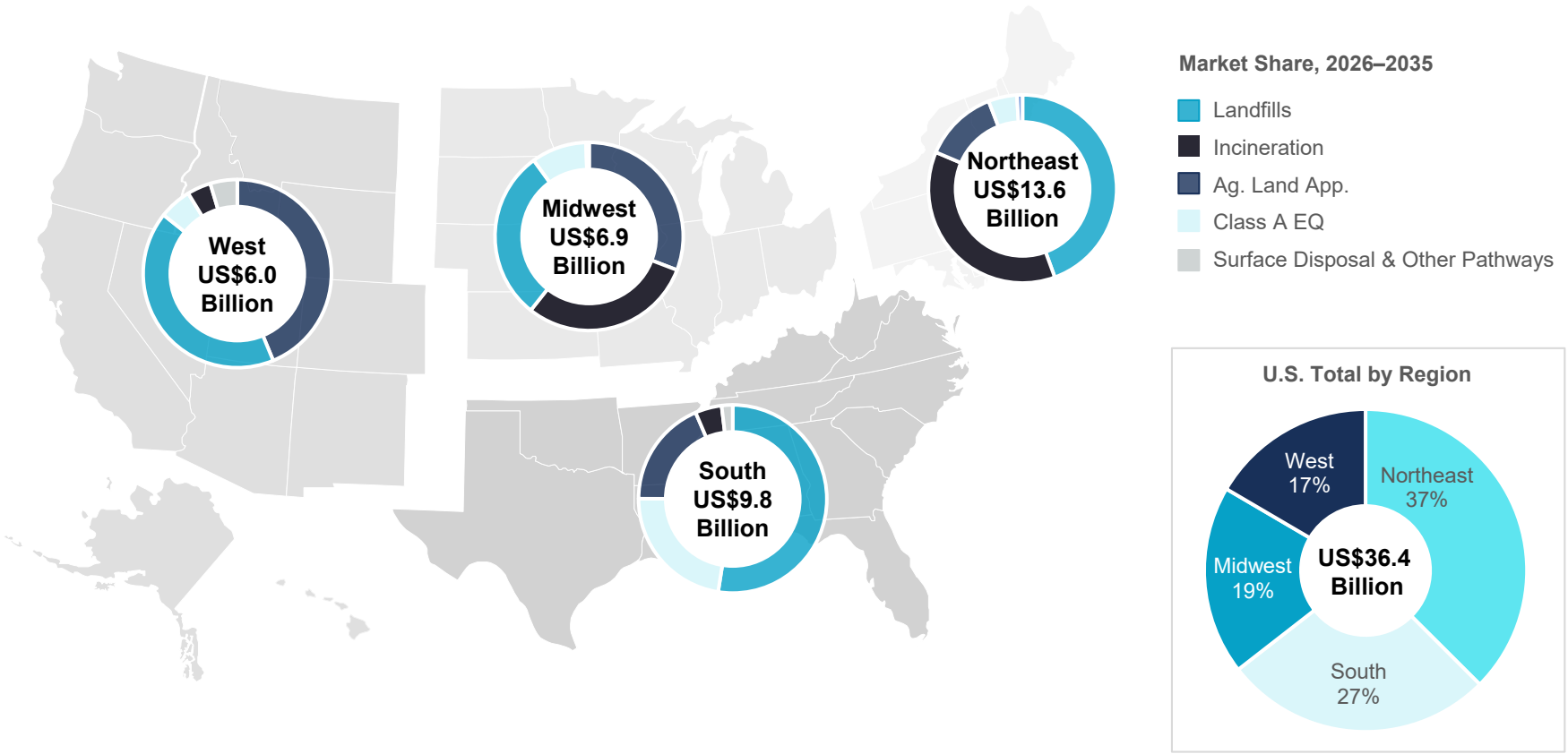
- Compared to beneficial use pathways, such as agricultural land or Class A EQ biosolids, disposal pathways (e.g., incineration, landfills) consume a much larger share of utility spend than their corresponding volume of biosolids. This discrepancy arises mainly from the higher unit costs in regions with limited capacity. It is expected that this difference will grow over time due to higher anticipated rates of cost inflation for disposal methods compared to beneficial use.
- The gap between the quantity of biosolids produced and utility spend on beneficial use vs. disposal highlights a trend in the industry: The shift toward beneficial use is primarily driven by cost reduction rather than a genuine commitment to increased sustainability.
- The expenses associated with municipal biosolids management discussed in this report are categorized under OPEX. Since utility rates fund OPEX budgets, utilities are motivated to find the lowest-cost management pathways to avoid placing an undue burden on ratepayers.

Source: Bluefield Research

Hot Spots – U.S. Municipal Biosolids Management Regional Forecasts

The Northeast is projected to represent 37% of total spend during the forecast period, driven by sharp cost increases as incineration and landfill capacities dwindle without viable alternatives.

U.S. Municipal Biosolids Management Spend Outlook by Region, 2026–2035



Source: Bluefield Research

Centrisys/CNP

Centrisys is a global provider of decanter centrifuge systems, repair services for centrifuges, and other equipment and packaged systems for solid-liquid separation, sludge and biosolids volume reduction, and nutrient management.

Company Background

Headquarters	Kenosha, Wisconsin
Year Founded	1987
Ownership	Private
Core Market	U.S. and South America
Number of Employees	~240 (est.)
2024 Revenue	US$89 million (est.)

Product/Service Segments

Segment	Description
Solid/liquid separation and volume reduction equipment	• Decanter centrifuges (standard, semi-standard, and custom) • Packaged sludge thickener systems • Low-temperature belt dryers • Vertical cuttings dryer centrifuges (used in oil & gas extraction)
Packaged biosolids nutrient management systems	• PONDUS (thermal hydrolysis) • MagPrex (post-digestion phosphorus management) • CalPrex (predigestion phosphorus management)
Other services	• Rental decanter centrifuges (sludge thickening, dewatering) • Containerized, skid-, or trailer-mounted centrifuges • Worldwide centrifuge service and repair

Bluefield Perspective

- Centrisys serves both municipal and industrial clients across various sectors. The industrial verticals they support include food and beverage processing (including animal protein and by-products), agricultural applications (specifically animal waste and manure management), mining, oil and gas extraction, pulp and paper production, landfill reclamation, steel and primary metals production, and tunneling (industrial dewatering applications).
- Centrisys promotes its in-house expertise, which enables the company to perform repairs and provide optimization recommendations for all brands of centrifuges, not just its own.
- In addition to its U.S. locations, Centrisys has service and maintenance facilities in Argentina, Spain, Germany, China, and Singapore.
- In July 2025, Centrisys expanded its manufacturing and pilot testing capabilities at its main campus in Kenosha. The new facility enhances the company's large centrifuge repair capabilities and provides a dedicated space for aftermarket services and rental fleet support. Additionally, Centrisys inaugurated a new engineering design facility on the same campus in February 2024.

Source: Centrisys/CNP, Bluefield Research

Data Navigator

Data underpins Bluefield's breadth of insight reports and analysis. This report is accompanied by a data dashboard that is available in Bluefield's flexible and interactive Data Navigator platform.

SAMPLE DATA DASHBOARD

Sample Dashboard Widgets US$:

- Total Spend by State & Region
- Total Spend & Annual Spend by Management Pathway
- Number of Open MSW Landfills and Incinerating Facilities
- Projected Biosolids Production, 2026–2025
- Projected Unit Disposal Costs, 2026–2035
- Projected Municipal Biosolids Spend by Management Pathway, 2026–2035
- Spending Forecasts for Incineration and Landfills

Learn more

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Global companies across the value chain are developing strategies to capitalize on greenfield opportunities in water − new build, new business models, and private investment. Bluefield Research supports a growing roster of companies across key technology segments and industry verticals addressing risks and opportunities in the new water landscape.

Companies are turning to Bluefield for in-depth, actionable intelligence into the water sector and the sector's impacts on key industries. The insights draw on primary research from the water, energy, power, mining, agriculture, financial sectors and their respective supply chains.

Bluefield works with key decision makers at utilities, project development companies, independent water and power providers, EPC companies, technology suppliers, manufacturers, and investment firms, giving them tools to define and execute strategies.

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