



**REQUEST FOR INFORMATION
for Renewable Natural Gas Development at Wastewater Pollution Control Plants**

for The City of Philadelphia

Issued by:
THE PHILADELPHIA ENERGY AUTHORITY (“PEA”) ON BEHALF OF THE CITY OF
PHILADELPHIA (the “City” and with PEA the “COP”)
Philadelphia Water Department

**Responses must be received no later than 5:00 p.m. Philadelphia, PA, local time,
on Friday, March 17**

James Kenney, Mayor
Randy Hayman, Commissioner, Philadelphia Water Department
Emily Schapira, President & CEO of the Philadelphia Energy Authority

Table of Contents

I. RESPONSE CALENDAR..... 1
II. RFI CONTACT INFORMATION FOR QUESTIONS 1
III. PURPOSE OF THE REQUEST FOR INFORMATION 2
IV. BACKGROUND 2
V. SUBMISSION REQUIREMENTS 4
IX. CONFIDENTIALITY AND PUBLIC DISCLOSURE 6
X. RIGHTS AND OPTIONS RESERVED..... 6

**RENEWABLE NATURAL GAS
REQUEST FOR INFORMATION (RFI)**

I. RESPONSE CALENDAR

Posting of Request for Information (RFI) on PEA website:	January 9, 2023
Deadline for questions, clarifications, or requests for additional information:	January 27, 2023
Responses to inquiries posted to PEA website:	February 20, 2023
Response to RFI Due Date:	March 17, 2023

II. RFI CONTACT INFORMATION FOR QUESTIONS

All questions concerning this RFI must be submitted via email no later than 5 pm, Philadelphia, PA local time on Friday, January 27 and directed to:

Samantha O'Connor
Philadelphia Water Department
Samantha.OConnor@phila.gov

Responses to such questions and requests shall be at the COP's sole discretion and nothing in the RFI shall create an obligation on the COP to respond to the submitting party or at all. In the COP's sole discretion, responses may be posted on the COP's websites without formal notification to prospective Respondents.

The COP, in its sole discretion, may issue addenda to this RFI containing responses to questions and requests for information, clarifications of the RFI, revisions to the RFI, or any other matters that the COP deems appropriate. Addenda will be posted on the PEA's website at <https://philaenergy.org/public-bids/> ("Public Bids"). It is the Respondent's responsibility to monitor the Public Bids site for Addenda and to comply with their terms.

Oral responses by any COP employee or agent of the COP are not binding and shall not in any way be considered as a commitment by the COP.

If a Respondent finds any inconsistency or ambiguity in the RFI or an addendum to the RFI issued by the COP, the Respondent is requested to notify the COP in writing.

III. PURPOSE OF THE REQUEST FOR INFORMATION

The PEA on behalf of the Philadelphia Water Department (“PWD” or “Department”) invites interested parties to respond to this Request for Information (“RFI”) with information regarding program and/or project structures that would make renewable natural gas (“RNG”) development feasible for the Department. The Department and the COP are also requesting information regarding projects developed with similarly sized governments or institutions.

Many RNG development projects currently exist in the marketplace. PWD is looking for information from manufacturers, research institutions, utilities, and other relevant organizations regarding their technology solutions, business models, and implementation best practices. Information provided by Respondents may help to develop a potential future contract opportunity. This RFI will also help PWD to identify interest in such a potential contract opportunity.

Responses to this RFI are considered non-binding and are used to assist PWD in performing information gathering for planning purposes. Responses to this RFI could help shape potential future contract opportunities. Responding to the RFI is not a requirement for participation in potential future offerings, nor does it preclude an application from participating in a potential future opportunity.

IV. BACKGROUND

The City of Philadelphia is the largest city in the Commonwealth of Pennsylvania and the sixth-most-populous city in the United States with over 1.5 million residents. The City encompasses approximately 134 square miles of land area. As an operating department of the City, PWD provides integrated water, wastewater, and stormwater retail services to residential, commercial, and industrial customers.

PWD is committed to pursuing resource recovery at its facilities and optimizing the use of biogas created from the anaerobic digestion process at the Southwest and Northeast Water Pollution Control Plants (“WPCPs”).

The Southwest WPCP has 12 anaerobic digesters, with a total digester capacity of 23 million gallons. The Southwest WPCP sends approximately 1.2 million gallons of sludge per day to the digestion facility (2017-2021 daily average). Currently, the Southwest WPCP employs sludge screening technology on Southwest’s primary sludge line, and the digesters are mixed via heat exchanger recirculation.

Currently, at the Southwest WPCP, biogas is utilized onsite in the facility’s boilers, and it is also conveyed to a third party biosolids processor for use in a thermal drying facility. Biogas is regularly flared at the site.

Pertinent information regarding biogas volumes and end uses (from FY 2018-FY 2022) at SW WPCP include:

- Annual biogas production: 340,000– 470,000 MCF per year
- Average annual biogas sent to boilers: 180,000– 275,000 MCF per year
- Average annual biogas sent to thermal biosolids drying facility: 35,000 – 108,000 MCF per year
- Average annual biogas flared: 80,000 MCF – 170,000 MCF per year

SW WPCP biogas characteristics for the last five years are listed below:

Southwest WPCP Digester Gas Composition Data Points (FY 2018-FY 2022)						
Gas Component	Hydrogen Sulfide (ppm)	Total Sulfur (ppm)	Methane (mol%)	Carbon Dioxide (mol%)	Nitrogen (mol%)	Oxygen (mol%)
5-year maximum	5.760	6.360	69.82%	38.80%	1.04%	0.00%
5-year average	1.887	2.050	64.56%	35.00%	0.47%	0.00%
5-year minimum	0.270	0.340	60.84%	29.58%	0.18%	0.00%

The Northeast WPCP has 8 anaerobic digesters, with a total digester capacity of 15 million gallons. The Northeast WPCP sends approximately 0.89 million gallons of sludge per day to the digestion facility (2017-2021 daily average). Currently, the plant does not screen primary or secondary sludge and the digesters are mixed via heat exchanger recirculation.

The Northeast WPCP has a 5.6 MW biogas co-generation facility, which uses a combination of natural gas and biogas to generate onsite electricity and useful thermal energy. Biogas usage is maximized, and flaring is minimal, except in occasional operational scenarios when biogas cogeneration engines may not be available to consume the gas.

Pertinent information regarding biogas volumes and end uses (from FY 2018-FY 2022) at NE WPCP include:

- Annual biogas production: 450,000 – 510,000 MCF per year
- Average annual biogas sent to cogeneration facility: 320,000 – 440,000 MCF per year
- Average annual biogas flared: 20,000 – 190,000 MCF per year

NE WPCP biogas characteristics for the last five years are listed below:

NE Biogas Composition Data Points FY 2018-FY 2022						
Gas component	Hydrogen Sulfide (ppm)	Total Sulfur (ppm)	Methane (mol%)	Carbon Dioxide (mol%)	Nitrogen (mol%)	Oxygen (mol%)
5-year maximum	4.420	5.543	67.07%	39.39%	0.53%	0.00%

5-year average	0.956	0.986	63.50%	36.24%	0.26%	0.00%
5-year minimum	0	0	60.39%	32.47%	0.15%	0.00%

PWD recognizes that there may be value in repurposing the biogas used in the cogeneration system for other alternative applications.

Potential alternative applications of biogas at the WPCPs include upgrading the biogas to renewable natural gas (“RNG”). RNG is produced by removing carbon dioxide and other constituents from the biogas to increase the concentration of methane to levels approximating that of natural gas. PWD recognizes that a significant capital investment in a biogas cleaning and upgrading technology, as well as any associated plant process upgrades, would be required to produce RNG. Revenue from Renewable Identification Numbers (“RINs”) sales would be earned if RNG produced at the WPCPs was injected into the Philadelphia Gas Works gas distribution system.

The Department seeks to understand potential program and/or project structures that will maximize the economic and environmental benefits of biogas produced at PWD WPCPs. Information about RNG development projects and other innovative energy solutions that can maximize co-benefits including reducing carbon emissions, increasing resiliency, and promoting energy neutrality is desired.

The Department is also interested in information regarding renewable energy technologies that generate power, reduce energy load on the existing utility grids, reduce greenhouse gas emissions and improve the environmental quality of the area, but may not be widely adopted. Technologies should be UL-certified (or equivalent) and commercially viable and available. Renewable technology solutions or thermal energy solutions should be beneficial in wastewater treatment plant settings.

V. SUBMISSION REQUIREMENTS

Each Respondent who submits a Response to the RFI shall include the following items in the order listed.

1. Company Profile:

Respondent must provide a profile of its company’s operations including:

- a. Name, business address, telephone number, website address, incorporation location(s), and list of Pennsylvania and/or Philadelphia business licenses currently held.
- b. The number of years the company has been in the business of developing, designing and/or installing resource recovery, renewable energy, and RNG systems at wastewater treatment plants.

- c. A primary contact for the Respondent, including name, job title, address, telephone and fax numbers, and email address.
- d. A description of Respondent's business background and any other information about Respondent's business organization that Respondent deems pertinent to the RFI.

2. Experience and Case Studies

Respondent should provide a description of the Respondent's experience implementing relevant large-scale RNG projects at wastewater treatment plants. Project case studies and examples for local governments or institutions are of particular interest. Where possible, project descriptions should include contact information for individuals where the project was implemented, the type of project, business and partnership model, fee and payment structure, simple payback timeline, photographs of the project, web links to project information, and any other relevant project details.

3. Basic Technology Characteristics

The respondent's submission shall include a description of the technology application containing the following:

- a. Projected capital costs for technology applications.
- b. Basis of Design criteria for technology applications (i.e., required biogas characteristics and quantities, or any other pertinent criteria).
- c. Projected operations and maintenance costs on an annualized basis.
- d. Expected useful/service life of technologies (i.e., industry standard useful life and/or observed service life of technology applications).
- e. Potential buyers of RNG and related credits/financial products (RINs, RTCs).
- f. Existing subsidies and sources of project financing.
- g. Any other alternative project structures.

4. General Feedback

In general, the Department would like to explore three primary issues, and requests that Respondents provide a brief narrative on each of the following:

- a. Suggestions for the technologies that the Department should be considering.
- b. Suggestions about the ownership models.
- c. Suggestions about the type of issues that need to be considered when implementing RNG projects and other accompanying energy & resource recovery innovations in wastewater treatment plant settings.

5. Feasible RNG project structures for the Department

Respondent should provide information and ideas on project options that would make an RNG development project feasible for the City. Responses should include:

- a. Detailed descriptions about how the project would be structured.
- b. Approximate volume of biogas production that would achieve the scale needed to create the greatest value for RNG production (even where a combined heat and power system is in place).
- c. Space requirements for biogas cleaning and upgrading equipment.

- d. Potential limitations or restrictions that could impact a project, such as gas characteristics, gas pipeline connection limitations, etc.
- e. Indicative pricing for RINs.
- f. Information on carbon intensity (CI) scores and standards.
- g. Impacts to RINs management if co-digestion of high-strength wastes is recommended as part of a program/project structure.
- h. Information on the type and form of contract.
- i. Additional staffing requirements and/or the level of staffing that respondents are willing to provide (if deemed appropriate) for ongoing operations and maintenance activities
- j. Potential options for decommissioning and other considerations at the end of the contract term (if applicable).

VIII. HOW TO SUBMIT

Applicants must submit their responses electronically as a single document with the email subject line “PWD RNG RFI – [Firm Name]” to:

Samantha O’Connor
Philadelphia Water Department
Samantha.OConnor@phila.gov

Responses are due by 5 pm, Philadelphia, PA local time on Friday, March 17.

IX. CONFIDENTIALITY AND PUBLIC DISCLOSURE

Respondents shall treat all information obtained from the COP which is not generally available to the public as confidential and/or proprietary to the COP. Respondents shall exercise all reasonable precautions to prevent any information derived from such sources from being disclosed to any other person. No other party, including any Respondent, is intended to be granted any rights hereunder. Respondents agree to indemnify and hold harmless the COP, its officials and employees, from and against all liability, demands, claims, suits, losses, damages, causes of action, fines and judgments (including attorney’s fees) resulting from any use or disclosure of such confidential and/or proprietary information by any Respondent or any person acquiring such information, directly or indirectly, from any Respondent.

X. RIGHTS AND OPTIONS RESERVED

In addition to the rights reserved elsewhere in this RFI, the COP reserves and may, in its sole discretion, exercise any or more of the following rights and options with respect to this RFI if the COP determines that doing so is in the best interest of the COP:

1. to decline to consider any response to this RFI (“Response”); to cancel the RFI at any time; to elect to proceed or not to proceed with discussions or presentations regarding its subject

matter with any Applicant and with firms that do not respond to the RFI; or to reissue the RFI or to issue a new RFI (with the same, similar, or different terms);

2. to waive, for any Response, any defect, deficiency or failure to comply with the RFI if, in the COP's sole judgment, such defect is not material to the Response;
3. to extend the Submission Date/Time and/or to supplement, amend, substitute or otherwise modify the RFI at any time prior to the Submission Date/Time, by posting notice thereof on the PEA web page(s) where the RFI is posted;
4. to require, permit or reject amendments (including, without limitation, submitting information omitted), modifications, clarifying information, and/or corrections to Responses by some or all Respondents at any time before or after the Submission Date/Time;
5. to require, request or permit, in discussion with any Respondent, any information relating to the subject matter of this RFI that the COP deems appropriate, whether or not it was described in the Response or this RFI;
6. at any time determined by the COP, to discontinue discussions with any Respondent or all Respondents regarding the subject matter of this RFI, and/or initiate discussions with any other Respondent or with vendors that did not respond to the RFI;
7. to do any of the foregoing without notice to Respondents or others, except such notice as the COP, in its sole discretion, may elect to post on the PEA web page(s) where this RFI is posted.

This RFI and the process described are proprietary to the COP and are for exclusive benefit of the COP. Upon submission, Responses to this RFI shall become the property of the COP, which shall have unrestricted use thereof. The COP will not accept any information considered as confidential or proprietary information. Responses may be subject to public disclosure under the Pennsylvania Right-to-Know Law. By submission of a response, Respondent acknowledge and agree that the City, as a municipal corporation, is subject to state and local public disclosure laws and, as such, is legally obligated to disclose to the public documents, including any response, to the extent required thereunder. Without limiting the foregoing sentence, the City's legal obligations shall not be limited or expanded in any way by a Respondent's assertion of confidentiality and/or proprietary data.