

Presenters: Declan McGlashan, Makena Garriepy, Shane Woloszyn, and Sasha Altschule

INTRODUCTION:

The focus of this presentation is on the energy and water usage in Kennebunk High School. Richard Terwilliger-Smith, the head of facilities for RSU 21, shared his thoughts and expertise about the energy and water usage in the district. He shared the current energy and water systems in place, and the possibilities of increasing the sustainability of the district.

CURRENT OBSTACLES:

After talking with Richard, there were 3 main obstacles preventing KHS from being as sustainable as possible regarding energy and water usage: outdated infrastructure, costs and the budget.

OUTDATED INFRASTRUCTURE:

The main building of KHS was built in 1938, making it almost 100 years old. Being a historic building, there are restrictions as to what the school can do for energy saving. Currently, heat tapes are used to warm the school, which can consume more energy as they operate at a constant rate regardless of the surrounding temperature. Another problem with the building is the sports fields and the water required to keep them usable. the current pumps that irrigate the fields are “outdated” according to Terwilliger-Smith.

COST

“The cost of renewable energy is not cheap. This problem is enhanced by the very limited school budget, which is about 6 million per year (across the whole district). That leaves about \$750,000left for the high schools energy and water budget. Unfortunately, the cost of things like solar panels are beyond the current budget, which is unfortunately hard to change.”

BUDGET

Having a budget of around \$100,000 to spend on renewable energy and energy efficiency is a highly limiting factor. Solar Panels cost between \$300-\$400 per panel, and it would be an investment that would take years to pay off. This makes investing in renewables a challenge. It becomes more economically viable to focus on energy efficiency, which has diminishing returns.

CLIMATE CHANGE IMPACT:

When talking to Mr. Terwilliger-Smith, he stated “we seem to be heating our schools less and less over the winter because our winters are staying fairly warm.” Increased precipitation more rain means flooding of fields and parking lots which could potentially cause costly repairs. It is also likely that climate change increases the investment value of solar panels.

Energy and Water Usage at Kennebunk High School

What was found: Although Kennebunk High School has taken many strides toward sustainability, the greatest obstacle to continued progress is outdated infrastructure, the cost of renewable installations (e.g., solar), and tight budgetary restrictions.

Energy Usage



Monthly energy usage at KHS for 2023 and 2024.

Water Usage



Water usage at KHS for Mar, June, Sep, Dec, of 2023 and 2024 in gallons

What Can Be Done

- Keep Windows and Doors Closed When Heating/Cooling is on
Maintaining a controlled indoor climate is an easy, yet extremely beneficial way to lower energy usage
- Report Maintenance Issues Promptly
Leaking faucets, running toilets, and malfunctioning heating units should be reported as soon as possible. Small issues can lead to large scale breaks, especially over weekends and breaks.
- Advocate for Change
Students and teachers can support long term change by staying informed and advocating for sustainable practices. This includes participating in discussions with admin, supporting budget proposals for sustainable upgrades, and encouraging peers to adopt sustainable habits.
- Integrate Sustainability into Curriculum
Teacher’s/Administrators can integrate sustainability lessons into their curriculum, Students can get involved in clubs, and school-wide awareness campaigns can all have a great impact on energy usage at KHS.



The Climate Initiative



CURRENTLY IN PLACE:

As of May 2025, there are a few things that KHS has in place to help with energy and water conservation. The recent turf field that doesn’t need to be watered has provided a massive improvement in water consumption. Low-flow faucets in the bathrooms that also turn off automatically also save water. Besides water consumption, heat also has a large impact on energy consumption. When the school is empty, the heat goes down to 60, just enough to keep the pipes from freezing. There are also motion sensed lights in all rooms, eliminating the chance of someone leaving a light on accidentally. All of these seemingly small actions add up to help make the school more resourceful. Finally, there is a list of materials that are not allowed in KHS specifically to save energy. These materials include lamps, refrigerators individual coffee makers, cooking equipment such as microwaves, individual heaters, lava lamps, and plug in air fresheners.

WHAT OTHER MAINE SCHOOLS HAVE DONE:

State Policies:

- Maine law mandates that new schools be designed to reduce energy usage by 20% compared to the Maine Energy Code.

Climate&Me Youth Leadership Summit:

- Collaborates with a range of organizations to host the Climate&Me Youth Leadership Summit, providing students with opportunities to participate in climate-focused discussions.

Education:

- Massabesic Middle School incorporates discussions about renewable energy and climate change into interdisciplinary classes.

Actions For KHS To Take:

- More popularity in environmental action classes such as this one
- Solar panels within the next 8 years
- Rely less on fossil fuel energy

REFERENCES:

“Energy Efficiency Solutions for the Education Sector.” Efficiency Maine, <https://www.efficiencymaine.com/at-work/education/> Accessed 29 April 2025.

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