

State Energy Program (SEP)

State of New Hampshire Success Story

School Energy Efficiency Development (SEED) Grant Program – Final Report

SEP Funding Mechanism: State Energy Program Formula Grant

Total SEP Investment: \$75,000

Period of Performance: Program Year 2019 (December 2019 to June 2020)

Location: Lempster Community School in Lempster, NH

Project/Grantee Goals: To implement cost-effective energy efficiency improvements at Jennie D. Blake Elementary School.

Success Summary:

With annual funding from the U.S. Department of Energy's (DOE) State Energy Program, the former New Hampshire Office of Strategic Initiatives (OSI) created the School Energy Efficiency Development (SEED) Grant Program in 2018. The program is a competitive matching grant program that offers a one-time grant to New Hampshire's public schools to advance energy efficiency projects. The program was designed for public schools in small communities with a simple, streamlined application process. The program's funding has the dual benefit of lowering a school's energy costs to provide a direct financial benefit for school budgets and local property taxpayers, as well as providing a safer, healthier learning environment for students and staff.

DOE's State Energy Program (SEP) provides funding and technical assistance to states, territories, and the District of Columbia to enhance energy security, advance state-led energy initiatives, and maximize the benefits of decreasing energy waste. SEP emphasizes the state's role as the decision maker and administrator for program activities within the state that are tailored to their unique resources, delivery capacity, and energy goals.

OSI used SEP funding to open a second round of the SEED Grant Program in the fall of 2019. OSI received five applications for funding. The Lempster Community School was chosen to receive a \$75,000 grant to advance energy efficiency improvements. The school educates students from kindergarten up to eighth grade. The school is the largest building in the town and acts as the default community center for various town functions: voting, Town Meeting, after school activities, and other community events.

The school sought creative ways to reduce their energy costs and improve their aging equipment and systems. The school conducted an energy audit eight years ago, but the school was only modestly successful in implementing the audit's recommendations due to a small budget and limited, local contractor experience in such projects. When the school learned about the SEED Grant Program, the school worked Energy Efficient Investments, Inc. (EEI) as their project contractor to develop an updated investment grade audit. SEED Grant Program funding was sought to implement the audit's recommendations.

Involvement from the school was crucial to the project's success, especially with the unforeseen challenges posed by the COVID-19 pandemic. In December 2019, the school's superintendent and principal, along with three school students, attended a meeting with the Governor and Executive Council to advocate for the approval of their SEED Grant. Governor Chris Sununu and the state's Executive Council heard testimony from the students on the project's merits. After testimony from the Lempster representatives, the Governor and Executive Council unanimously approved the SEED Grant.

With the SEED Grant, the school sought to complete four of the seven proposed energy conservation measures as outlined in EEI's audit: installing LED fixtures and lighting controls, a direct digital controls system, baseboard hot water heating, and weatherization. The lighting project replaced existing fluorescent lamps with manual controls with new LED dimmable fixtures that included occupancy sensors and daylight controls.

The installation of a web-based direct digital control system allowed the school to improve the operating and energy efficiency of the school. The system provides school personnel with a real-time overview of the building's HVAC systems, including outdoor air temperature, supply water temperature, pump and fan status, gymnasium occupancy, and space temperature. The new system allows the school to track, record, and monitor usage throughout the school. With access to this data, the school can make necessary adjustments in the future to maximize energy efficiency.

The school also installed baseboard heating radiators in its media center, which lacked sufficient heating for students and staff, especially during the winter months. Weatherization was also added in the media center. The school removed deteriorating fiberglass insulation and used a spray foam to provide air sealing and reduce outside air infiltration into the building. Additional investments were made to the school's HVAC system. Variable frequency drives were installed on the heating hot water pumps to modulate the motor speed. The reduced motor speed results in energy savings when the pumps are not needed to operate at full capacity. By removing an old boiler, new zone valves were installed to tie in directly to the heating hot water system. The zone valves will control hot water distribution to the classrooms when the thermostats call for heat.

The completion of these energy efficiency improvements is estimated to save the school over \$7,100; a figure that also includes 21,430 less kWh per year and 2,985 less gallons of propane for heating fuel. The Lempster Community School can re-invest these savings directly back into the school itself.

OSI marked the school's accomplishment with a ceremonial ribbon cutting ceremony alongside Governor Chris Sununu, NH Education Department Commissioner Frank Edelblut, local legislators, students, parents, and school staff. All COVID-19 safety protocols were followed during the event.



Left: Governor Sununu, members of the Executive Council, and Lempster Community School students and staff at the December 18, 2019 Executive Council meeting.



Left: Ribbon cutting with Governor Chris Sununu, Commissioner Edelblut, school officials, local leaders, and students.



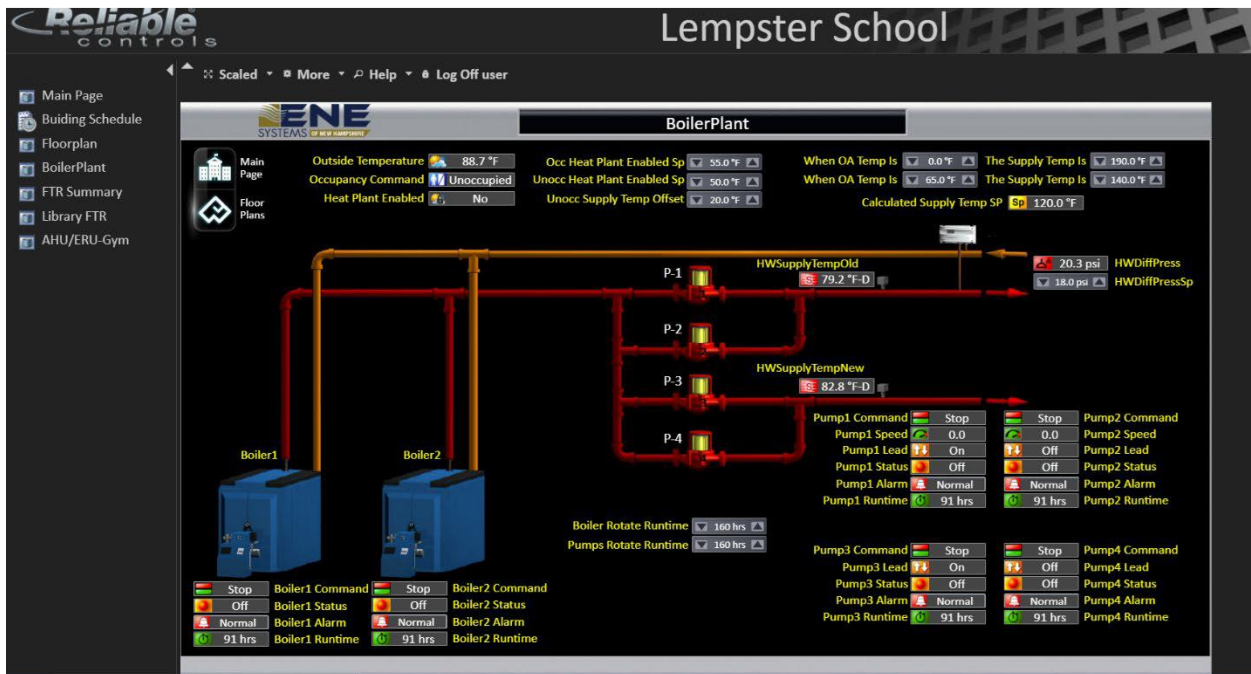
Left: Governor Sununu and Lempster Community School Mascot.



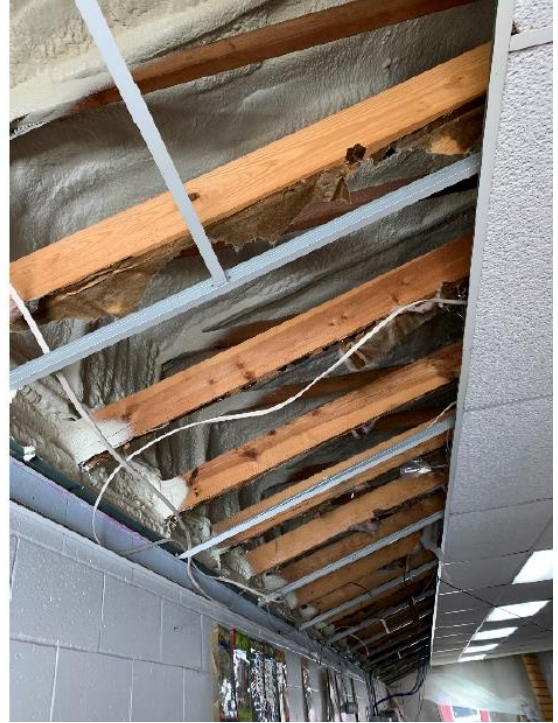
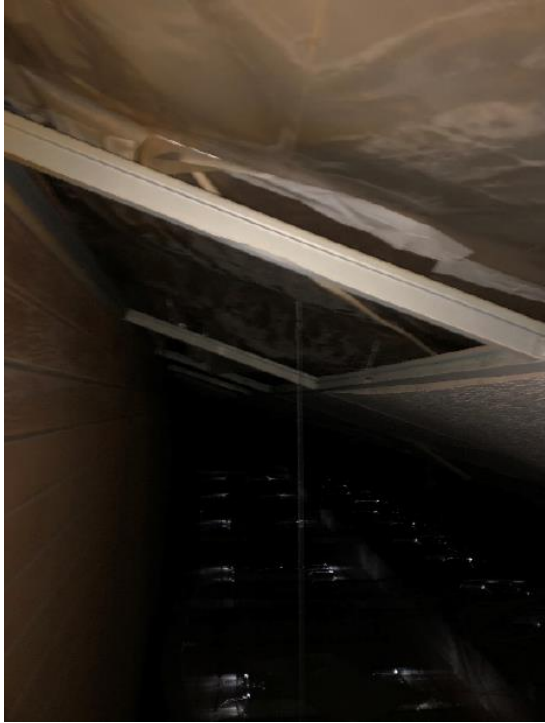
Above: Before (left) and after (right) cafeteria lighting



Above: Before (left) and after (right) classroom lighting



Above: Boiler Plant Direct Digital Control Graphics



Above: Vapor barrier with fiberglass insulation (left) and spray foam insulation (right)



Above: Before (left) motor starters and after (right) with new variable frequency drives