

# How America's Biogas is Used: Fast Facts



## Turning Organic Waste into Renewable Power and Renewable Natural Gas

### Overview

Biogas systems convert waste from farms, landfills, wastewater treatment facilities, food processing, and other sources into renewable electricity, heat and power, or renewable natural gas (RNG) for transportation or injection into existing pipeline infrastructure. This flexibility makes biogas one of the most promising American energy opportunities available today.

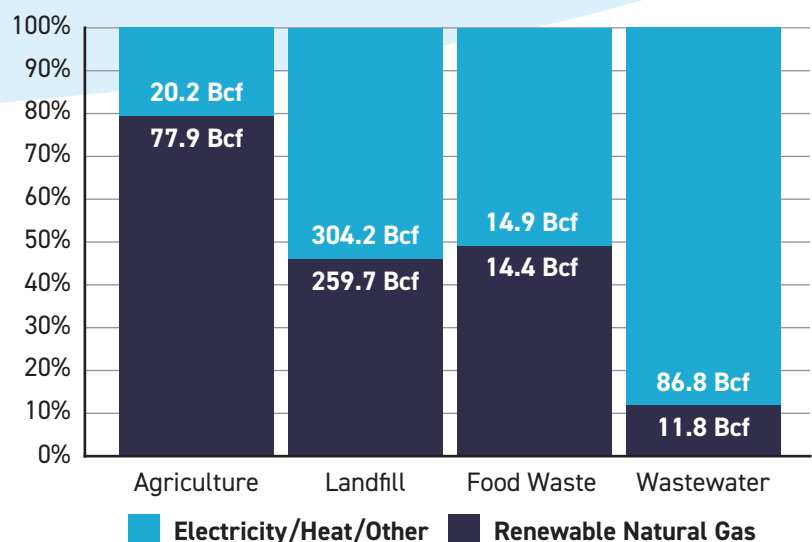
The majority of operating U.S. biogas capture systems use the recovered biogas to generate electricity and/or heat. Over the past six years, new biogas project development has shifted to producing RNG, as clean fuel programs have increasingly driven investment in transportation fuels. Today, approximately 25% of biogas capture systems produce RNG.

### At a Glance

- **2,603 operating biogas facilities across the U.S operating across 4 sectors:**
  - **1,239** Community Wastewater Resource Recovery Facilities
  - **626** Agricultural Digesters
  - **600** Landfill Gas Facilities
  - **138** Food Waste Facilities
- Nearly **788 billion cubic feet** of biogas captured annually
- **1,438** currently operating biogas projects produce renewable power (electricity)
- **669** currently operating biogas projects produce Renewable Natural Gas (RNG)
- **497** new biogas systems have come online since 2020
- **89%** of all new projects since 2020 produce Renewable Natural Gas
- Biogas converts organic waste into renewable electricity, renewable natural gas, renewable heat, and valuable coproducts while reducing methane emissions.

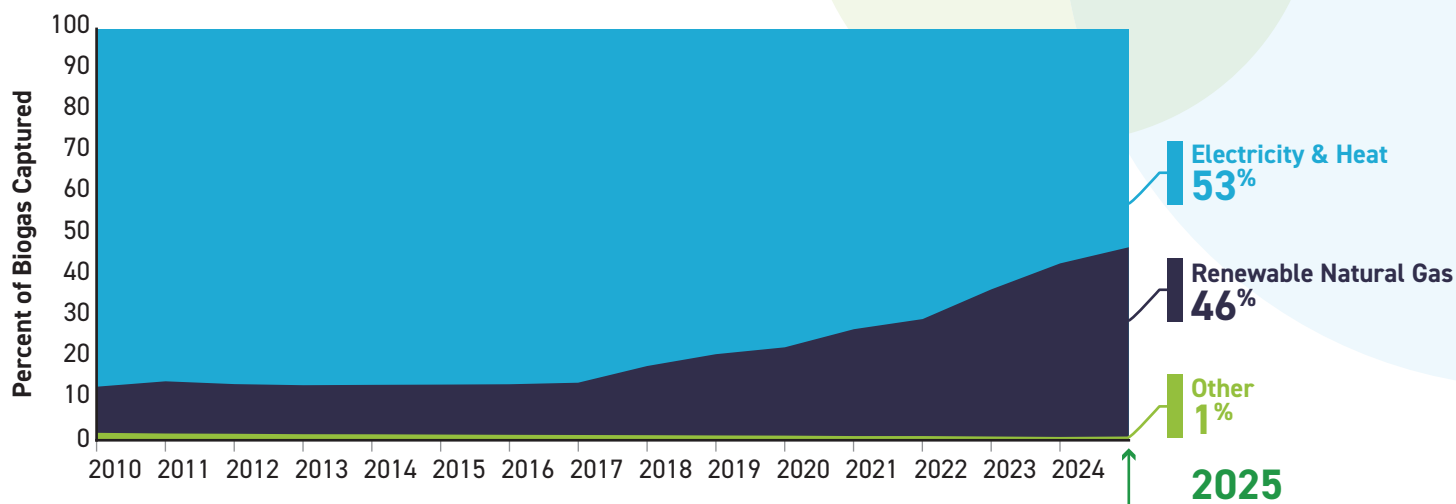
### Key Takeaways

- Most currently operating biogas facilities are producing renewable electricity and heat for communities nationwide.
- Over the past six years, an increasing number of biogas projects have been built to produce Renewable Natural Gas for transportation fuel and injection into the existing natural gas pipeline infrastructure.
- Full build-out of the U.S. biogas industry could result in the development of over 17,000 new biogas capture systems with the potential output equivalent to the annual electricity or energy usage of approximately 26 million homes.



Together, these facilities capture nearly **788 billion cubic feet of biogas annually** roughly equivalent to the annual energy needed to power **5.2 million homes**





## Annual Biogas Production by End Use - Top 3

| End Use               | Annual Production |
|-----------------------|-------------------|
| Electricity/CHP       | 399.6 Bcf = 53%   |
| Renewable Natural Gas | 364.5 Bcf = 46%   |
| Heat Only             | 4.1 Bcf = 1%      |

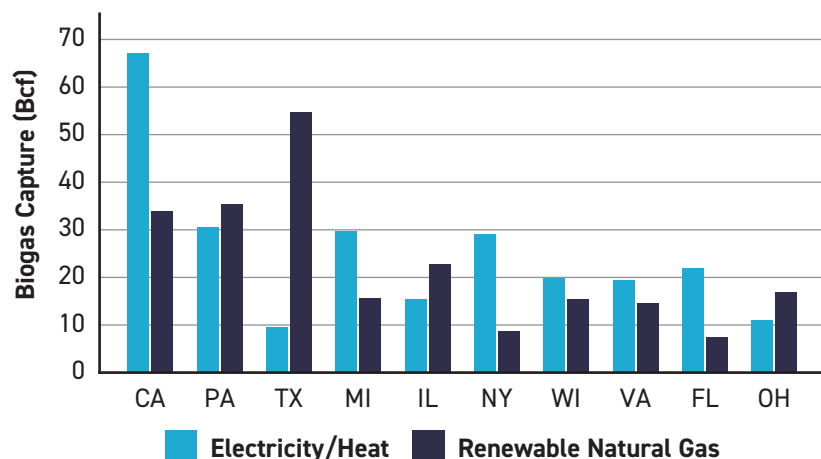
## Biogas Utilization

- **Transportation Fuel (RNG):** Nearly 85% of total RNG consumption is converted into transportation fuel for the trucking industry, driven heavily by federal incentives like the Renewable Fuel Standard (RFS) and state programs like California's Low Carbon Fuel Standard (LCFS). Five U.S. states have adopted renewable fuel standards to reduce pollution and carbon emissions.
- **Electricity Generation:** About 55% of total raw biogas output is used to generate electricity.
- **Pipeline Injection & Utilities:** The remaining balance of biogas produced is upgraded into RNG and is blended into traditional commercial and residential local utility gas grids via the existing pipeline infrastructure.

## Leading States for Biogas Production

How captured biogas is used varies widely by state due to differences in market conditions. **Texas** is home to several of America's largest landfill gas-to-RNG facilities and this is a major factor resulting in 85% of the state's biogas being converted to RNG—the highest proportion of any state.

**California** captures more biogas than any other state and leads the nation in electricity generation from biogas. Nearly two-thirds of the state's 101 billion cubic feet (Bcf) of captured biogas is used to generate electricity or heat.



## Leading States for RNG Production (percent of national total)

1. Texas — **15.1%**
2. Pennsylvania — **9.8%**
3. California — **9.4%**
4. Illinois — **6.3%**
5. Ohio — **4.7%**

## Leading States for Renewable Electricity (percent of national total)

1. California — **17.2%**
2. Pennsylvania — **7.2%**
3. Michigan — **7.1%**
4. New York — **6.8%**
5. Wisconsin — **5.0%**