

DATE: January 22, 2019

TO: Board of Trustees

FROM: Trustee Michael Janz

SUBJECT: Motion re: Schools Be Net Zero

REFERENCE: [Trustees' Handbook – Section 5.2.2 – Notices of Motion](#)
[Alberta Council for Environment Education 2016](#)
[Stantec Blog – May 15, 2017](#)
[Better Buildings – U.S. Department of Energy](#)
[The Hechinger Report](#) – How students learn from schools that use zero energy
[GreenBiz](#) – Four reasons net-zero energy should start with schools

ISSUE

Notice of motion was served at the December 11, 2019, Board meeting.

BACKGROUND

The science is settled and human-made Climate Change is real. “The extreme weather events of 2018, bolstered by the publication of the Intergovernmental Panel on Climate Change (IPCC) scientific report estimating that there are about twelve years left to prevent a catastrophic rise in global temperatures, have created a new sense of urgency.”

Students in schools today recognize that climate change is a huge problem in everyday life and are responding through participation in extracurricular sustainability clubs and activities.

Net zero schools would be defined as those that produce as much on-site energy as they consume, over the course of a year. This is achieved through efficient appliances and mechanical systems, sound construction practices, and renewable energy generation on site.

The purpose of attaining net zero schools is three-fold. The first is as an ethical response to human-created climate change and ensuring that future schools are energy neutral and ensure that through their operations they aren't further damaging the ecosystem.

The second, is cost containment and to ensure energy resiliency into the future. The schools we are building will last us for fifty years, so we must not be penny wise pound foolish and cut corners now, risking enormous energy costs later.

The third is to ensure that our schools can be an active part of the teaching and learning opportunities available to students. By learning about energy efficiency and renewable energy, students, staff, and families will be familiarized with innovative cost and climate saving strategies and technologies that they can use in their own homes and careers.

Refuting arguments:

- Edmonton has been called the net zero Capital of Canada, and is an excellent location for net zero homes. This is partly due to our excellent solar and geothermal energy potential.

- Saving money: net zero schools can save money in the short term on energy bills and contracts, and in the medium/long term through efficiencies.
- The construction costs are comparable to conventional building costs as technologies have improved and doing it correctly the first time means that better materials choices combined with the current lower cost of labour allow for lasting benefits.
- When you look at the life cycle of a building, the operations costs are greater than the construction costs, making net-zero energy a wise decision for our long-term benefit.

RELATED FACTS

Excerpt from May 15, 2017, Stantec blog:

“Through collaboration with energy providers, both fossil fuel and renewable; energy modelers; granting and funding agencies, such as Alberta Education; Alberta Infrastructure; school boards and trustees; school operators; and students, we can build a team to deliver net-zero schools and modernizations to achieve the expectations for climate leadership. Our first step is to benchmark energy use and set aggressive and realistic targets, including the capacity for renewables, and evaluate against that target throughout. The energy target will be best served with a simple compact that minimizes the area-to-envelope ratio and transitions that can leak energy, while orientating the building to take advantage of both passive design strategies and solar access for on-site solar renewables when possible. Keeping the building controls simple and responsive to users will help those users learn from the building and use the information to manage their energy and get the students involved. Once these strategies are thoughtfully considered and included, only then should we consider renewable energy. Conservation first is always the best strategy for any school—especially a net-zero school.

At Stantec, we have designed over 20 net-zero energy projects across North America, including 11 K-12 schools, and are able to leverage the success of those projects to supporting Climate Leadership goals in our home province—Alberta—and beyond.”

Alberta students have made three recommendations on curriculum:

1. A framework of climate, environmental, and energy literacy should be integrated throughout ALL classes, from Kindergarten to Grade 12.
2. Curriculum should encourage hands-on opportunities that give students practical experience as they make a difference.
3. Teachers should be allowed enough time, support, and flexibility in their teaching so that students can learn about environment, energy, and climate change in their everyday lives.

Leveraging the bricks and mortar of the school buildings can assist to deliver on these recommendations and support the additional recommendations made by students on school infrastructure:

1. Engage students in reducing the consumption of energy and materials of their schools.
2. Help the students learn how to produce energy and food in school.
3. Create a fund that schools could apply to for relevant Climate Leadership projects.

We know that as much as 50 per cent of the energy use in a building is attributed to the occupants and how they use and save energy. Using tools such as smart meters integrated with dashboard monitoring systems for energy production and energy consumption is a solid strategy to support climate leadership and educate tomorrow’s leaders. Most importantly, students are ready, willing, and able to take on the challenge to be stewards of their energy usage at school. That helps schools deliver a culture of sustainability and efficiency.

Excerpt from August 23, 2016, GreenBiz website:

“Operating costs can be a significant component of school budgets. With energy costs averaging about \$300 per student per year, cash-strapped districts have found improving energy performance as the best way to lower operating and maintenance costs, freeing up critical funds for teachers, textbooks or programs that benefit children.

According to NBI [New Buildings Institute], school buildings are held and operated for an extended time, ensuring payback of any incremental costs for net-zero energy performance through lower annual energy expenses.

Plus, many schools are low rise and have large, unshaded roof and parking areas that are ideal for deployment of solar panels. Schools can take advantage of innovative solar financing options and—depending on the incentives provided by their local utility—gain an income stream by selling clean energy back to the grid.”

RECOMMENDATION

That the Edmonton Public School Board advocate to the provincial government that new schools be net zero.

OPTIONS

1. Approve the recommendation.
2. Provide feedback and request changes to the recommendation for approval.

NEXT STEPS

Should the Board of Trustees approve the recommendation, the Board Chair will write to the Minister of Education and the Minister of Infrastructure advocating that new schools be net zero.

ATTACHMENTS and APPENDICES

ATTACHMENT I Alberta Council for Environmental Education Letter of Support

MJ:km



January 9, 2019

To: Board of Trustees - Edmonton Public Schools

Re: Letter of Support regarding Net Zero Schools

The Alberta Council for Environmental Education is pleased to provide a letter of support for a proposed motion that would see Edmonton Public Schools advocate for all new schools in Alberta be built to Net Zero standards.

Net Zero buildings produce as much energy on site as they use over the course of a year. This is achieved through the most energy efficient construction practices, appliances and mechanical systems and renewable energy generation on site.

The Alberta Council for Environmental Education (ACEE) works with a large, diverse group of partners to engage Alberta youth in hopeful, action-oriented environmental, energy, and climate change education. We believe that Net Zero schools represent an excellent opportunity to foster student learning around energy efficiency and renewable energy, learnings that students can then take out into their community and homes. Indeed, schools are uniquely positioned to be role models of sustainability for the communities in which they are embedded. The proposed motion also supports a recent resolution endorsed by the Alberta School Board Association calling for more access to renewable energy, and every student's right to have 'an environmental education'. The K-12 educational system in Alberta uses and administers one of our province's largest portfolios of publicly owned buildings. Thus, efforts to 'green' this infrastructure will yield massive dividends both in terms of long-term cost savings and reducing our carbon footprint.

For all the reasons outlined above, ACEE wholeheartedly supports the position of mandating all new schools be Net Zero. Please do not hesitate to contact me if you have any questions or require additional information.

Kind regards,

A rectangular box containing a handwritten signature in blue ink, which appears to read "Marie Tremblay".

Marie Tremblay, PhD
Senior Education Advisor
Alberta Council for Environmental Education

