



The Metropolitan District  
water supply · environmental services · geographic information

**COMMITTEE ON TECHNOLOGY  
SPECIAL MEETING  
FRIDAY, JULY 14, 2023  
12:00 PM**

---

<u>Location</u>	<u>Commissioners</u>	
Board Room District Headquarters 555 Main Street, Hartford	Adil DiBella (C) Drake Gardow	Gentile (VC) Salemi Taylor
Dial in #: (415)-655-0001 Access Code: 980 274 00# <a href="#">Meeting Video Link</a>	Quorum: 3	

---

1. CALL TO ORDER
2. PUBLIC COMMENTS RELATIVE TO AGENDA ITEMS
3. APPROVAL OF MEETING MINUTES OF JUNE 29, 2023
4. PRESENTATION BY REA RESOURCE RECOVERY SYSTEMS
5. OPPORTUNITY FOR GENERAL PUBLIC COMMENTS
6. COMMISSIONER REQUEST FOR FUTURE AGENDA ITEMS
7. ADJOURNMENT

**COMMITTEE ON TECHNOLOGY**  
**SPECIAL MEETING**  
**The Metropolitan District**  
125 Maxim Road, Hartford  
Thursday, June 29, 2023

**PRESENT:** Commissioners Andrew Adil, David Drake, Peter Gardow, Joan Gentile, Pasquale J. Salemi and Alvin Taylor; District Chairman William DiBella (7)

**REMOTE ATTENDANCE:** None (0)

**ABSENT:** None (0)

**ALSO**

**PRESENT:** Commissioner Dominic Pane (Remote Attendance)  
Scott W. Jellison, Chief Executive Officer  
Christopher Stone, District Counsel  
John S. Mirtle, District Clerk  
Kelly Shane, Chief Administrative Officer  
Christopher Levesque, Chief Operating Officer  
Thomas Tyler, Director of Facilities  
Jeff Bowers, Manager of Water Pollution Control  
Mike Zabilansky, Manager of Maintenance  
Lisa Madison, Manager of Procurement  
Tara Cummings, Contract Specialist  
Carrie Blardo, Assistant to the Chief Executive Officer  
Julie Price, Executive Assistant  
Victoria Escoriza, Executive Assistant (Remote Attendance)  
Nisha Patel, CT DEEP  
Gabrielle Frigton, CT DEEP (Remote Attendance)  
Jaimeson Sinclair, CT DEEP (Remote Attendance)  
Louis Corsino, CT DEEP (Remote Attendance)  
Lakiesha Christopher, CT DEEP (Remote Attendance)  
Joe Denicola, CT DEEP (Remote Attendance)

**CALL TO ORDER**

Chairman DiBella called the meeting to order at 12:05 PM

**PUBLIC COMMENTS RELATIVE TO AGENDA ITEMS**

No one from the public appeared to be heard.

**APPROVAL OF MINUTES**

*On motion made by Commissioner Adil and duly seconded, the meeting minutes of June 1, 2023 were approved.*

*Commissioners Gardow and Gentile abstained.*

**2023-RFI-01 SUBMITTAL OF REA RESOURCE RECOVERY SYSTEMS**

Scott Jellison, Chief Executive Officer, led a discussion regarding the staff review of REA Resource Recovery Systems' submittal, as well as discussed a list of questions that staff compiled to submit to REA in advance of their presentation at the next Committee meeting. Commissioners were given until Thursday July 6<sup>th</sup> to submit any questions to be included and forwarded to REA.

**OPPORTUNITY FOR GENERAL PUBLIC COMMENTS**

Judy Allen, West Hartford Resident, asked whether the public can submit a question to be sent to REA.

**ADJOURNMENT**

The meeting was adjourned at 1:14 PM

ATTEST:

John S. Mirtle, Esq.  
District Clerk

\_\_\_\_\_  
Date of Approval



# **THE METROPOLITAN DISTRICT**

---

---

## **MEMORANDUM**

---

---

TO: MDC Technology Committee

SUBJECT: RFI Submission Questions from MDC Staff – REA (including Commission/Public Questions)

DATE: July 6, 2023

---

### **General Comments and Questions**

1. REA pilot project at the New Haven Regional Waste Water Authority was extracting the FOG from the influent using a belt skimmer technology. MDC was told New Haven would be the pilot to Danbury's larger capacity project producing approximately 300,000 gallons of Biodiesel per year, and if successful at this larger commercial scale in one year, REA could provide factual data their technology could work at the MDC producing upwards of 5million gallons per year.
2. Has the Danbury Facility been operational for 1 year?
3. How much Biodiesel has been produced at Danbury?
4. What is the cost to produce Biodiesel per gallon at Danbury?
5. MDC, through our Financial and Bond counsel have determined that the MDC, a quasi-governmental entity, does not have the ability to use the biodiesel tax credits as they are not a regarded entity for tax purposes. The biodiesel product would need to be blended and then sold by a tax paying entity for that entity to take the biodiesel tax credits.
6. If Danbury is similar to MDC as a tax-exempt organization, who is blending and then selling the Biodiesel and receiving the tax credit?
7. In today's market, what is the Biodiesel product going for in \$/gallon, the blended product has an additional markup of about how much in \$/ gallon and the seller can submit for a tax credit of \$1 today?
8. Does this tax credit vary over time and what is REA's financial model assuming this credit will be over the life of the projects 20-year amortization?

9. Does REA's response viability depend on the tax credit?
10. Is this response contingent on necessity to construct the biodiesel facility through financing by the MDC at lower interest rates than the current private capital markets?
11. If so the MDC would need to own the facility, and if that was the response by REA, how could REA and a taxable entity sell the Biodiesel generated for a plant in which they are not the owner?
12. Is Danbury project extracting the FOG from the influent using a belt skimmer, or is the FOG receiving facility the mechanism in which FOG is delivered to the treatment plant?
13. If the FOG is trucked to the facility, would REA have to perform an Environmental Justice Plan with DEEP prior to being permitted?
14. What are the means to remove FOG from the influent at the Hartford Wastewater Pollution and Control Facility (HWPCF), belt skimmers or trucked in utilizing a FOG receiving station?
15. How much FOG is necessary to process at the HWPCF in order to make REA's response cost beneficial to REA?
16. How much Biodiesel is expected to be produced?
17. What is REA's expectation in the FOG quantities generated from MDC's collection systems influent entering the HWPCF, and how did REA derive this information?
18. Could REA's technology extract all FOG quantities necessary utilizing belt skimmers from the influent?
19. If not, what is REA's expectations regarding quantities necessary to be trucked into the HWPCF and where would that FOG be generated from?
20. What percentage of the Biodiesel market is Yellow vs Brown grease?
21. How does REA plan to compete with the Yellow FOG market give the fact Restaurateurs are being paid for their yellow grease?
22. How many trucks would be required to deliver the necessary production quantities of FOG?
23. Given Hartford is an Environmental Justice Community defined by Connecticut General statutes 22a-20, has REA discussed with CT DEEP whether an Environmental Justice Plan would be required for HWPCF to permit this facility?

24. Are there other facilities, similar in size and magnitude, to the facility REA proposed for the District presently operating?
25. What performance guarantees would REA provide to ensure that the facility would perform as engineered?
26. What are the details of the contractual agreement/relationship with REA and the City of Danbury with regards to O&M and revenue received at the Danbury Facility?
27. Can you explain the difference between the REA process and Renewable Biodiesel?
28. How do you see the REA brown grease Biodiesel conversion method aligning or merging with the Renewable diesel products and production methods in the future?
29. Will there still be a market for Biodiesel in the future, given the growth rate of Renewable?
30. How is Renewable Biodiesel affecting the tax credits?
31. Will utilizing Biodiesel impact warranties on Diesel engines, or on home heating furnaces?
32. What are the impacts in reducing Green House Gas Emissions (GHG) between Biodiesel and Renewable Biodiesel?
33. Process as explained requires significant number of processing tanks and footprint with indoor facility as pictured in Danbury. Can you provide details on what is specifically proposed for the District?
34. Process as explained references the use of acids as a catalyst. What are the quantities of acids are used? Where and how are the acids stored. What safety protocols are used to ensure staff safety?

### **Response Comments and Questions**

35. What is the byproduct/waste stream of producing biodiesel and can you provide details on quantity and concentration of each byproduct based on quantity of biodiesel produced? Also, please provide recommended disposal method and costs for disposal of byproducts. [General]
36. The brown grease that has been observed at the HWPCF contains many impurities such as embedded plastic, paper products, hair, soils and other impurities. Mixed with the brown grease, this material is very hard to process through various processes in the

existing HWPCF (Dewatering centrifuges, wet wells, DAFT, etc.) This material will affect any process and would need to be clearly addressed to minimize manpower needed to remove it from the process. Page 1 paragraph 3 references the "Beast" as a screening system. Is this system presently in use, and how does it operate and how is it maintained? How are the screenings handled, how are they disposed? [Page 1, Par. 3]

37. Document states, "delivered to the facility" implies truck traffic. Need to understand the truck traffic impact, pollution, traffic, offloading, etc. Can REA clarify this? [Page 1, Par. 3]
38. Here, and elsewhere in the response, that are references to heating the FOG, but no mention of odor control. brown grease when heated, is extremely odorous, with great potential for off-site odor complaints. Assuming the unloading and storage along with the process of brown grease would need significant odor control. Can you comment on how REA would address this? What are the capital and O&M costs for Odor Control? Additionally, what is the heat source? how is the heat transferred? What is capital and O&M costs related to the heat sources needed in multiple steps of the biodiesel process? [Page 1, Par. 3]
39. Document states that "grease is sent to the headworks" Implication is that facility is located at a WPCF. Sending grease, in any quantity, to the headworks seems to counterproductive. Please clarify make-up and quantity of grease or other production by-products sent to the headworks. [Page 1, Par. 3]
40. Document states '32 hours', which seem very specific. Why 32? How is the production controlled given this very specific timing? [Page 1, Par. 3]
41. How will the loads be received from haulers? What is annual number of anticipated deliveries? [Page 1, Par. 3]
42. Heat source - see comment from page 1. [Page 1, Par. 3]
43. Odor & odor control - see comment from page 1. [Page 2, Par. 1]
44. Can you discuss how, and provide example, of how a rope skimmer would be used to collect grease from the plant influent? The District bought/installed an Oil skimmer brand rope skimmer based on REA recommendations. It proved to be a complete failure. Please comment on the reliability, runtime, maintenance, etc. What brand does REA use? Is this presently used at existing facilities? What prevents hair and other debris from impacting operational effectiveness? [Page 2, Par. 1]
45. Grease to the headworks - see comment from page 1. [Page 2, Par. 1]
46. Document state '44 hours', which seem very specific. Why 44? How is the production controlled given this very specific timing? [Page 2, Par. 1]

47. Heat source - see comment from page 1. [Page 2, Par. 1]
48. See above comment relating to odor control. Please clarify how the 225-degree air that is blown over the grease is created, heated, transferred, etc. This also appears to be a significant odor potential. [Page 2, Par. 2]
49. Heat source - see comment from page 1. [Page 2, Par. 2]
50. Methanol is added to the brown grease to convert it to biodiesel, as a catalyst? Although some of the methanol is captured in the process for reuse, the cost of the methanol could be significant. How much of the O&M is methanol? How and from where is the methanol procured? Given the extreme flammability of methanol, what fire protection is needed? [Page 3, Par. 1]
51. Heat source & odor control - see comment from page 1. [Page 3, Par. 2]
52. In the present installed locations where this process is used, what is the ratio of brown grease received to biodiesel produced? What is the finished biodiesel used for? In other words, is the biodiesel used internally to fuel vehicles within the organization? Is the biodiesel marketed and what is the cost per gallon received versus the cost to process one gallon of brown grease? [Page 3, Par. 3]
53. Heat source & odor control - see comment from page 1. [Page 3, Par. 3]
54. Reference to returning waste water to "the headworks", is this a CT DEEP registered disposal? We typically would not let anyone discharge a waste in and considerable volume with the correct permitting or registration. The District also charges a fee for high strength wastewater discharges. [Page 3, Par. 4]
55. Can wash water combined with the "Large Amount of Decant Water" returned back to the plant be metered without impacting your continuous process? How does operating biodiesel production in batch mode mesh with a treatment plant operating in continuous mode? [Page 3, Par. 4]
56. Reference to returning waste water to "the headworks" - see above comment from page 3. [Page 4, Par. 2]
57. Can you explain what process chemicals are needed to produce biodiesel, what quantities are stored/used, etc.? What hazardous characteristics are accounted for in handling and storage? What safety protocols are used (i.e. OSHA Process Safety Management and Risk Safety Management)? [Page 4, Par. 2]
58. There is reference to the use of deionized water in the process. It is assumed that the water would be made up in batches and held in a holding tank onsite using an installed

deionizer? What equipment is used? How does it function? What are the associated O&M requirements & costs? [Page 4, Par. 2]

59. Remaining wet methanol for use in denitrification system would require another tank and pumping system with piping for control of 64 denitrification zones for optimal performance. Is this calculated into the anticipated capital expense? [Page 4, Par. 2]
60. The document suggests 20% residual biodiesel stream for use in boiler fuel. Is there a supplemental fuel source that can be used within the same boiler? Is the 20% of production usage of biodiesel figured into the financial statements? [Page 5, Par. 2]
61. What dictates which acid catalysts used? Please clarify the impacts on the safety, O&M costs and capital return. [Page 13, Par. 2]
62. The document states that in 14 months several hundred gallons of heating oil grade biodiesel were made. How was this volume used? Trucks, boilers? [Final Report Sec. I]
63. The very small pilot plant operated "a few days at a time", (assuming a few gallons produced per day), and a statement is made that this proved "no impacts" to the plant. How does the very limited operating time support this statement? Typically, an observation period of a least a year might be needed due to seasonal variations. [Final Report Sec. I]
64. Where did the brown grease come from? Report states "trucked in"? Prior discussion indicated use of a skimmer? [Final Report Sec. I]
65. Document states, "excess methanol discharged" How much? How often? Discharged to where? What safety protocols are used? [Final Report Sec III.B]
66. Another statement regarding "no adverse impact" How was this studied and proven to be true? [Final Report Sec III.B]
67. \$9,000 for FOG OPEX. For what time period? If annual, about \$173/week. Can you clarify what this covers? [Financial Statement]
68. No additional O&M for FOG in 900K gallon system vs 600K gallon system is presented, but more O&M for bigger biodiesel? Can you explain this? [Financial Statement]
69. Can you detail what is included in the O&M costs? Staffing (with labor rate assumptions), maintenance, consumables, etc. [Financial Statement]
70. Page 2, The REA states that the District pays for construction and owns it, but later states is "co-managed" and operated by REA? Please clarify this. [Public Private Agreement]

71. Page 2, The REA document states REA does all of the design and technology for the system? How are District design standards incorporated? District engineering and O&M staff collaborate on all District projects. How is District staff input incorporated into the project? [Public Private Agreement]
72. Page 2, The REA document references managing the facility by using a panel of REA and District staff. Please clarify this arrangement. [Public Private Agreement]
73. Page 2, The REA document references that REA operates the facility. Not District staff. Given the three unions that make up the great majority of District staff, how does this function, private employees operating a "shared" facility? [Public Private Agreement]
74. Page 2 of REA Public Private Partnership References Plan of Implementation for Capital Requirement and Financial Projections with attached spreadsheets. No spreadsheets were attached. [Public Private Agreement]

From Technology Committee Member:

Assuming the technology works, we have a location and all permits approved. Could you provide how you would envision this works as a business:

- What do you own, what would MDC own?
- Based on volumes we are looking at: Where are sources that we would get all of the fats/oils from? Will we pay for it or get paid to take it?
- Who trucks its? Would truckers be contractors, employees of oil sources? MDC employees?
- Who buys the Bio product from us? One Local company or all over US?

From Public:

The prototype at New Haven East Shore WPCA did not require a permit from DEEP nor an Environmental Justice Plan. Has there been any feedback from the community? Has REA ever completed such a plan?

In creating the demonstration project you encountered design problems and limitations due to cost. For example, no single run of the prototype was able to satisfy both acid and sulfur acids requirements. Are there other hurdles you expect to encounter and how will you overcome them for a large-scale project?

Has your proposal to New Haven been accepted?

How is biodiesel stored and for how long?

Has REA ever considered creating renewable diesel?