Comments to the Senate Finance Committee RE: S.1
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On behalf of Stored Solar, LLC
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We have reviewed the email from Chris Matera of Massachusetts Forest Watch and respectfully submit the following responses to his claims:

Mr. Matera asserts that the Ryegate plant has a carbon footprint that is 40% higher than a coal plant and 250% higher than a natural gas plant. Mr. Matera is incorrect. Accompanying this submission is a study report entitled *Carbon Intensity of Harvesting Residue-Based Electricity: Case Study of Eversource Energy.* The study analyzed the carbon intensity of a 50 MW power plant that utilizes biomass residues as a fuel in comparison to the carbon intensity of a comparably sized natural gas fueled power plant. The study concluded that:

> "that the use of harvesting residues to displace natural gas-based electricity can result in savings ranging from 115% in initial years of commencing harvesting of those residues to about 98% by year 100. Thus, the use of residues for electricity generation is carbon negative in the early years and its carbon intensity is close to zero by year 100."

See pages 6-7.

Mr. Matera also makes several incorrect assertions about particulate levels at biomass facilities. The Department of Environmental Conservation's Air Quality Division administers the federal Clean Air Act. The Environmental Protection Agency (EPA) allows states to issue permits for a facility so long as the conditions in the permit meet or are at least as stringent as the federal requirements. In the case of particulate measurement, the federal limit is .007 GR/DSCF of air. Vermont's limit is .0007, significantly below the federal limit.

In 2017, DEC issued a new Title V Permit to Operate for the Ryegate plant. The Title V permit requires particulate matter testing every other year. Additionally, Ryegate must test annually in order to qualify for the sale of Renewable Energy Credits (RECs) to New Hampshire. Ryegate has consistently tested for and demonstrated compliance with Vermont air quality standards and is in compliance with its Title V permit.

Mr. Matera's testimony suggests that the particulate matter emissions for wood are .100 lb/MMBtu. A June 23, 2020 test of particulate emissions from Ryegate found that the plant's levels were at .0009, significantly less than Mr. Matera's numbers for wood (.100), oil (.014), natural gas (.007) and propane (.004). His numbers for Carbon Monoxide (CO) and Nitrogen Oxides (N_2O) are also inaccurate. The Title V permit limits Ryegate to .3 lb/MMBtu of CO, not the .73 lb/MMBtu listed in Mr. Matera's testimony, and limits N_2O to .075 lb/MMBtu, below every other fuel type he references, including wood, which he claims is .165 lb/MMBtu. All of these are tested for on a regular basis. Lastly, with respect to Sulphur Dioxide (SO_2), emissions are so low that neither Vermont, nor the EPA require emissions testing though Ryegate does

sample wood for SO_2 monthly under the Title V permit, which limits SO_2 to .05% by weight of fuel.

With respect to Mr. Matera's claims about asthma rates in Vermont, the report he links to suggests that "the single most common environmental trigger among adults was having an indoor pet," affecting 73 percent of the adults with asthma and 80 percent of children.[1] Furthermore, the report does not mention biomass power once, though it does find that 30 percent of people with asthma use wood stoves for heating purposes.[2] Incidentally, on a lb/MMBtu basis, wood stoves release significantly more particulate matter than Ryegate as a result of the oversized electrostatic precipitator required to meet Vermont's more stringent limits on particulate matter. The EPA Standard of Performance for New Residential Wood Heaters includes a .15 lb/MMBtu limit on particulate emissions for cord wood stoves, while Ryegate is subject to a .0007 lb/MMBtu standard.[3]

All of the logging activity associated with supplying the plant with wood chips are done under the supervision of a forester on staff at the plant and the Vermont Department of Fish and Wildlife. The Ryegate forester reviewed Mr. Matera's comments and and noted that he would not condone the harvests Mr. Matera shows in his pictures.

Mr. Matera speaks of a "hurricane of logging" in the Green Mountain National Forest (GMNF). As shown by the accompanying *Decision Notice and Finding of No Signifcant Impact* (October 2016) logging operations in the GMNF are scientifically based and subject to public comment prior to proceeding. As can be seen, there is a significant amount of time and work that goes into each of the harvests to ensure that the planned work takes into account the multiple uses the forest offers, protects and improves wildlife habitat, and maintains water quality. In short, Mr. Mater's statements are misleading.

In terms of the value delivered to Vermont's economy, Ryegate supports 21 full time jobs at the facility with more than $1.8 million in annual salary and benefits. Additionally, approximately 250 individuals are directly employed in the production of wood chips supplied to the plant. More than 40 different logging companies supply Ryegate with wood. The plant purchases 250,000 tons of wood per year at a cost of $7 million. That money not only helps support Vermont's hard hit forest products industry but also benefits owners of tracts of forest land and thus provides those owners with an incentive to keep their forest land tracts intact. In sum, the economic benefit of continued operation of the Ryegate plant is significant.

Finally, it is stressed that the Ryegate plant is a *baseload* renewable energy plant. The other sources of renewable energy in Vermont—wind and solar--are intermittent in nature. While wind and solar power are benefical and are an important part of the state's power portfolio, there will always be a need for base load power. The alternative sources of baseload power are

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[1] https://learn.uvm.edu/blog/blog-health/asthma-rates-in-vermont
[2] https://www.healthvermont.gov/sites/default/files/documents/2016/12/HS_asthma_burden_report_2012.pdf
[3] https://www.epa.gov/residential-wood-heaters/understanding-residential-wood-heater-rules

nuclear, fossil fuel or large scale Canadian hydro power. All of those sources of baseload power are located outside of Vermont and have significant, negative impacts. In contrast, the Ryegate plant is in Vermont and utilizes a renewable fuel that is grown in Vermont.