

Combustion, Gasification, Pyrolysis, Landfill, Gas Recovery & Facility Location

MEETING MINUTES

Wednesday, September 22, 2022

10:00 AM on Zoom

The meeting was called to order at 10:03 a.m. by Chair Rep. Gresko.

Rep. Gresko greeted the members of the Solid Waste Management subgroup and introduced Keith Hulbert with EnviroPower Renewables.

Keith Hulbert gave a presentation on kiln gasification and shared a slide presentation. Mr. Hulbert presented on gasification of solid waste in a method of generating renewable power, renewable fuel source. He emphasized the rotary kiln gasifiers are versatile and reliable, can handle wet and non-shredded materials and recovery of materials from end of kiln stream. Mr. Keith Hulbert believes this type of gasification is environmentally and economically advantageous to Connecticut.

Sen. Miner asked if the timeline for permitting was getting better. He also wanted to know more about the downtime planning.

Keith Hulbert did not have much to say about permitting and thought DEEP would know more. He stated it helps to work in tandem regarding a site in order to best predict and budget. Regarding downtime, he said there are set schedules when power is least needed with adequate reserves to pull from as needed.

James Albis stated there is a pre-application process for permitting which can be helpful for making determinations although siting was a difficult issue. Municipalities are weary when the proposal isn't clear.

James Albis asked what was "Green MSW". Keith Hulbert said it was unprocessed.

James Albis asked the plant potential capacity. Keith Hulbert said a coastal community was processing 350 tons and could go up to a couple thousand tons. The question was could the grid handle that much. He said the system is modular so can grow and they plan for land and location for adequate substation.

Rep. Gresko asked for the amount of acres for this type of development. Mr. Hulbert said it would depend and thought maybe about 11 acres at 800 tons of waste a day.

Jason Manafort asked if EnviroPower participated in procurement with DEEP did when looking at MIRA. Mr. Hulbert said he was not aware of any procurement, and they were looking for immediate plans. There wasn't a lot to do with MIRA other than a complete rebuild.

David Steuber asked if there was any leakage of gas in the outside air and if so how was that controlled. He asked for a compare and contrast on gasification to anaerobic digestion as a potential alternative. Mr. Steuber also asked about pairing anaerobic digestion with gasification. Bary Wilson said there is an induction fan and nothing gets out. He said anaerobic digestion works with materials with 50% moisture or higher and that it is best for food waste. Mr. Wilson said it could be paired.

David Steuber wanted to know if that would impact the efficiency of a gasification plant. Mr. Wilson said it is more efficient to separate. He discussed flow dynamics for best solution runs and knowing the waste source. Restaurants and other food providers have a separation system.

Frank Antonacci reiterated Jason Manafort's comments and asked why EnviroPower wasn't involved in the public RFP process for MIRA. Mr. Wilson stated they had made a presentation in 2018 and met requirements following year. Bary Wilson stated that as a small company they need to be careful who they are going forward with. Mr. Antonacci wanted to know if the company was interested in the competitive process. Robert Gisolfi stated they conducted a presentation and could not go further when initially they didn't hear back. Mr. Gisolfi stated they worked with DEEP, filled out application and met with panel and then couldn't go further without a site.

Frank Antonacci asked if EnviroPower currently operates any facilities or has ever run a facility. Bary Wilson said EnviroPower does not currently operate a gasification facility. He said the company is comprised of a number of individuals from different walks of life with energy background and that EnviroPower has built in the UK and has built power plants in the U.S. but not gasification plants in the U.S. Robert Gisolfi stated that the rotary kiln is a Metso component with design and patents that have been approved by Metso who will warranty to plant for the life of it.

Brian Paganni asked about process validation with regard to anaerobic digestion. Brian wanted to know if there was a third-party validation of the EnviroPower process. Bary Wilson said there was. He said ESI of Tennessee – the engineering and EPC company. A number of plants in southeast Tennessee are the EPC for EnviroPower in Costa Rica. He stated that EnviroPower has also been validated by several permitting entities and with Metso. Rep. Gresko asked to get commitments and verification to Rob Gisolfi or Gaia McDermott.

Mr. Paganni asked if they could also share any current operating data based on Metso experience in operating the EPR process with MSW. He stated that real world data would help considering some of the opportunities and thoughts around this technology. Bary Wilson said Metso has not operated with EnviroPower system with MWS. They have operated systems very close to EnviroPower with MSW and other rotary kiln. They are a \$2 billion a year company that are willing to warranty.

Jeff Martirano asked if there were any energy balance from existing or proposed facilities? Mr. Wilson said they did and that he would provide the computer simulations of a document that follows the molecule up the feed and up the stack. He will send those as well.

Jeff Martirano asked if the plant needed a dryer if the waste was less than 55% moisture content. Bary Wilson said it depends and ideal is at 25 – 30 % and at 40%, don't need a dryer. He said it depends on the composition – even paper to plastic will depend on percentage.

Jeff Martirano asked if Mr. Wilson to describe the process on the front end to homogenize the moisture content of the incoming waste. He discussed how the product could arrive and be shredded, dried and

mixed and how there can be a wide variation of material. Bary Wilson discussed the process of going through the kiln and how there was less variation once in the drum.

Jeff Martirano asked if EnviroPower could get data on different scenarios of moisture content. He said that he understands that drying a high load oftentimes a plant wouldn't have the excess power at the end of the day to export. He asked for different examples showing higher moisture content with a dry or lower moisture content without a dryer. Bary Wilson said he would be happy to do that against a waste characterization in CT. There was discussion about DEEP and a waste characterization study in 2015. James Albis stated that 22% of the waste was food in the MSW stream and 40% total was organics. DEEP is focusing on diverting food waste which Bary mentioned was preferable for process.

Don Stein a spreadsheet, tradeoff analysis to look at tech. competitors are being competitive. Key issues. Key technologies.

Rep. Gresko asked if the clerk, Gaia McDermott would go over the questions and put in chart of question asked and answered so to have summary to compare and contrast.

Rep. Gresko asked regarding environmental justice. He asked how this would go forward especially when considering health and the like. Bary Wilson stated wherever the plant would go such as a plant that is in Limerick, Ireland – the objections were raised and answered. There isn't a smell or particles in the air as covered in the presentation. There isn't a noise issue. The traffic is handled with turn out lanes for trucks. Robert Gisoli said the building is enclosed and it looks like a warehouse. He said the rotary kilns are horizontal outside so there isn't the look of powerplant pipes in the air. Bary said he would also supply the comparison work they have done regarding concerns about environmental justice.

Rep. Gresko noted that DEEP provided some data per an OLR request from the working group and that the clerk would send out.

If there are other groups, pyrolyzation, gas recovery, tech options for how to go forward, please reach out to the chair or clerk for cross sectional discussion on this issue.

Next meeting will be mid-October.

Meeting was adjourned at 11:16 a.m.

[YouTube: Subgroup Meeting](#)