To: Vermont House Energy and Technology Committee
From: Rachel Smolker, Ph.D., Biofuelwatch
Re: S.161 (Ryegate)

April 6 2022

Dear Chair Briglin, Representatives Sibilia, Scheuermann, Achey, Chase, Patt, Rogers, Sims and Yantachka,

Thank you for your invitation to address the committee yesterday (April 6th 2022) and thank you for your service to Vermont.

Please find the following documents relevant to evaluating the feasibility and effectiveness of the proposed biochar production at Ryegate, followed by references as requested on the role of logging/harvest relative to development/sprawl on our forests.

I noted that Mr Zwicky continues to speak about biochar when discussing improvement of Ryegate efficiency. I do hope you understood from my presentation that this is simply not possible without constructing another facility to do pyrolysis or gasification (very technically challenging) because waste heat is not sufficient for producing the very high temperatures and low oxygen needed to make biochar. Also one cannot generate power AND produce biochar from the same wood.

I am not unsympathetic to the loggers and jobs in our

state. But Ryegate is an abyssmal waste of wood. As you are aware, there is currently a “clean heat standard” under evaluation. Use of wood for heating where appropriate in rural settings with efficient stoves is far more efficient.

Biochar: a critical review of science and policy, Biofuelwatch 2011
http://www.biofuelwatch.org.uk/wp-content/uploads/Biochar-Report3.pdf

A 2020 update, ( in process of reviewing for the IPCC): “What have we learned about biochar since the 2011 report”.
https://www.biofuelwatch.org.uk/wp-content/uploads/biochar-briefing-2020.pdf

I think you will find these useful - they are highly referenced and free from vested interest.

Also I mentioned the important distinction between “deforestation” (as occurs due to development sprawl among other) and “degradation” which is result of logging. Logging (aka harvest, including of so-called “low grade timber”) is by far the greatest cause of forest degradation and loss of forest carbon (and biodiversity) in our region. Far greater than sprawl/development/conversion. Here are two key references below.

1) Duveneck, and Thompson, 2019. Global Environmental Change. Social and biophysical determinants of future forest conditions in New England: Effects of a modern

land-use regime.

LINK
https://harvardforest.fas.harvard.edu/sites/default/files/Duveneck%20Thompson%20-%202019%20-%20Social%20and%20biophysical%20determinants%20of%20future%20forest%20conditions%20in%20New%20England%20Effects%20of%20a%20modern%20land-use.pdf

QUOTE: "*Among land uses, timber harvesting had a larger effect on AGC storage and changes in tree composition than did forest conversion to non-forest uses*,"

2) Harris, N.L.; Hagen, S.C.; Saatchi, S.S.; Pearson, T.R.H.; Woodall, C.W.; Domke, G.M.; Braswell, B.H.; Walters, B.F.; Brown, S.; Salas, W.; Fore, A.; Yu, Y. 2016. Attribution of net carbon change by disturbance type across forest lands of the conterminous United States. Carbon Balance and Management. 11(1): 24. 21 p.

LINK: https://www.fs.usda.gov/treesearch/pubs/53218

QUOTE: "*The northern US had the lowest C loss (41 ± 2 Tg C year−1) with the most significant proportional contributions from harvest (86%), insect damage (9%), and conversion (3%)*."

In closing: I mentioned the growing understanding of the role of forests, and strong public support for protections.

If your committee would like, I know we could pull together a presentation to represent a perspective beyond forest products industry/loggers.