

AOE Public Comment: Draft 2022 Comprehensive Energy Plan

Testimony To: Vermont Department of Public Service

June E. Tierney, Commissioner

Respectfully Submitted by: Daniel M. French, Ed.D., Secretary of Education

Date: December 20, 2021

Thank you for the opportunity to submit the following general and specific comments on the [2022 Draft Comprehensive Energy Plan](#), on behalf of the Vermont Agency of Education.

General Comments

The PreK-12 public-school sector in Vermont comprises over seventeen million square feet in 363 buildings. These buildings are arguably among the most important in Vermont because, in addition to them fulfilling the critical role of educating our students, they are key community anchor institutions with over 20% of Vermont's population in them during school days. Because of the size of this market segment as well as its importance, they deserve significant attention in the CEP.

This is especially true because of the unique success that our school buildings have had in addressing their carbon footprint through energy efficiency and use of renewables. A study of our public schools performed by Efficiency Vermont in 2015 resulted in a median EnergyStar score of 90 out of 100 (average for all schools nationally is 50). In addition, our public schools already exceed the CEP 2025 goal of 30% of building heat coming from renewable energy, by using wood fuels.

Unfortunately, because of the structure of the CEP, there is no breakout of the school's market. Accordingly, we are providing some specific comments based on the draft CEP.

Specific Comments

1. **Page ES-3** - "Vermont's energy policy is interconnected with the health and economic well-being of Vermonters. Energy policy needs to consider non-energy related objectives that can be furthered with action in the energy sphere." Excellent point. The many benefits of improving the energy performance and use of renewables at our public schools strongly supports this statement and should be explored elsewhere in the CEP. The importance of efficient HVAC systems in schools to ensure the health of students and staff was demonstrated with the COVID pandemic. Due to the effect of the built environment on educational success, equity considerations also argue for making sure that all our school facilities are efficient in construction and operation.

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2. **Page EB-5** - “For sectors where electrification options are limited, biofuels remain a viable alternative. Even where electrification eventually needs to occur, biofuels can serve as a transition fuel, often with low upfront costs, of which all Vermonters can take advantage.” From the CEP, EB-2 - “In the Thermal Sector, meet 30% of energy needs from renewable energy by 2025” and, “These targets will not be easy to reach, particularly in the transportation and thermal sectors.” The target was met years ago by Vermont schools with the use of wood chip heating systems. The majority of our high school students attend wood chip heated school buildings. Biomass, a locally available, renewable, carbon neutral fuel has proven to be a viable and cost-effective approach to heating our buildings. The use of wood chips, dried chips, and wood pellets should be emphasized as a long-term heating option for nearly all our school buildings.
3. **Page 2-9** - “Cost-effectiveness and benefit-cost tests provide one lens of analyses when evaluating potential programs and policies.” We agree that cost-effectiveness of programs is important. It should be noted that the conversion of many of our largest school buildings to wood chips was publicly supported through the School Construction Aid program. To be eligible for funding, all these conversions first had to be justified on a stringent life-cycle cost basis. This was done without considering beneficial externalities. The experience over time was that the benefits exceeded the planned return due to the higher than predicted cost of fuel.
4. **Page 5-14** - electric buses. Studies have shown the cost-effectiveness of electric school buses varies with the type of route they follow. This is due primarily to the benefits of regenerative braking. Therefore, buses making frequent stops prove to have better cost/benefit outcomes. With the passage of the federal infrastructure bill more funding for electric and other alternative fueled buses will become available.
5. **Page 6-17** - the “Weatherization and Health Initiative” is a good example of an important program. It would be good to extend it to our school buildings. Perhaps as a “Recommendation for Action”.
6. **ES-5** - “A modern electric grid allows for the integration of distributed energy resources (DERs)—such as electric vehicles, heat pumps, smart appliances, storage, and generation—while maintaining and improving safety and reliability”. The schools sector demand profile can help to mitigate peak demand issues because they hit peak demand around mid-day. Electric school buses can re-charge in the middle of the day and later at night to avoid utility peaks. They can also provide electricity back to the grid when possible. The CEP should support better demand management for school buildings by endorsing alternative rate structures.
7. **ES-16** - sets targets for weatherizing 120,000 homes. A push to achieve carbon free schools involves better management, improving the efficiency of the buildings, and obtaining energy from carbon free sources. Weatherizing our school buildings should be part of this initiative.

8. **Page 4-7** -“The 2050 postcard tells us a few things: that DER production and consumption need to be aligned as much as possible; ... that accelerated progress is needed on commercialization and cost-effectiveness of extremely long duration storage; that care must be taken to develop state policies that recognize and attempt to mitigate grid stress; and that eliminating fossil fuels from the regional fuel mix means there is a need to either find baseload alternatives or rethink the amount of reliability risk that is acceptable to Vermont.”

The CEP is clear about the challenges of the electrification strategy and the need for long-term storage. There is significant emphasis in the plan on electric vehicles and air sourced heat pumps. They are important strategies to help reduce our carbon footprint. However, both become less efficient at low temperatures and require far more energy to operate. Moving heating load to biomass fuels (a form of stored renewable energy) is an effective way to reduce future winter peak demands.

There are several reasons why schools are good candidates for biomass conversions. One important one is that they benefit from on-site maintenance staff and with school consolidation, more schools are securing the services of professional facility directors.

Our schools are taxpayer supported. Saving money while obtaining energy locally, improving employment, and helping to ensure the viability of our working forests is a winning combination.

It should also be noted that many schools are the emergency shelters for their communities. They typically have backup generators to allow their emergency use during extended power outages. This is feasible with wood systems but not for electrically heated buildings. Many of these benefits are described in Section 6.4.2.2. Page 6-41 outlines “Recommendations For Action” to help reach the goal of 35% of total thermal demand to come from wood heat by 2030. The CEP should specifically call for the conversion of as many of our schools as feasible to Advanced Wood Heat systems to help address this goal.

9. The Vermont legislature enacted Act 72 in 2021. That legislation included many provisions designed to address school facility needs. There will be an inventory of the school facilities as well as a complete facility assessment of all the school buildings. There are also measures to improve training and certification of facility managers. All these measures should help to understand and address facility energy needs. The CEP should support this work and recommend increased funding to implement energy efficiency measures and improved management of the buildings.