

# Wastewater Treatment Update

## United States

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# The National Wastewater Picture

<b>3%</b>	Approximate percent of U.S. electricity production used by water and wastewater operations (~100 billion kWh annually)
<b>35%</b>	Amount of municipal energy consumption used by water/wastewater systems
<b>~17,000</b>	WWTFs in the U.S.
<b>40,000,000,000</b>	Gallons of wastewater treated in the U.S. every day
<b>8,000,000</b>	Approximate amount of dry tons of biosolids generated per year by U.S. WWTFs
<b>~57%</b>	Approximate percent of WWTFs >1MGD without anaerobic digestion
<b>&gt;400 MW</b>	Estimate of new biogas-based electricity generating capacity potential
<b>3 MMTCO<sub>2</sub>e</b>	Potential emissions reductions associated with biogas-based electricity potential

# U.S. Methane Emissions

Sector	U.S. Methane Emissions (2010) (MMTCO <sub>2</sub> e)	%age of total US anthropogenic emissions
Natural gas systems*	215.4	32.3%
Enteric fermentation	141.3	21.2%
Landfills	107.8	16.2%
Coal mining**	77.6	11.6%
Manure management	52.0	7.8%
Municipal Wastewater	16.3	2.4%

\*Natural gas system emissions do not include methane emissions from petroleum systems.

\*\*Coal mining sector emissions includes emissions from abandoned underground coal mines.

# Methane Reduction, Recovery, and Use Initiatives

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- US EPA Voluntary Programs
- Regulatory/voluntary efforts (state and local)
- Efforts to mitigate wastewater methane have been largely state or municipally driven

# Barriers/Challenges to Methane Reduction, Recovery, and Use

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- Inadequate payback/economics
- Lack of available capital
- Operations and maintenance complications and concerns
- Utility interaction
- Difficulties with air regulations or obtaining air permit
- Technical merits and concerns
- Inertia to maintain the status quo at WWTFs

# U.S. Goals for GMI Involvement

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- Support technology transfer and knowledge sharing;
- Identify potential partners and specific opportunities for emissions reductions; and
- Work to identify and remove barriers to methane project development where practicable.

# Forward Thinking

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- **Outreach / Action Planning**
  - Help to develop tools and resources such as: a sector factsheet, biogas modeling tools, case studies, training activities, and pre-feasibility studies.
  - Develop U.S. Wastewater Sector Action plan.
- **Grants/Technical Assistance**
  - Provide technical assistance and training with a focus on overcoming technical, institutional, and financial barriers to project development (Latin America and Asia)
  - Provide assistance to developing countries to develop or refine their methane action plans
- **Collaboration**
  - Identify and seek ways to better collaborate with Partner Countries; the private sector; and multilateral organizations