

Global Methane Initiative: Support for Methane Mitigation in Waste Sector

Nick Elger

U.S Environmental Protection Agency (USEPA)

14 September 2022



Global Methane Initiative (GMI)

- Launched in 2004, GMI is an **international public-private partnership** that **advances cost-effective near-term methane reductions**
- Reducing barriers to the recovery and use of methane as a **clean energy source** in three key sectors:
 - Oil & Gas
 - Coal Mines
 - Biogas (Agriculture, Municipal Solid Waste, and Wastewater)
- United States and Serbia are founding members



- 45 Partner Countries, represent ~75% of methane emissions from human sources
- 700+ Project Network members



- Strategic Alliances



CLIMATE &
CLEAN AIR
COALITION
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS



UNECE

UN
environment
programme



THE WORLD BANK
IBRD - IDA

iea International
Energy Agency

Why Methane Matters

Methane Emissions

Trap 28 times more heat than carbon dioxide over 100 years

Contribute to ground-level ozone pollution

Create industrial safety problem

Methane Mitigation

Opportunity to capture and convert methane to useful energy

Positive Outcomes of Capturing and Using Methane

- ✓ Better air and water quality
- ✓ Improved human health
- ✓ Increased worker safety
- ✓ Enhanced energy security
- ✓ Increased economic value
- ✓ Reduced odors

Achieving the Global Methane Pledge (GMP)

- Launched in 2021 at COP26, aims to reduce global methane emissions by 30% from 2020 levels by 2030
- Over 120 countries have signed on, including Serbia
- Global Methane Initiative technical assistance and resources align with and can support ambitious aims of the Pledge



United States is leading on fast climate action

- Biden Administration has set ambitious targets to reduce greenhouse gas emissions by 50% from 2005 levels by 2030
- White House released **US Methane Emissions Reduction Action Plan** in 2021 to address methane emissions through regulations and incentives
- New climate laws provide billions of dollars to support methane mitigation from landfills, waste systems, and farms in the U.S.
- EPA is committed to offering tools, resources that can support methane mitigation globally



US EPA Support in Serbia through the GMI and CCAC

- 10+ years working in Serbia on Municipal Solid Waste
- US EPA Partnerships in Serbia
 - Establishing City Network for Sustainable Waste Management Coordinated by University of Novi Sad
 - Co-sponsoring the Center of Excellence for Circular Economy and Climate Change (CECC)



MSW Sector Stakeholder Meetings and Workshop on CECC in Serbia, April 2019



Serbian Municipal Officials Biowaste Management Study Tour in Northern Italy, November 2018

Targeted technical assistance to Novi Sad & South Backa Region

- USEPA provided technical assistance to Novi Sad with support from CCAC, GIZ, University of Novi Sad, & CECC
- Recent focus on organic waste management
 - 2018 - Organic waste treatment pre-feasibility study (EPA funded)
 - 2018 – GIZ study tour for Novi Sad staff to observe best practices in N. Italy (EPA funded travel costs)
 - 2019 - Technical Studies on Market for Compost (CCAC funded, EPA provided technical analysis)
 - 2020 - Construction of compost facility (GIZ funded)
 - 2021 – Pre-feasibility study for scaling-up Novi Sad’s compost project (EPA and CECC supported)

Tools and Knowledge for Biowaste Management

- EPA Biogas Toolkit includes 38 tools and resources to facilitate biogas project development.
- Roadmap for planning and implementing biogas projects and quantifying economic and environmental impacts
- Audience: Project implementers, developers, financiers, and policymakers.



Filters

Project Phase

- Getting Started
- Pre-Feasibility
- Feasibility Assessment
- Development and Construction
- Operations and Management


Biogas Sector


- Agriculture
- Solid Waste
- Wastewater


Topic

- Engineering and Technology
- Finance

Displaying 38 of 38 resources.

 **10 Keys to Digester Success**
Many factors are required to successfully implement and operate an anaerobic digestion/biogas system. This resource lists 10 key factors essential for a successful farm-based digester project.
CHECKLIST

 **Anaerobic Digestion Operator Guidebook**
This guidebook helps operators increase operational performance and efficiency of AD systems, and avoid common challenges.
DOCUMENT

 **Is An Anaerobic Digestion Project Appropriate?**
Anaerobic Digester Project Development Handbook, Chapter 1
This chapter of the AgSTAR Project Development Handbook outlines the factors to consider to successfully implement and operate an AD/biogas system, provides characteristics for farms that might indicate an AD/biogas system is appropriate, and provides limitations and conditions that would determine that AD/biogas is not applicable.
DOCUMENT

Applications of US EPA & GMI Tools in Novi Sad

Solid Waste Emissions Estimation Tool

Version 4.0.1
June 2022

Developed by U.S. Environmental Protection Agency



Tool Support: biogastoolkit@epa.gov



Solid Waste Emissions Estimation Tool (SWEET)

- Quantifies emissions from MSW
- Used in 50+ cities globally
- Incorporated into the UN's Habitat's Waste Wise Cities Tool
- Used by World Health Organization as part of Urban Health Initiative

2021 Pre-feasibility Analysis for Scaling Up the Novi Sad Composting Plant

SWEET analysis calculated potential emissions reductions over 30 years

SWEET Results	Total CO2e Emissions reduction	Total methane emissions reductions
Scenario 1 5,528 t/year	-102,661 tons	-99,026 tons
Scenario 2 15,384 t/year	-285,696 tons	-275,581 tons
Scenario 3 41,467 t/year	-767,032 tons	-724,290 tons

Applications of US EPA & GMI Tools in Novi Sad



2021 Pre-feasibility Analysis for Scaling Up the Novi Sad Composting Plant
 OrganEcs analysis calculated financials for the same three diversion scenarios

OrganEcs Results	O&M cost per ton in Year 1 USD \$	CAPEX per ton per year USD \$
Scenario 1 5,528 t/year	\$39/t	\$190/t
Scenario 2 15,384 t/year	\$32/t	\$134/t
Scenario 3 41,467 t/year	\$32/t	\$95/t

Organics Economics (OrganEcs) tool

- Estimate financial feasibility of organics waste management projects (compost & AD)
- Used by local government, waste professionals, policy makers, facility operators, and project developers
- Outputs include internal rate of return, CAPEX, OPEX

Resources for Biowaste Management Projects

- **Anaerobic Digester (AD) Risk Analysis Checklist:**
 - Help Project Developers determine technical & financial feasibility of projects by assembling information from a variety of sources to support project advancement
- **AD Project Development Handbook:**
 - A comprehensive compilation of the latest knowledge in the industry on best practices for anaerobic digestion/biogas systems.
- **AD Operator Guidebook:**
 - A guide for (AD)/ biogas systems operators to ensure safe and efficient operations of the systems they manage



CCAC Financial Readiness Questionnaire

- Provides a set of questions to help cities assess their readiness for financing
- Questions address:
 - Political Environment
 - Legal Frameworks
 - Regulatory Environment
 - Revenue Streams
 - Financial Modeling and Technical Expertise
 - Bidding Process

Accessible on the MSW Knowledge Platform:
www.waste.ccacoalition.org/document/financing-readiness-questionnaire



MUNICIPAL SOLID WASTE INITIATIVE

Financing Readiness

Identifying and securing sources of financing for projects in the municipal solid waste sector is the most critical aspect of bringing those projects to fruition. In many instances, it is also the most challenging. Before seeking financing, proponents of municipal solid waste projects should ensure the city itself, not just the project, is "finance ready." The Climate and Clean Air Coalition Municipal Solid Waste Initiative (Waste Initiative) developed a Financing Readiness Questionnaire for cities. By completing this questionnaire, cities can enhance their readiness for financing, and will be better positioned to identify and secure financing for their municipal solid waste projects.

Why Assess Financing Readiness?

- Raises awareness of financing challenges and potential pitfalls
- Identifies financial weaknesses or potential risks that need to be addressed
- Places cities in a position to obtain the most appropriate combination of financing
- Improves the transparency of a city's financial state, which reduces risk for investors, thereby leading to better deals for cities (e.g., lower interest rates)
- Reduces risk for cities (e.g., lowers risk of defaulting on payments)

Information and Resources

The following resources contain information relevant for cities financing waste management projects:

- **Primer for Cities for Accessing Financing for Municipal Solid Waste Projects** – The Waste Initiative developed this primer to help cities make decisions about financing.
- **Municipal Solid Waste Financing Webinar** – This Waste Initiative webinar provides an overview of the financial readiness toolkit, with a focus on policy and regulation, and gives an overview of the different funding and financing mechanisms available to cities to deliver municipal solid waste infrastructure.
- **C40 Cities Finance Facility (CFF)** – The CFF provides technical assistance to mobilize financing for city-level sustainability projects. The CFF offers assistance with project preparation, capacity development, knowledge sharing, and partnerships between cities and investors; the accompanying Knowledge Library provides a variety of resources related to these topics.

Accessing the Financing Readiness Questionnaire

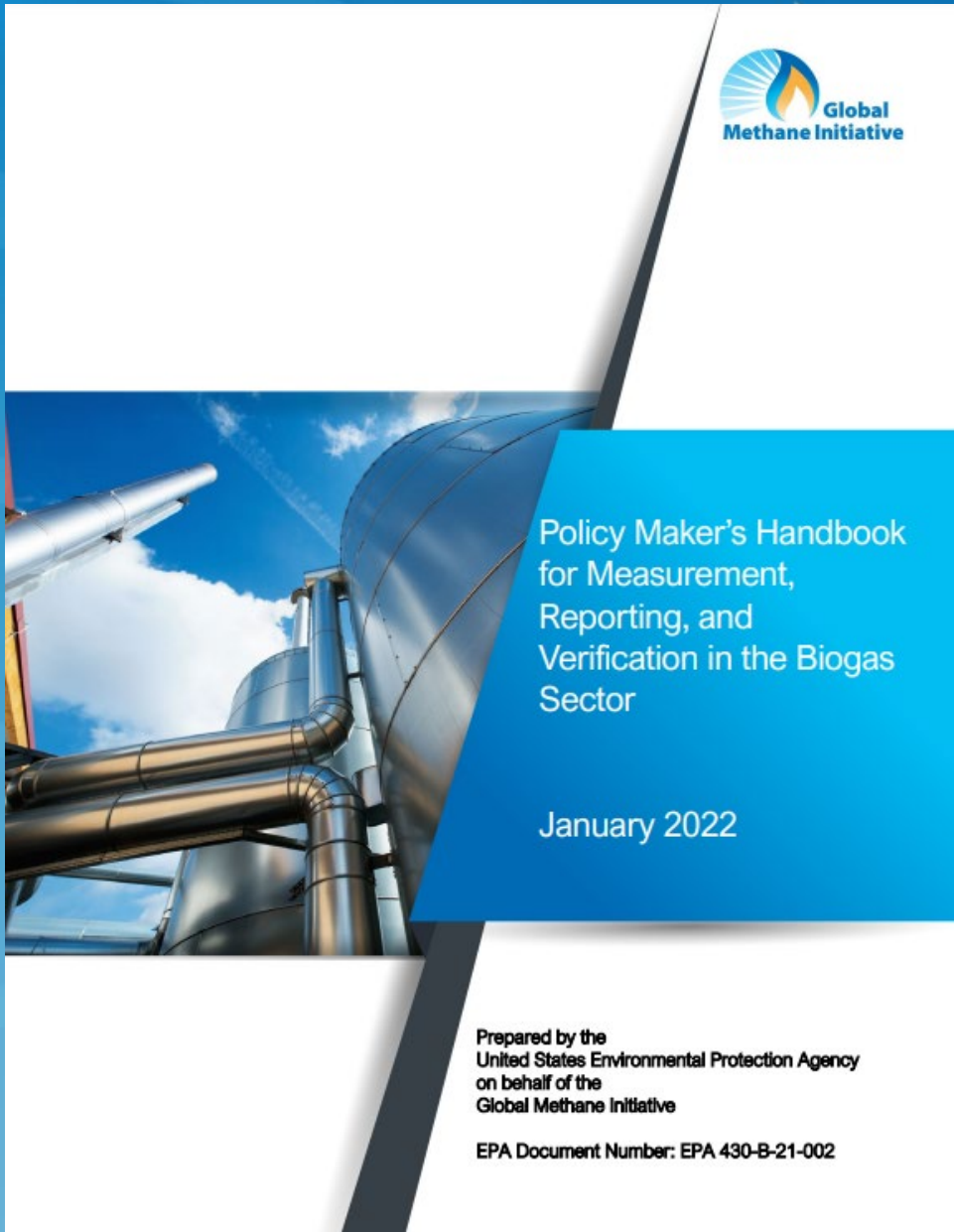
The Financing Readiness Questionnaire is among the many tools and resources available on the Waste Initiative's Municipal Solid Waste Knowledge Platform.

THE CLIMATE AND CLEAN AIR COALITION MUNICIPAL SOLID WASTE INITIATIVE unites national and local governments, international organizations, and other partners to reduce emissions of short-lived climate pollutants, such as methane and black carbon, from the municipal solid waste sector.

CLIMATE & CLEAN AIR COALITION
TO PROMOTE SUSTAINABLE CLIMATE SOLUTIONS

Bidding Process

1. Does the city have specific bidding and procurement policies? If so, what are they?
2. Do local procurement policies conflict with state and national policies? If so, which policies will be followed for this project?
3. How do investors/developers bid on projects?
4. Are there any other factors related to the bidding process that might influence this project?



Policy Maker's Handbook for Measurement, Reporting, and Verification in the Biogas Sector

Helps government decision-makers overcome barriers in accounting for emissions and emissions reductions from biogas projects.

- 1 Learn about the components of an effective MRV framework and the benefits of biogas MRV at the project-level
- 2 Explore the practical application of best practices through examples and case studies
- 3 Learn how to use biogas project MRV data to develop national inventories and enhance mitigation targets in NDCs
- 4 Explore the appendix for a comprehensive list of tools and resources for biogas project MRV

2022 Global Methane, Climate, and Clean Air Forum

- **Premier global event** bringing together international stakeholders to discuss climate and air quality opportunities with a special focus on methane
- **Agriculture and Waste Sessions** to discuss challenges and opportunities to advance circular economy
- **Networking opportunities** with biogas and methane experts in the public and private sectors from around the world
- **Livestreamed and in-person**

Register: globalmethane.org/2022forum



Thank You!

Nick Elger

Elger.Nicholas@epa.gov

Thank you for participating in the conference.

Please visit the GMI website for:

- Global Methane Forum registration
- Upcoming MRV Webinars
- Access GMI tools and resources
- Join the Biogas Subcommittee



globalmethane.org

