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January 14, 2021

Submitted to DEP via eComment website: <https://www.ahs.dep.pa.gov/eComment/>

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RE: Domtar Comments on Proposed Rulemaking, 25 Pa. Code Chapter 145, CO2 Budget Trading Program

Domtar appreciates the opportunity to provide comments on the proposed PADEP Regional Greenhouse Gas (GHG) Initiative (PA RGGI) rule.

Domtar is a leading provider of a wide variety of wood fiber-based products, including communication, specialty and packaging papers, market pulp and absorbent hygiene products. The foundation of our business is a network of world class fiber converting assets that produce paper-grade, fluff and specialty pulps. While most of our pulp production is consumed internally to manufacture paper and consumer products, we are also a large volume pulp exporter. Domtar is the largest integrated marketer of uncoated freesheet paper in North America. With approximately 8,800 employees serving customers in more than 50 countries around the world, we are driven by a commitment to turn sustainable wood fiber into useful

products that people use and rely on every day. Domtar has pulp and paper making operations in the United States and Canada. Our Johnsonburg Mill located in Johnsonburg, PA manufactures communication papers and directly provides about 355 good paying jobs in Northwestern Pennsylvania. In addition, the mill also significantly contributes to this regional economy through jobs in the forestry and service industries that support the mill.

The energy required to pulp wood and produce the paper at the facility comes from natural gas and from renewable, carbon neutral biomass energy. Our biomass energy is generated from byproducts from wood processing and our pulping processes and is consumed to produce steam that is used in our manufacturing processes. Our use of combined heat and power (CHP) is highly integrated into our manufacturing processes. We utilize CHP to produce the thermal (steam) energy at the proper temperature and pressure for our down-stream manufacturing processes and electrical energy is generated as a by-product. The use of CHP allows us to obtain the full energy value from our fuels and to maximize the economic value from our energy generation assets - including selling renewable energy credits and electricity to local power grids so our Johnsonburg Mill can remain a viable entity.

The PA RGGI regulations as presently written will cause higher CO₂ emissions in Pennsylvania with respect to its impact on combined heat and power (CHP) and cogeneration units in Pennsylvania. CHP is an integral, essential and energy efficient part of our operations. The present draft PA RGGI regulatory language will significantly increase the time periods when it is not economically feasible for our CHP units to sell power to the electric grid. A review of historical generation indicates that any reduction in CHP power will be replaced by much higher CO₂ emitting power generation units. We are therefore requesting a full exemption for CHP units be provided for in the final PA RGGI regulations. This is appropriate due to the substantial energy efficiency and avoided GHG emission benefits provided by industrial CHP units.

As currently proposed, the PA RGGI regulations will have a significant negative impact on existing CHP units presently utilized in Pennsylvania and will inhibit the installation of new CHP units. CHP offers significant environmental, economic, and reliability benefits for Pennsylvania. CHP units displace grid electricity, and the thermal energy produced by the system displaces thermal energy that would otherwise have been generated by another fossil fuel fired energy source, like a boiler. Our CHP units are not presently considered to be electric generating units (EGUs) by any other federal regulations and to our knowledge by any state or local agency regulations.

While we understand and support the intent of the proposed PADEP RGGI rule to both reduce carbon dioxide (CO₂) emissions and promote cleaner power technology, we do not think that the inclusion of industrial CHP aligns with that intent. In fact, PADEP has included and promoted CHP as one of the cleaner, more efficient technologies in the Pennsylvania Climate Action Plan. Additionally, U.S. EPA has also promoted CHP technology as a means of reducing GHGs.

As proposed, the PADEP RGGI regulations will have a significant negative impact on CHP units that provide electricity to the PJM electric grid (Grid). Our comments are supported by and based on data submitted by electric generating facilities nationwide to U.S. EPA and compiled in the Emissions & Generation Resource Integrated Database (eGRID)¹. This actual operational data shows that CHP can achieve superior fuel and emissions efficiency, and a much greater utilization of useful thermal energy, when operating as intended for its application, than the newest and most efficient EGUs supplying power to the PJM electric grid.

For some CHP applications it is vital for optimal CHP operation to be able to export electricity to the grid. The useful thermal energy that is derived after the generation of electric power is directly related to the amount of power that is generated first. The size and design of a particular CHP application is dependent on how the facility intends to use power and other forms of useful thermal energy (steam, hot water, hot air, etc.) at its co-located facility or nearby facilities. A CHP unit is not solely sized and designed to optimize electricity sent to the grid.

Electric power sent to the grid from CHP units within Pennsylvania is currently limited to five facilities, excluding facilities that primarily fire waste coal and facilities with a nameplate capacity of less than 25 megawatts (MW). These CHP units presently account for only 2% of the State's total electric generation capacity, and 3% of the total actual electric generated in Pennsylvania in 2018. This makes the CHP generation on the Grid a very insignificant portion of all CO₂ emissions. However, the proposed PA RGGI regulations as currently written will have a very significant impact on the implementation and operation of CHP by industrial sources and commercial entities. Any disincentive that would deter a CHP unit from producing and sending electricity to the Grid, such as a requirement to purchase market-rate CO₂ Allowances, causes disruption at the CHP facility to not fully utilize its CHP. This disruption to the process

¹ U.S. EPA eGRID2018, released 1/28/2020, revised 3/9/2020: <https://www.epa.gov/egrid/download-data>

will actually result in both increased CO₂ emissions for electricity supplied to the grid, and increased CO₂ emissions at the industrial or commercial facility.

CHP is the most efficient combustion generated electricity. CHP units have an efficiency range of 60 to 75% in the generation of useful thermal energy as both electricity and heat otherwise used in industrial or commercial processes (i.e., steam, hot water, hot air). The best (i.e., newest, most efficient) natural gas-fired combined cycle power plant is 50-55% efficient and simple cycle power plants are less than 50% efficient, in compared to the 60-75% efficiency of CHP.

Any disruption that results in less efficient, non-CHP power or heat replacing what otherwise would be supplied by a CHP unit, results in increased CO₂ emissions both for the CHP facility and the PJM electric grid. For example, sometimes a CHP facility will sell power to the Grid at price lower than generation costs because the increased efficiency at the facility for the useful heat side of CHP offsets that monetary loss for the power to the Grid. Conversely, the requirement to purchase CO₂ Allowances will assuredly increase those times when losses exceed the gains. Additionally, the uncertainty of the market price of CO₂ Allowances will cause even more reductions in CHP electricity sent to the grid. Reducing the use of CHP and replacing the electric and thermal heat produced with less efficient units will actually increase CO₂ emissions to the electric grid and increase CO₂ emissions at the CHP industrial source even when considering the newest, most efficient combined cycle plants supplying power to the electric grid. Comparing CHP's 65% efficiency to power that is 50% efficient is gross 15% difference, but that difference on a percentage basis is actually a 30% improvement in efficiency. Including CHP in the proposed PADEP RGGI regulations and requiring the purchase of market-rate CO₂ Allowances will disincentivize power that is 30% lower emitting.

We do not think that increasing CO₂ emissions was the intent of including of CHP in the RGGI regulation, because this is completely contrary to the expressed intent of the RGGI rule. Therefore, an exemption for facilities qualifying as CHP should be a total exemption from RGGI. It is possible to define CHP in such a manner that ensures electric generating sources that are not truly intended to operate as CHP would not qualify for the exemption. We would propose defining "qualifying" CHP facilities as those with an overall useful thermal efficiency greater than 60% and its total electric generation sold to the grid, in comparison to its total useful thermal energy, is less than 50%. Facilities meeting this "qualifying" criteria of well performing CHP would be given a full exemption from the PA RGGI rule.

Providing for CO₂ allocations has many logistic problems either with a complicated process of demonstrating on an annual basis with certified continuous parametric monitoring systems (subject to reporting and penalties for failure of these systems or requiring CHPs to count all of their CO₂ emissions towards allocations instead of just CO₂ emissions for power sent to the Grid.

The PA RGGI regulations as presently written will lower, or even eliminate, electricity generated by CHP units which will only result in higher CO₂ emissions from power generated for the electric grid by higher emitting production units. We are therefore requesting a full exemption for CHP units be provided for in the final PA RGGI regulations which would be consistent with the PADEP identified lower GHG emitting energy production techniques promoted in the Pennsylvania Climate Action Plan, use of CHP encouraged by the U.S. EPA and even listed in PADEP's stated intent for investment of RGGI allowance proceeds for reduction of GHG's through the use of CHP units for heat and power production.

Thank you for your consideration of this very important matter. If there are any questions or to arrange for further discussion, please contact me at (814) 965-6309 or via email at tony.casilio@domtar.com.

Sincerely,

A handwritten signature in black ink that reads "Tony Casilio". The signature is written in a cursive style with a large, stylized initial "T".

Tony Casilio

Manager Environmental, Health and Safety