



Turning Biosolids Into Revenue

The 2016 upgrade of DC Water's Blue Plains Advanced Wastewater Treatment Plant was designed to fundamentally transform the management of wastewater solids. The project aimed to reduce the volume of solids produced—and the associated costs—while improving biosolids quality to minimize odor complaints and create market value from the carbon and nutrients they contain. It also sought to recover resources generated during treatment, particularly methane for on-site energy use. While initially intended to offset operational costs, the project ultimately generated significant revenue through the sale of renewable energy credits.

Before the upgrade, Blue Plains required up to 70 truck trips per day to manage biosolids, creating significant economic and environmental burdens. The facility also faced frequent odor complaints from its lime-stabilized material, while lime handling generated dust that could affect worker safety and required constant monitoring.

 **RECOVER**



WASHINGTON, DC, USA



WASTEWATER



CHALLENGES FACED

The primary challenge was gaining stakeholder approval for a technology not yet deployed in North America. As the first and largest CAMBI™ installation on the continent, DC Water faced a steep learning curve, sending operators to the UK to observe existing systems during construction. Regulators also faced a learning curve, requiring close collaboration and flexible testing protocols to avoid landfilling material from the outset.

TECHNOLOGIES & SOLUTIONS USED

In 2016, the world's largest CAMBI™ thermal hydrolysis system was installed at DC Water, integrated with anaerobic digestion, belt filter press dewatering, and combined heat and power. Thermal hydrolysis uses heat and pressure to break down solids. Captured methane fuels three 5-MW turbines, generating renewable electricity for about one-third of Blue Plains, while recovered thermal heat the process without external energy. The system produces low-odor, nutrient-rich Class A biosolids and 7-8 MW of renewable power.

IMPACT & INSIGHTS



- The project reduced biosolids management operating costs by 75%.
- Renewable energy credit sales generated US \$6 million in revenue in FY25.
- The facility produces a branded Class A Exceptional Quality biosolids product called Bloom, expanding markets across agriculture, retail, landscaping, and community sectors.
- In 2023, Blue Drop, DC Water's nonprofit LLC, sold 65,000 tons of Bloom, accelerating the payback period from 19 to less than 13 years.
- The project reduced DC Water's carbon footprint by 50,000 metric tons of CO₂e annually.

LESSONS LEARNED



- Leadership recognized the importance of engaging regulators, elected officials, and stakeholders even earlier, particularly to highlight the project's strong economic benefits.
- Market analysis helped guide product development to meet current and future demand.
- Understanding the broader regulatory landscape for consumer-facing products was critical beyond basic biosolids compliance.
- Transparency, including sharing data on potential contaminants, strengthened public trust.
- Engaging early adopters and trusted advocates amplified outreach and market acceptance.

“Considered one of the greenest wastewater projects ever conceived, the US \$470 million biosolids facility requires fewer digesters, cuts greenhouse gases, produces renewable energy, and creates Class A Exceptional Quality biosolids—all combining to save utility ratepayers millions of dollars annually.”