

October 14, 2015

Maine Department of Environmental Protection
Division of Technical Service Solid Waste Management
Bureau of Remedial and Waste Management
17 State House Station
Augusta, ME 04333-0017
Attention: David Burns, P.E., Project Manager

To Whom It May Concern,

As a resident and property owner of the town of Orrington, and a Maine taxpayer, I have taken a strong interest in the apparent move, by the MRC, to close the PERC plant in Orrington and develop a brand new energy reclamation facility in Hampden, to be opened in 2018. This plan represents a significant departure from the existing municipal waste handling strategy, employing newer technologies and relying on unproven markets. As such this plan warrants scrutiny. As a practicing Chemical and Biological engineer and professor, I feel that I am qualified to critically analyze both the proposed Fiberight technology and the Fiberight/MRC economics.

After careful review of the UMaine report on the Fiberight process feasibility, despite very limited data, it appears to me that the overall process, as presented, is at least plausible in general, and at the proposed Hampden facility, specifically. The individual units of operation in the overall process are reasonably well understood. In fact, when viewed broadly, the Fiberight process is nothing more than a sequence of individual MSW preparation and separation units designed to extract what may be higher value materials prior to the digester (biogas product), the incinerator, or the landfill. Incremental processes of this type are not new to the marketplace, though the specific order of operations may represent intellectual property as they may represent overall optimization of process economics such that profitability is increased relative to competing technologies. It should be noted, however, given the limited pilot scale data available for the overall process, that the efficacy of the overall process cannot be accurately validated based solely on the operation of the individual units. This is especially significant when verifying the economics of a complicated process, where the efficiencies of individual units can be adversely affected by the demands of the overall process.

It is the economics of the proposed Fiberight process that remain unresolved and therefore uncertain. Concept Screening studies and Front-end-loading (FEL) analyses are designed to provide investor guidance through a stepwise increase in certainty in the overall design and implementation economics of a proposed project. As a project moves through the design and implementation stages, design data becomes better resolved and the specific economics of a project become clearer. FEL1 analysis can carry uncertainties in excess of >50%, FEL2 analyses 20-30%, and FEL3 analyses 10-20%. Concept Screening Estimate Classes are similar with economic uncertainties >50% for class 5 early concepts, 10-30% for class 3 status, and 10-15% for class 1 status where most project details are known. It is not uncommon to terminate apparently ongoing projects based on unfavorable FEL2 or FEL3 predictions that arise due to unanticipated changes in key economic factors. It appears that the Fiberight/MRC project is in the middle (class 3, FEL2-3) of this process, where there is a very significant level of uncertainty as to the economics of the proposed process.

Given the relatively low profit margin, the volatility in the recycled materials and biofuels markets, and the capital required for full implementation of the Fiberight process, it is difficult to understand how the

Fiberight process will ever achieve profitability, with any certainty, based solely on the sale of process outputs (ie. sugars, biogas, and fertilizer). As such, the profitability of the Fiberight business model must rely on; 1) reduction of initial capital costs through incentives, givebacks or subsidies, 2) additional revenues through increasing tipping fees, 3) increased profitability through the RIN credit market. While the last factor is beyond local control or influence it may indeed represent a significant profit stream, and may not increase the local cost-of-living or tax burden, it is reliant on the consistency of government mandates. The remaining two factors, in contrast, represent indirect or direct additional burdens on the local and regional residents and should be scrutinized.

As a resident and property owner of the Town of Orrington and a Maine taxpayer, I am concerned that we are proceeding down a path, the success and independence of which is uncertain, while ignoring established programs that are proven to be stable, profitable and tax revenue generating. It is my concern, and the concern of others, that if the Fiberight process does not prove profitable, we the property owners of the region, will have no available option, and in effect will be forced to subsidize this facility through inflated tipping fees, local subsidies or variances. If the plant should ultimately close, we will have lost not only the jobs at the Fiberight plant, but also those associated with the PERC plant, and would once again be without a sensible solution for waste management.

The list of questions below individually, and collectively, highlight specific areas of concern that should be considered more carefully, including the motives and specific business model of Fiberight, before proceeding irreversibly away from our current approach.

Questions (in no specific order):

- 1) Given that the Fiberight process profits from separating and reclaiming higher value products from the waste stream prior to the digester, how will increased recycling rates by municipalities not affect the Fiberight business model. This was a key issue (disincentivizing recycling) for the original MRC request for expressions of interest (RFEI) that factored against continued PERC incinerator operation.
- 2) Do you have available capital to sustain plant operations during periods of low profitability?
- 3) Is there an existing facility of comparable size and process with demonstrated profitability that does not rely on local or governmental subsidies or high tipping fees?
- 4) Where is the profit, listed by generated or recovered material or product type, in the Fiberight process / business model?
- 5) Biogas, produced through anaerobic digestion of the otherwise unmarketable recovered sugars, has been described as a product with considerable profit margin. How much biogas can be produced per ton of MSW and what is the expected market value of this product each year?
- 6) How is the business model affected if acquiring the long list of permits and environmental variances takes longer than the proposed timeline suggests?

- 7) Fiberight has stated that their ultimate goal is to recover 70-80% of collected waste. This leaves a significant quantity (50,000 tons) of residuals. Will this all be landfilled or will this be incinerated to increase energy recovery further?
- 8) At what point, if ever, do you expect your operation to be profitable without relying on the sale of biofuel RIN credits.
- 9) The MRC reports that PERC tipping fees will necessarily increase dramatically after 2018 to compensate for changes in electric rates. What is to prevent Fiberight from increasing tipping fees dramatically to sustain profitability in plant operations?
- 10) The proposed site, which will be owned by the MRC and leased to Fiberight, will be developed on a new greenfield site. What considerations, including economics, pointed towards developing an entirely new site rather than working with one of the several existing brownfield sites in the area? Was a modified PERC facility considered? Why or why not?
- 11) It appears, per the existing agreement, that the MRC has absorbed much of the responsibility for site acquisition, permitting and development of the proposed site. Clearly this is a kind of local subsidy, given that the MRC is funded through local and state tax revenues. Was this necessary to secure an agreement with Fiberight? Is this common practice in the industry? If the Fiberight process is indeed profitable, was this level of subsidy necessary? Is the MRC providing any direct loans for the development of the Fiberight process facility?
- 12) How will the loss of the PERC electrical generation capacity adversely affect prices or electricity distribution to the local consumers?
- 13) If delivered MSW is deemed "unacceptable" by Fiberight, how will tipping fees or proposed rebates be adversely affected?
- 14) At first blush it appears that the MRC has agreed to a significant number of supports, subsidies, loan guarantees or variances and opt-outs in the 15 year agreement with Fiberight. Why was this necessary to secure the agreement with Fiberight? This seems to suggest that the Fiberight process is only profitable with additional financial burdens on local communities and Maine taxpayers. The success of business models of this type may be highly susceptible to product price fluctuations or other trends in the marketplace. How is this level of risk advantageous over the existing disposal system? Was an intermediate process considered?

Thank you for your time and efforts in considering carefully this important issue. While cleaner more efficient waste disposal is a unifying goal of all Mainers, we must proceed cautiously. When considering all process inputs and costs, to include higher order factors and unintended consequences, many of these new and exciting processes are proving to be no better and in some cases of even poorer overall performance than existing processes.

Michael Mason, Ph.D.
Orrington Resident