The Metropolitan District
water supply · environmental services · geographic information

COMMITTEE ON TECHNOLOGY
SPECIAL MEETING
THURSDAY, OCTOBER 12, 2023
1:00 PM

Location
Board Room
District Headquarters
555 Main Street, Hartford

Dial in #: (415)-655-0001
Access Code: 2316 811 9660#
Meeting Video Link

Commissioners

Adil	Gentile (VC)
DiBella (C)	Salemi
Drake	Taylor
Gardow	

Quorum: 3

1. CALL TO ORDER
2. PUBLIC COMMENTS RELATIVE TO AGENDA ITEMS
3. APPROVAL OF MEETING MINUTES OF SEPTEMBER 21, 2023
4. DISCUSSION RE: 2023-RFI-01 SUBMITTAL OF LCI CORP
5. PRESENTATION FROM STAFF RE: 2023-RFI-01 SUBMITTAL OF CDM SMITH
6. DISCUSSION RE: CTEC RESPONSE TO FOLLOW-UP QUESTIONS
7. DISCUSSION RE: CT PUBLIC UTILITIES REGULATORY AUTHORITY'S INNOVATIVE ENERGY SOLUTIONS PROGRAM
8. OPPORTUNITY FOR GENERAL PUBLIC COMMENTS
9. COMMISSIONER REQUEST FOR FUTURE AGENDA ITEMS
10. ADJOURNMENT

Prior to answering the questions below prefacing we are making the following comments to clear up the confusion raised from the questions below.

Ctec UK and Ctec Energy Sales U.S.A are two separate companies. Ctec Energy Sales U.S.A. has the exclusive rights to manufacture, market and sell both Ctec and MYT plants in the Americas and other regions throughout the world. The proprietary components for both plants will continue to be manufactured in Europe and shipped over to the U.S. We made this clear from the beginning and in the August 10th meeting.

Ctec stated in the August 10 meeting at the MDC that we have successfully tested sludge in a Ctec plant. We also made it clear that we currently don't have a dedicated sludge plant operating in the UK or EU. However, Ctec takes sludge into plants as part of the waste streams it accepts in those regions. It works because the sludge, which has a low BTU value, when mixed with plastics, MSW etc. provides the necessary energy to power a Ctec plant and create usable excess energy in the forms of thermal and electricity to the owner or lessee of the plant. Ctec can also produce hydrogen with an additional component added. This will not only create hydrogen but will also increase the current electricity production by a minimum of 50%.

Regarding emissions, in the UK and EU Ctec UK uses very powerful proprietary software to monitor emissions 24/7. The great thing is that regardless of what is being fed into the plant the emissions are always the same, which is zero. No technology in the world has thus far shown the capability to reduce emissions anywhere close to Ctec. Ctec USA has proprietary software that Ctec UK has developed and employs but we have decided to add 3Datx technology, Buffalo NY, as a third-party independent verifier for Ctec U.S.A. They are globally recognized and respected. They will act like JD Power for our emissions. Our emissions report will be available live 24/7, as it currently is in the UK and EU, for the client and the regulatory agency or local government if desired. You won't have to wait one, three, six months or one year to know what is occurring. It's live. Dave Miller of 3Datx was on the zoom portion of the August 10th meeting at the MDC. Dave, along with Dr. Christopher Frey built the first portable emissions measurement system testing unit (PEMS) in the U.S over 20 years ago. Currently, Dr. Christopher Frey is serving as assistant administrator for the Office of

Research and Development (ORD) at the Environmental Protection Agency (EPA). Dave is working separately but closely with Dr. Christopher Frey and Dr. Alberto Ayala. Dr. Alberto Ayala is the head of the Metropolitan Sacramento Air Quality Management District which is part of CARB, California Air Resources Board. Dave, Alberto and Chris are in the process of creating a UNCCC, United Nations Framework Convention for Climate Change, for a new carbon credit methodology. They are all excited about Ctec and MYT and what those technologies offer to their work creating the UNCCC.

To be clear, the proposal we made to the MDC says the following. Ctec is an innovative and disruptive technology that has been successfully deployed in Europe for the last seven years. Ctec will substantially reduce MDC's operating expenses and carbon footprint associated with their incineration of sludge. Ctec will eliminate the $2million and growing annual gas bill, the $9.5 million and rapidly growing annual electric bill, thanks to the crazy 100% increases that Eversource is implementing to fund their failed wind initiative. Additionally, Ctec produces clean energy as its waste product. For every hour the proposed Ctec plants run at MDC they will produce a minimum of 1 MW per hour or 33 million kwh of free clean usable excess electricity annually. Ctec will also use all the thermal produced to dry the sludge. This energy is clean renewable energy and is a byproduct obtained while cleanly eliminating another big problem, waste. Ctec will destroy all PFAS and forever chemicals with no negative environmental impact through our Patent Pending technology. We will create zero emissions. We can reduce your labor costs significantly. We don't use fossil fuels or biofuels after the initial 200 kilos of propane to start. We will pay back within three years and then pay off the existing MHI debt that currently exceeds $23 million in the next two years. After the fifth year MDC will have a minimum of $20 million in free cash flow annually going forward for the next 20 years. It will probably be significantly more after Eversource implements their next rate increase. This compares to the current situation that shows $7 million in revenue before all the expenses, which translates into red ink on top of massive daily carbon emissions. Jellison wants to spend $90 million on fluid based MHI's which will take the debt into the stratosphere, never pay back and continue to spew carbon and other GHG's. The current track is financially and environmentally not sound.

Follow up Questions based on replies to RFI Submission Questions; from MDC Staff and CTEC Energy Sales:

Original MDC Question #7. General - Has CTEC done a carbon footprint calculation surrounding the entire process, from manufacturing, trucking, solids drying O&M, waste disposal? If so, can you share that?

CTEC Response: Yes, please refer to Oxford University hospital CTEC report attached.

Clean Technology
Energy Centres - Oxf

Follow Up from MDC:

Please clarify your response to question #7. The attached CO2 emissions report appears to be a proposal for installing a CTEC unit at the hospital, and not the actual emissions testing data collected at this facility. "Here below are presented the CO2 emissions associated with the management of waste disposal and energy generation for the different options investigated for the John Radcliff and Churchill Hospitals."

The attached emissions report referred to was not a proposal. It's the actual emissions. In this case Oxford is the third-party verifier for CTEC UK and specifically for another NHS Hospital in East Sussex, England.

Here's what we've accomplished for this hospital that has had a Ctec plant for seven years: Ctec is thermally destroying 18 tons of medical, food and other hospital waste, plastics etc. and all forever chemicals that are in the waste streams, essentially all red bag and black bag waste, daily. Ctec has eliminated all the transportation and disposal costs and the carbon footprint attached to those activities. Ctec is not drawing from the grid, is not using biofuels or fossil fuels to power the plant and has zero emissions. Additionally, the Ctec plant is generating 20 gwt (thermal gigawatts) annually to heat and cool the hospital and 2.8 gwh of electricity annually that the hospital is selling to a port in town to help power it.

Two additional questions from the MDC:

a. ***Are CTEC units installed and operational at this site listed in the attached report? "The Oxford University Hospital NHS Foundation Trust***

takes care of 4 health centers: The John Radcliff Hospital, the Churchill Hospital, the Nuffield Orthopedic Center and other reportable sites."

No, they are not installed here as indicated above.

b. ***If so, can you have your 3rd party independent lead emissions monitoring team certify actual testing data collected from the site?***

No, the emissions report we provided is enough as that was already a third part verification from a world-renowned University. We stand by their report.

Original MDC Question #15. General - It is reasonably assumed that all processes that create odor would need odor control. The odorous air will be used for combustion and will also be put through biofilters. How is this handled?

CTEC Response: Same as question 9, the odorous air is "sucked into" gasification and destroyed.

Original MDC Question #16. General - If MSW/biosolids are pelletized, there is no information included on this process, (energy consumption of natural gas to dry and carbon produced from process). If so, how is this done, economics/market, transportation, offloading, etc.?

Your question isn't relevant. There is no odor. We don't use gas. There is no carbon produced. There is no transportation, offloading etc. The economics were laid out above in the preface.

CTEC Response: All heat needs are met via the gasifier thermal energy, all electrical requirements of the pelletizing machines and from the gasifier. The gasifier produces superheated steam of 380 degrees C at 40 bar. This is fed into a modern-day Siemens turbine to create electricity and thermal energy, this is 84% efficient. We never mentioned the need for natural gas or external power sources in our presentation, so was that an assumption?

Follow Up from MDC:

Additional clarification to question #16 is required. Specifically, it is unclear how CTEC units initiate its process enabling the predrying or pelletizing of the

MSW/sludge/biomass mixture. At your NEBRA presentation on 8/25/23 you provided a schematic where 5000 wet Kg/hr of sludge (9 wet tons/hr) will generate 8MWatts of thermal energy, with a mixture of 400Kg of Biomass, utilizing 6MWatts to predry the sludge and a residual energy production of 1 MWatts of Electricity(attached).

Two follow up questions:

a. ***MDC processes 20 wet tons/hr. of sludge. How much propane is necessary to start the process to pre-dry 20 wet tons/hr.?***
   Zero
b. ***Please provide a specific site location where CTEC units are installed and commercially operational treating similar sludge quantities as proposed.***
   See our comments in the preface above.

Original MDC Question #33. Pg 3 1st bullet of your submission states that biosolids is mixed with MSW at a ratio of 1,000 pounds of biosolids to 80 pounds MSW. Prior discussion with CTEC provided insight that a significantly larger volume of wood chips or MSW has to be mixed with a smaller volume of biosolids, due to the moisture content of the biosolids. The proposal indicates the opposite.

Please read our previous answer again.

CTEC Response: The gasifier required a ratio of 75% Plastic to 25% biomass, 25% biomass in any form being the minimum amount of biomass in the system. 50% tires to 50% biomass. Or biosolids at ratio referred. The prior "woodchip" insight was an example of potential biomass, as for the significantly "larger volume" to be mixed, CTEC has no recollection how that assumption could be made particularly for MDC as wood chips are more valuable in a composting/biofuel system.

Follow up from MDC:

Please provide the following clarifications to question #33 -

a. ***There are multiple conflicts as to where CTEC equipment is required to process 75% plastics with 25% biomass (which we assume could be sludge/biosolids), please clarify your response.***

There are no conflicts, only misunderstanding on your part. There are specific formulas for the different waste streams. Peter Wild explained this in the August 10th meeting. For example, if tires are being destroyed, the formula is 50% tires and 50% something else like MSW. If plastic is being destroyed, the formula is 70% plastic and 30% something else like MSW.

b. ***Please provide a specific location where CTEC equipment is installed and processing, on a commercial basis, a 2:1 ratio, or more, of human sludge/Biosolids to Biomass.***
Please see our comments above in our preface.

Original MDC Question #35. Pg 3, 2nd bullet of your submission states that "CTEC requires no external power source." So, no electrical connection is needed for the gasification machine or facility? Can you explain how initial start-up happens?

CTEC Response: Lost count of how many times this has been asked. Initial startup requires 200kg propane, subsequent startups are from system recycled SYNGAS stored.

Follow up from MDC:

Please provide the following clarification to question #35 -

Again, CTEC indicated in its NEBRA presentation that it takes approximately 6MWatts of thermal energy to predry 5000Kg of wet sludge/hr. Please confirm, as you state above, only 200 kg of propane would be required to predry 20 wet tons/hr. of MDC's sludge.

We don't state what you say. Again, 200 kilos of propane is needed for the initial start-up. The plant will then create and store enough energy to avoid needing to do that in the future. As stated above and in previous discussions, CTEC creates enough thermal in our process to dry all the sludge and takes it from the 72% wet/ 28% dry when it is received to 90% dry/ 10% wet in the second stage. That's what the diagram represented that we presented to NEBRA. All water remaining evaporates in the system and never leaves the plant. We never

represented that we need additional propane to pre dry the sludge. Where did you get that? Who is asking this question?

Original MDC Question #48. Pg 8, Point 10 - The District does not have any $25 an hour labor, and the proposed two new employees would be a part of the 184-local union.

CTEC Response: Yes noted, 2 CTEC trained staff to operate 175,000 short ton sludge plant would be closer to $340,000 p.a. including benefits as opposed to the $189,280 indicated in our RFI response.

Original MDC Question #53. Pg 9 Table shows the District would realize $4.5 M in labor savings. That's greater than the entire payroll for the HWPCF.

First, see the previous answer again. We believe that we have already answered this with our response. Second, ok, what is your payroll for the 50 people? What is the average cost, all in, for each of those workers. We only need six workers, so do the math and report back so we can be exact in the savings we will provide here. If you provide that information, we will provide the exact savings for you. Remember, we only need six. If you still feel the need to employ all 50 that is your choice. Our job is to show you what savings you can achieve. Remember, we reduce operating expenses substantially across the board and check every green environmental box that DEEP so deeply wants to check.

CTEC Response: CTEC took a comment "about 50 staff at 100k each" and did rough calcs.

Original MDC Question #54. Is CTEC proposing to replace MDC's MHI's for the $62M proposed? This is very confusing on what is being proposed in processing addition or existing and additional biosolids?

That is exactly what we are proposing. Our capacity with the current proposal is 190,000 wet tons annually. We can scale up very easily if needed.

CTEC Response: Prior to answering the RFI, CTEC had been speaking with MDC on and off. We decided to cost out a plant capable of doing MDC existing biosolids volume for a basic economic comparison.

Follow up from MDC:

Please comment on the impact of the following information and how it affects CTEC's responses to #'s 48,53, and 54:

CTEC, although not requested within the RFI, has proposed to reduced MDC's work force by 50 staff saving approximately $4.5 million dollars. As you may not be aware, MDC staff which operates the Hartford Wastewater Treatment Plant are Unionized and therefore we cannot simply lay off or terminate 50 employees, (86 CRRA plant staff were laid off requiring MDC to absorb 46 employees at a cost of approximately $5 million dollars annually to avoid devastating operational disfunction caused by bumping union rules.)

That's absolutely correct, we did indeed make proposals for MDC to consider. When we see a business that is bleeding red ink and belching carbon 24/7 365, we feel compelled to propose a better way. We're not demanding that you fire people as previously stated above. It's your choice. We're just able to provide the significant savings MDC needs to stop bleeding red ink with their antiquated MHI's that burn cash and belch enormous tons of carbon and other GHG's daily into the skies of Hartford.

Original MDC Question #68. Appendix B - Only European facilities are referenced. Does CTEC have any commercially operating U.S. facilities?

CTEC Response: Not yet, we selected the Northeast as a tough "nut to crack" and the entrance to the USA, but we are in the process of establishing plants in other regions.

Follow up from MDC:

Please provide the following clarifications to question #68 -

a. ***A video dated November 13, 2020, interview with Mike Burns was found on-line. The interview suggests this CTEC project would be up and running shortly. Is this project commercially operational, and if so, what is the composition of the mixture?***

   There are numerous videos on file. Please send us the precise link so we can view the video and provide an answer.

b. ***Could MDC be provided with an updated video of this facility in operation, with the CO2 emissions data certified by your 3rd party***

independent lead emissions monitoring team certify actual testing data collected from the site?
Please read our preface to our answers to these questions.

Additional questions for CTEC to answer provided by the general public:

Why aren't the names of those in the public asking these questions indicated here? These additional sound like Jellison and Stone questions.

1. *Given your misrepresentation a few years ago that MDC was engaged with CTEC in a pilot program, please provide details of what planning is taking place with Farmington. Are you actually designing a project with Farmington?*

   First, I will state that I don't believe this is a question from the public. If so, I would like to know who is asking. Second, where and how do you come to that conclusion? The statement you make above to preface your question is utterly false and misleading. CTEC never misrepresented that MDC was engaged with CTEC in a pilot program. We represented we were working with the Chairman to hopefully put a pilot program in place. This is all detailed in emails between Christopher Harrison and Attorney Chris Stone on 4/26/22 and 1/18/23. Please read the e-mail exchanges between Stone and Harrison. Harrison would be happy to share them with you if Stone won't. Regarding Farmington, yes, they are anxious to move forward when DEEP approves the air permit. Interestingly, I received a call from Russ Arnold who runs all engineering, facilities, wastewater treatment etc. in Farmington. He was curious to know why Scott Jellison had his secretary send an e-mail to the Farmington Town Manager, Kathy Blonski, asking her to come over with her lawyer to meet with Jellison and Stone to discuss CTEC. Why would Jellison do that? What's up with this Scott??! It sounds like more tortious interference against CTEC.

2. *You mentioned that other municipalities have expressed interest. Please provide details of where you are in discussions with those towns.*
   We stated where we are with others in the August meeting.

3. *Are there municipalities who have decided not to move forward with CTEC? What reasons did they give for their decision.*

Mattabassett Sewer District, which is part of Cromwell, said no because, in my opinion, they were poisoned by Scott Jellison's inaccurate white paper. In his paper, Jellison completely trashed and misrepresented CTEC and is filled with lies. Jellison deliberately and maliciously tried to hurt CTEC's ability to market their business to critical agencies and potential customers. The paper called into question CTEC's credibility to NEBRA, DEEP, MDC and others like Mattabassett, who Scott made sure to blanket with. Janine Burke-Wells, Executive Director of NEBRA helped to set up the meeting with Art Simonian and his engineer. Art appeared interested after Janine made the introduction. Prior to my meeting Jellison had called Mattabassett and asked for everything I had sent to them. When I arrived, they were armed with Jellison's misrepresentation and the questioning was not friendly. I immediately realized what was occurring and that Jellison was interfering with Ctec. I flat out told them at the time that I really could care less if they bought from us. I was most concerned that they understood that everything Jellison represented in his white paper concerning CTEC was false and misleading. Art agreed and then did supply the necessary information we requested for Ctec to produce a pro forma for Mattabassett. We presented a compelling opportunity to Mattabassett which after short reflection said no – which was no surprise. They had already made up their mind before I arrived. They indicated that they had no interest in having to mix MSW with the sludge. Unfortunately, Jellison had never listened to a presentation before he started his assassination campaign. It was obvious to all that he didn't understand what CTEC did then or now. Then, once Jellison received what I sent he had Stone send me a ridiculous e-mail stating that I couldn't say what I was saying in my e-mails to Mattabassett. I shut that down immediately. I never heard from Stone again. The actions by these two executives at MDC are very dangerous to CTEC and could prompt legal action against them personally by CTEC going forward. Our attorneys are reviewing and state that this is tortious interference among other things.

4. *You mentioned that once a municipality has expressed interest that DEEP would meet with you and look at regulations that might apply. What have been the outcome of such meetings?*

As I stated in our August 10 meeting at MDC, we first met with DEEP in December of 2022 by Zoom. Nisha Patel, Jennifer Perry and Gabrielle Frigon were representing DEEP. The meeting was set up by Janine Burke Wells, Executive Director of NEBRA. Nisha did state that if we could bring towns or organizations together. We have not been back yet as we're having discussions with parties about moving forward. Our second exposure to DEEP and Gabrielle Frigon was at the MDC on August 10. We are currently working to secure our next meetings with DEEP and Farmington and a hauler/transfer station from Southington and UCONN. Hopefully, MDC will want to do the same.

5. *You have made quite an issue of EPA's findings that gasification is not incineration. What are the emissions from your technology, even though EPA might not regulate them?*
   It is quite an issue. The technology is innovative and disruptive and will fix MDC's issues overnight. We've never represented that the EPA won't regulate our emissions but quite honestly, they will be very happy with what they would be monitoring.
   Zero

COMMITTEE ON TECHNOLOGY
SPECIAL MEETING
The Metropolitan District
555 Main Street, Hartford
Thursday, September 21, 2023

PRESENT: Commissioners David Drake, Alvin Taylor and District Chairman William DiBella (3)

REMOTE ATTENDANCE: Peter Gardow (1)

ABSENT: Commissioner Andrew Adil, Joan Gentile and Pasquale J. Salemi (3)

ALSO PRESENT:
Commissioner Richard Bush (Remote Attendance)
Commissioner Donald Currey (Remote Attendance)
Commissioner Allen Hoffman
Commissioner Bhupen Patel
Scott W. Jellison, Chief Executive Officer
John S. Mirtle, District Clerk
Christopher Levesque, Chief Operating Officer
Kelly Shane, Chief Administrative Officer
Susan Negrelli, Director of Engineering (Remote Attendance)
Thomas Tyler, Director of Facilities
Jeff Bowers, Manager of Water Pollution Control
Michael Zabilansky, Manager of Maintenance
Lisa Madison, Manager of Procurement
Carrie Blardo, Assistant to the Chief Executive Officer
Julie Price, Executive Assistant
James Masse, Network Analyst (Remote Attendance)
Gabrielle Frigon, CT DEEP
Chip Pless, LCI Corp.
Paul Russell, Russell Resources

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 Taylor and duly seconded, the meeting minutes of September 7, 2023 were approved.

PRESENTATION FROM LCI CORP. RE: 2023-RFI-01 SUBMITTAL

Chip Pless, of LCI Corp., and Paul Russell, of Russell Resources, presented on their LCI Thin Film Dryer and answered Committee questions.

PRESENTATION FROM GREEN DEVELOPMENT & VOW ASA RE: 2023-RFI-01 SUBMITTAL

Green Development & VOW ASA informed the District that they decided to not attend to present to the Committee on their RFI submittal.

OPPORTUNITY FOR GENERAL PUBLIC COMMENTS

Judy Allen, Of West Hartford, commented on the reference to Teflon frying pans and that there is a move towards panning them due to PFAS. She also stated that during the meeting she keeps hearing about not having to meet EPA air standards but that doesn't mean there aren't any emissions. She would like to know what are those emissions that they don't have to test for and stated that just because they do not test for them does not mean they are not causing an issue.

COMMISSIONER REQUESTS FOR FUTURE AGENDA ITEMS

Chief Executive Officer Scott Jellison stated they will hold the next Technology meeting on October 12th to discuss the LCI Corporation presentation and to prepare for the CDM Smith presentation.

ADJOURNMENT

The meeting was adjourned at 1:30 PM

ATTEST:

John S. Mirtle, Esq.
District Clerk

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Date of Approval