

June 2024

Toronto District School Board
2024-2029 Energy Conservation and
Demand Management Plan

Senior management approval

I confirm that Toronto District School Board's senior management has reviewed and approved this 2024-2029 Energy Conservation and Demand Management Plan.

Signature: 

Name: Maia Puccetti

Date: July 25, 2024

Title: Executive Officer, Facilities and Planning

Under Ontario Regulation 25/23, Ontario's broader public sector organizations are required to develop and publish an Energy Conservation and Demand Management (ECDM) Plan by July 1, 2024. Technical advice and analysis for this ECDM Plan were provided by [Enerlife Consulting Inc.](#)

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Part 1: Introduction

1. Regulatory requirements

[Ontario Regulation 25/23](#) Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans requires Broader Public Sector (BPS) organizations to develop an Energy Conservation and Demand Management (CDM) plan and update it every five years. Our updated CDM plan was developed in compliance with the regulation.

The horizon for this plan is the 5-year period from 2024 to 2029, prioritizing projects and organizational improvements which are manageable within this period.

2. About Toronto District School Board

The Toronto District School Board (TDSB) has led environmental initiatives over the last two decades with guidance from advisory committees, participation from community stakeholders and in collaboration with many diverse partners including the City of Toronto.

With 583 operating schools comprising over 44 million square feet of floor area, the TDSB is the second largest property owner in the city of Toronto. The ways in which the TDSB designs, builds and operates schools has a significant impact on Toronto's overall GHG emissions and the TDSB's ability to meet its aspirational goal of Net Zero Carbon emissions by 2050.

In 2020, the TDSB's Energy and Climate Action team was created within the Board's Sustainability Office to specifically address the challenges of climate change by focusing on ways to reduce GHG emissions generated by TDSB buildings. The team is involved in a number of on-going projects and initiatives, including:

- Building Renewal Projects Commissioning
- Design Guideline Reviews
- Energy Retrofit Projects
- Building Automation Systems (BAS)
- Optimized Ventilation
- Utilities Management and Building Analytics
- Operations Excellence
- Solar Schools
- City of Toronto's Green Will Initiative

For more information on these and other initiatives, please visit the board's [Environment, Energy and Climate Action](#) page.

In October 2021, TDSB's Board of Trustees established an aspirational goal of net-zero greenhouse gas (GHG) emissions by 2050. It also decided that the Director would present an annual climate action plan to the Board, including an update on building-related GHG emissions, and the Environmental Legacy Fund's revenue and projected expenditures. These annual reports summarize concrete, strategic actions planned for the upcoming school year, designed to help the TDSB respond to the climate crisis. The reports are published on the [board's website](#). The 2024 Climate Action Plan is under development and will be aligned with TDSB's 2024 Energy Conservation and Demand Management Plan.

3. Education sector background

Each year school boards receive approximately \$1.4 billion school renewal funding from the province. In addition, school boards may receive time-limited funds over this period. The Ministry typically announces each Board's funding allocations, for the upcoming school board Fiscal Year (September 1st to August 31st), in March-April. While a board may have a five-year energy management strategy, the ability to implement their strategy depends on the funding that's received for each of the five years covered by their plan.

The education sector is unique in that a board's asset portfolio can experience important changes that crucially impact a board's energy consumption over a five-year period. The following is a list of some of the most common variables and metrics that change in the education sector.

Facility variables:

- Construction
 - Year built
 - Number of floors
 - Orientation of the building
- Building Area
 - Major additions
 - Sites sold/closed/demolished/leased
 - Portables
 - Installed
 - Removed
 - Areas under construction
- Equipment/Systems
- Age
- Type of technology
- Lifecycle
- Percentage of air-conditioned space
- Site Use
 - Elementary school
 - Secondary school
 - Administrative building

- Maintenance/warehouse facility
 - Community Hubs
- Shared Site Use (For example: two or more boards share common areas and/or partnered with a municipality)
 - Swimming pools
 - Libraries
 - Lighted sports fields
 - Sports domes

Other Variables:

- Programs
 - Childcare
 - Before/After School Programs
 - Summer School
 - Community Use
 - Outdoor ice rinks
- Occupancy
 - Significant increase or decrease in number of students
 - Significant increase in the hours of operation
 - New programs being added to a site
- Air Conditioning
 - Significant increase in air-conditioned space
 - Portables

Part 2: Results from the past 5 years (2019-2023)

1. Climate Action and Sustainability at the TDSB: 2019-2023

Over the past 5 years, the Board has continued to implement energy and environmental leadership initiatives across its portfolio. The following list summarizes the main events from 2019 to 2023 as presented on the Board's [Environment, Energy and Climate Action](#) page (launched in 2021-2022).

- 2019
 - **Energy Conservation Plan published.** The [Energy Conservation & Demand Management Plan](#) documents some of the work done to reduce energy consumption across the TDSB in a five-year reporting period from 2013/2014 to 2017/2018. The report highlights the drop in overall energy use at TDSB buildings, mainly as a result of upgrades to heating and hot water systems in schools, which significantly reduce the TDSB's use of natural gas.
 - **Ontario EcoSchools becomes EcoSchools Canada.** The EcoSchools program, first pioneered by the TDSB, expands to schools across the country. TDSB Sustainability Office staff continues to advise the development of the national [EcoSchools Canada](#) program.
 - **TDSB acknowledges the climate emergency.** On October 2, 2019, City Council voted unanimously to declare a [climate emergency](#) and accelerate efforts to mitigate and adapt to climate change, adopting a stronger emissions reduction target of net zero by 2050 or sooner. In response, the City has developed the TransformTO Net Zero Strategy, which outlines a pathway to achieve net zero emissions community-wide by 2040. The TDSB established net-zero greenhouse gas (GHG) emissions by 2050 as an aspirational goal.
- 2020
 - **Environmental Education Webinars created.** The EcoSchools team, in collaboration with colleagues at OISE's Environmental and Sustainability Education Initiative, create a [series of webinars](#) to help shift environmental learning to the virtual world during the time of school closures. A wide range of environmentally themed topics are explored.
- 2021
 - **TDSB replaces 800 drinking fountains with water bottle filling stations.** TDSB receives COVID19 Resilience Funding to bring all schools up to a standard of 1 [water bottle filling station](#) for every 250 students. The TDSB plumbing team replaces over 800 drinking fountains with water bottle filling stations/fountains, at 479 schools.

- **TDSB merges with EcoSchools Canada certification.** For the first time ever, TDSB schools are invited to participate in the [EcoSchools Canada certification](#) program. Schools can engage in environmental learning and climate action while working on their certification application with the national EcoSchools program.
- **TDSB co-hosts EECOM Conference.** [The Canadian Network for Environmental Education and Communication \(EECOM\)](#) four-day online conference took place from April 21-24, and was proudly hosted in partnership with the TDSB's Sustainability Office, [EcoSchools Canada](#), the [Ontario Institute of Studies in Education \(OISE\)](#) at the University of Toronto, and [Natural Curiosity](#). The focus was *Exploring the Nature of Cities: Urban Environmental Education in Action* – with most of the world's population living in urban areas, helping citizens understand their impact on the environments in which they live is key to making cities more sustainable and liveable.
- **Annual Report 2021: Climate Action is presented to Board.** The [Annual Report 2021: Climate Action](#) outlines 22 key actions the TDSB will undertake in response to the climate crisis. Actions are divided into six focus areas to address whole institution engagement and specifically target lowering the TDSB's greenhouse gas (GHG) emissions.
- **Youth Climate Action Guide is launched.** The [TDSB Youth Climate Action Guide](#) was developed to assist youth with mobilizing their communities towards equitable climate action.
- 2022
 - **Building Systems Help Desk.** Under this new initiative, launched as a pilot, staff in our Building Systems Help Desk have worked collaboratively to reduce energy consumption in close collaboration with caretakers, Facility Team Leaders, and Maintenance Team Leaders in Learning Networks 3 and 4, which represent about one third of the schools in LC1.
 - **Youth Climate Action Grants.** The City of Toronto [Youth Climate Action Grants](#) provides funding to support Toronto District School Board (TDSB) student-led projects, activities and events that directly or indirectly reduce greenhouse gas (GHG) emissions. Grants of up to \$1,000 are available for each eligible project.
 - **Annual Report 2022: Climate Action is presented to Board.** The [Annual Report 2022: Climate Action](#), outlines 24 key actions the TDSB will undertake in response to the climate crisis. Actions are divided into seven focus areas to address whole institution engagement and specifically target lowering the TDSB's greenhouse gas (GHG) emissions.
 - **Purchase of electric cargo vans.** The 2021 Climate Action Report signalled the intention to start procuring fully electric vehicles to add to the TDSB's fleet of more than 700 vehicles. Using the Environmental Legacy Fund to cover the difference in cost to an ICE vehicle, 2 of the approved 4 vehicles have been delivered.
- 2023

- **1,200 trees planted.** The TDSB's large tree planting program began in 2006. Since that time, an average of 300 large caliper trees have been donated by the City of Toronto and planted by in-house trades each year. Other school ground improvement projects that included tree planting raised the number to 1,200.
- **Annual Report 2023: Climate Action is presented to Board.** The [Annual Report 2023: Climate Action](#) details 53 actions the TDSB will undertake this year in response to the climate emergency, divided into ten areas of focus, including expanding the scope of the Building Systems Help Desk to all schools in LC1 to build on its success in reducing energy use.
- **5 electric school buses approved.** The TDSB's transition to electric school buses will begin with a pilot project on the Toronto Islands. In September 2024, five electric school buses will replace the diesel-powered buses that currently service the Toronto Public/Natural Science School. To support this transition, an electric charging station will be installed at the Island School, funded by the Environmental Legacy Fund.
- **Mass timber school design approved.** The new Poplar Road Junior Public School, currently in design, will be the first mass timber school in Ontario. Mass timber sequesters carbon and replaces more carbon-intensive materials. It also reduces construction waste and construction time and improves occupant wellness. Learnings from this modular project will be applied to future school projects.

2. Board's asset portfolio

The following table outlines the energy-related variables and metrics in the Board's asset portfolio that changed from the baseline Fiscal Year 2018/2019 to the end of the five-year reporting period Fiscal Year 2022/2023.

Table 1 Board's asset portfolio

Key Metrics	FY2019	FY2023	Variance between FY2019 and FY2023
Average Daily Enrolment (ADE)	225,499	212,710	-12,789
Average Operating Hours	76	76	0
Total Number of Active Buildings	562	565	3
Number of Buildings in Portfolio Closed	3	3	0
Total Floor Area of Buildings Closed	8,913	8,913	0
Total Number of Portables	508	497	-12
Total Number of Portapaks	9	10	1
Total Portable/Portapak Floor Area (ft ²)	397,447	389,222	-8,225
Total Building Area (includes portables and portapaks) (ft ²)	43,895,524	43,386,868	-508,656

3. Board's energy use data

In Ontario, 25% to 35% of energy consumption for a facility is affected by weather. To demonstrate the effect of weather, the following table shows the Weighted Average Heating Degree Days (HDD)¹ and Cooling Degree Days (CDD)² for the Toronto International Airport weather station.

Table 2 Toronto degree-days

Toronto Degree Days	Fiscal Year 2017 to 2018	Fiscal Year 2018 to 2019	Fiscal Year 2019 to 2020	Fiscal Year 2020 to 2021	Fiscal Year 2021 to 2022	Fiscal Year 2022 to 2023
HDD	3,720	3,946	3,641	3,475	3,533	3,356
CDD	513	392	495	469	415	333

The best way to compare energy usage values from one year to another is to use weather normalized values as they take into consideration the impact of weather on energy performance and allows an “apple-to-apple” comparison of consumption across multiple years.

However, a straight comparison of Total Energy Consumed between one or more years does not take into consideration changes in a board's asset portfolio, such as changes in buildings' features, and newly implemented programs which will greatly impact energy consumption.

As a result, weather normalized Energy Intensity³ is the most accurate measurement that allows the evaluation of a board's energy use from one year to another as it cancels out any change in floor area. The unit of measurement used is either equivalent kilowatt hours per square foot (ekWh/ft2) or equivalent kilowatt hours per square metre (ekWh/m2).

The following table lists the board's raw and weather-normalized energy consumption values for Fiscal Year 2018/2019 and Fiscal Year 2022/2023.

Table 3 Board's energy use data

Utility	FY2019	FY2023	Variance between FY2019 and FY2023
Total Electricity (kWh) - raw	273,856,256	262,666,224	-11,190,032
Total Natural Gas (ekWh) - raw	685,461,696	601,597,696	-83,864,000
Total Energy Consumed (ekWh) - raw	960,428,672	865,354,624	-95,074,048
Energy Intensity (ekWh/ft2) - raw	22	20	-2
Total Electricity (kWh) - weather normalized	268,689,088	264,458,640	-4,230,448
Total Natural Gas (ekWh) - weather normalized	618,450,432	647,878,464	29,428,032
Total Energy Consumed (ekWh) - weather normalized	888,246,080	913,474,112	25,228,032
Energy Intensity (ekWh/ft2) - weather normalized	20.24	21.05	0.82

¹ Heating Degree Day (HDD) is a measure used to quantify the impact of cold weather on energy use. In the data above, HDD are the number of degrees that a day's average temperature is below 18C (the balance point), the temperature at which most buildings need to be heated. .

² Cooling Degree Day (CDD) is a measure used to quantify the impact of hot weather on energy use. In the data above, CDD are the number of degrees that a day's average temperature is above 18C, the temperature at which most buildings need to be cooled. It should be noted that not all buildings have air conditioning and some building have partial air conditioning. The UCD only applies CDD to meters that demonstrate an increase in consumption due to air conditioning.

³ Energy Intensity (known as EI) is the quantity of total energy consumed divided by the total floor area. EI is typically expressed as equivalent kilowatt hours per square foot (ekWh/ft2), gigajoule per square metre (GJ /m2), etc., depending on the user's preference.

4. Review of previous energy conservation goals and achievements

In the previous 2019 ECDM plan, TDSB aimed to achieve an energy intensity reduction of 1 ekWh/ft² over 5 years, from 22 ekWh/ft² (233.91 ekWh/m²) to 21 ekWh/ft² (222.44 ekWh/m²), or a 5% decrease in energy intensity (1% per year) by fiscal year 2022 to 2023. Actual energy intensity increased by 0.7 ekWh/ft².

Table 4 compares the energy intensity conservation goal with the actual energy intensity reduction for each year.

Table 4 Comparison of energy intensity conservation goal and actual energy intensity reduction

Fiscal Year	Energy Intensity Conservation Goal ekWh/ft ²	Energy Intensity Conservation Goal Percentage	Actual Energy Intensity Reduction ekWh/ft ²	Actual Energy Intensity Reduction Percentage
2018 to 2019	0.2	1.0%	0.15	0.73
2019 to 2020	0.2	1.0%	0.99	4.87
2020 to 2021	0.2	1.0%	-0.38	-1.96
2021 to 2022	0.2	1.0%	-1.52	-7.74
2022 to 2023	0.2	1.0%	0.09	0.43

NOTE TO READERS:

When reviewing energy use trends compared to targets, the following should be considered:

- The board's conservation goals were forecast in 2019 based on the assumption that operational parameters would remain consistent from FY2019 through FY2023. However, the pandemic that arrived in early 2020 significantly changed how schools operated and impacted their energy consumption.
- As a result of significant operational changes from one year to the next from FY2019 to FY2023, an apple-to-apple comparison of Energy Intensity (ekWh/ft² – the quantity of energy consumed per area) is not possible.
 - Factors that reduced energy consumption include:
 - temporary school closures in FY2020 and FY2021, due to the pandemic
 - temporary suspension of community use of schools, before/after school programs, childcare programs, continuing education and summer school programs
 - Factors that increased consumption include:
 - Implementation of new health and safety factors in FY2021 through FY2023 to address pandemic issues, such as:
 - increased ventilation (intake of fresh air),
 - increased filtration requirements
 - expanded operating hours of HVAC equipment

A board's ability to achieve their 2019 forecasted Conservation Goals may be limited by some or all the above factors.

In addition to the pandemic-related factors outlined above, there are a number of other factors that regularly impact a board's ability to achieve their conservation goals, including:

Before and After School Programs

Before-School and After-School Programs need a facility's Heating, Ventilation, and Air Conditioning (HVAC) system to operate for an extended period of time on a daily basis, which increases the overall energy intensity.

Community Use of Schools

Both indoor and outdoor school space is available to community groups, outside of regular school hours. The use of spaces in schools, typically gymnasiums and libraries, has increased over time. The use of these spaces during non-school hours requires a facility's HVAC system to operate for an extended period on a daily basis, which will increase the overall energy intensity.

Community Hubs

Many schools now offer a greater range of:

- events (cultural),
- programs (arts, recreation, childcare), and
- services (health, family resource centres).

The increase in community use means that many schools now run from 6:00 a.m. until 11:00 p.m. during weekdays and are open many times on weekends. The use of these spaces during non-school hours requires a facility's HVAC system to operate for an extended period on a daily basis, which will increase the overall energy intensity.

Air Conditioning

Historically, schools have not had air conditioning, or it has been a minimal space in the facility. However, with changing weather patterns, "shoulder seasons" such as May, June and September are experiencing higher than normal temperatures and there is an increased desire for schools to have air conditioning. Air conditioning significantly increases a facility's energy use, specifically electricity consumption.

Compliance with current Ontario Building Code (OBC)

When renovations or an addition is built onto an existing school, in-place equipment such as HVAC systems, lighting etc., may be required to meet current OBC standards. In some cases, this may result in increased energy use. For example, under the OBC, buildings built today have increased ventilation requirements, meaning more outside air is brought into a facility. As a result, HVAC systems need to work longer to heat or cool the outdoor air to bring it to the same temperature as the standard indoor temperature for the building.

Pandemic

When reviewing year-over-year value, it should be noted that FY2020 values will be lower as schools were closed due to the pandemic (March 2020 until June 2020). During that time, the sector saw a decrease of 16% in electricity consumption and 3% in natural gas consumption. The

difference in the percentage for the two utilities, reflects that natural gas is primarily used for heating and April, May and June do not have the same heating demands due to weather.

In FY2021 consumption values were typically higher than FY2020, but due to limited occupancy as a result of the ongoing pandemic, lower than previous consumption levels.

Ventilation and Filtration

In consultation with the Office of the Chief Medical Officer of Health, the Ministry of Labour, Immigration, Training and Skills Development and others, school boards have been expected continue to build on established practices to optimize air quality to support healthy and safe learning environments for students and staff.

Many of these new recommendations/requirements can impact utility consumption. For instance, the implementation of standalone HEPA filtration units has impacted energy consumption, primarily electricity.

4.1 HEPA filtration units at TDSB

High-Efficiency Particulate Air (HEPA) filters are an effective method of providing clean air in indoor environments by trapping airborne particles, including dust, pollen, and pathogens, especially for spaces not served by mechanical ventilation systems. All TDSB classrooms have been equipped with institutional-grade HEPA filtration units. The board maintains approximately 16,000 HEPA units in TDSB schools to enhance air cleaning in every occupied classroom, portable, and resource room, as well as other instructional spaces that do not have mechanical ventilation (library, cafeteria, and gymnasium). For more information, please visit <https://www.tdsb.on.ca/About-Us/Facility-Services/Ventilation>.

The table below summarizes estimated annual electricity consumption of the board's 16,000 HEPA units for a range of average operational hours per week.

Table 5 Estimated annual electricity consumption of TDSB's HEPA filters

Average Hours per week	Estimated Annual Consumption (kWh/year)
40	3,456,000
60	5,184,000
80	6,912,000

4.2 Cumulative energy conservation goal

The following table compares the 2019 forecasted cumulative energy intensity conservation goal with the actual cumulative energy intensity reductions.

Table 6 Cumulative energy intensity goal from Fiscal Year 2018 to 2019 through Fiscal Year 2022 to 2023

Analysis of Cumulative Conservation Goals	FY2019	FY2020	FY2021	FY2022	FY2023	Cumulative Value
Actual Weather Normalized Variance in Annual Energy Intensity from previous FY (ekWh/ft ²) ("+" value = EI decreased ; "-" value = EI increased)	0.15	0.99	-0.38	-1.52	0.09	-0.67

Weather Normalized Annual Energy Intensity as a % reduced ("+ value = EI decreased ; "-" value = EI increased)	0.73	4.87	-1.96	-7.74	0.43	-3.67
2019 Forecasted Annual Energy Intensity Conservation Goal (ekWh/ft2) (from 2019 5-year energy plan)	0.20	0.20	0.20	0.20	0.20	1.00
2019 Forecasted Annual Energy Intensity Conservation Goal (%) (from 2019 5-year energy plan)	1.00	1.00	1.00	1.00	1.00	5.00
Weather Normalized Variance between Actual Annual Energy Intensity and 2019 Forecasted Annual Energy Intensity Conservation Goal (ekWh/ft2) ("+ value = exceeds forecast; "-" value = below forecast)	-0.05	0.79	-0.58	-1.72	-0.11	-1.67

Analysis of Cumulative Conservation Goals	
Board's 2019 Forecasted Cumulative Energy Intensity Conservation Goal FY2019 to FY2023 (ekWh/ft2)	1.00
Board's 2019 Forecasted Cumulative Energy Intensity Conservation Goal FY2019 to FY2023 (%)	5.00
Actual Cumulative Weather Normalized Energy Intensity Conservation Goal that was achieved (ekWh/ft2) ("+ value = EI increased ; "-" value = EI decreased)	-0.67
Weather Normalized Variance between Actual and 2019 Forecasted Cumulative Energy Intensity Conservation Goal (ekWh/ft2) ("+ value = exceeds forecast; "-" value = below forecast)	-1.67
% of Cumulative Energy Intensity Conservation Goal Achieved	-67.08

5. Measures implemented in 2019-2023

In October 2021, TDSB's Board of Trustees established an aspirational goal of net-zero greenhouse gas (GHG) emissions by 2050. It also decided that the Director would present an annual climate action plan to the Board, including an update on building-related GHG emissions, and the Environmental Legacy Fund's revenue and projected expenditures.

These annual reports summarize concrete, strategic actions planned for the upcoming school year, designed to help the TDSB respond to the climate crisis. They also provide an update on the actions completed in the previous year, together with results achieved. Please refer to the [published Climate Action Reports](#) for more information on measures implemented over the past years.

5.1 Building Systems Help Desk

The 2023 Climate Action Report details the board's successes in managing energy use, including the establishment of the Building Systems Help Desk, its results in achieving significant energy savings, and plans for its expansion to more TDSB schools. The Building Systems Help Desk initiative was introduced in the 2021 Climate Action Report, with a planned gradual rollout. The Help Desk provides real-time, technical support to caretakers on the operations of their school's mechanical and electrical systems. Caretakers can contact the Help Desk during normal school operating hours with questions or concerns. The Building Systems Help Desk also identifies equipment performance issues so that repairs can be completed quickly and efficiently. Caretakers in need of additional training are guided on how to seek support. The pilot rollout of the Help Desk included an onboarding process for schools that facilitated Facility Team Leaders (FTLs) and caretakers working together to establish site-specific schedules for the operation of mechanical equipment. Schedules were customized for each building based on the configuration of the building systems, occupancy (including weekends and holidays), permits, and the cleaning routines of Caretakers.

Energy Analysts support the Help Desk by closely monitoring building energy consumption to identify unexpected increases in energy consumption, investigate causes, and pinpoint solutions with the goal of eliminating unnecessary emissions. Energy Analysts follow up with caretakers and Facility Team Leaders when issues are identified.

In 2022-2023, a video was created to showcase and introduce staff to the new Building Systems Help Desk.

6. Renewable energy generation and other technologies

6.1 Solar photovoltaics (PV)⁴

The TDSB began investing in renewable energy technologies in 2010, with a particular focus on the installation of solar PV systems on school rooftops. The TDSB has a total installed capacity of approximately 38 megawatts (MW) on 358 buildings.

⁴ Source: <https://www.tdsb.on.ca/environment/Home/Environmental-Leadership/Solar-Schools>

- The first systems were installed by the TDSB on 10 schools. The TDSB has a contract to sell this electricity to the Independent Electricity System Operator, projected to earn a total of about \$3.4 million for the [Environmental Legacy Fund](#) over the duration of the 20-year contract.
- An agreement with Potentia Renewable Inc. saw a further 347 TDSB schools and buildings have solar PV systems installed on their rooftops. Overall, this program saw the installation of close to 148,000 solar panels.
- The Beach Community Energy Cooperative has 1 installation at Kew Beach PS.

These solar arrays on TDSB schools offset about 8,000 tonnes of CO₂ each year. The TDSB's solar panel installations are part of the [Feed-In Tariff \(FIT\)](#) program which encourages greater use of renewable energy sources including solar photovoltaic (PV).

In 2023, the solar arrays at TDSB's 347 schools generated over 40.6 million kWh of electricity.

On [its website](#), the Board provides access to monthly solar energy generation data from 347 buildings with Potentia solar panels, that were installed between 2014 and 2017. This data is updated periodically as the Board receives it from Potentia. The school communities and members of the public are encouraged to view or download the data for any of the buildings.

The Board also provides guidance to website users for calculating the energy generated at a Solar School, as well as the associated CO₂ emissions reductions. The guidance is geared towards students curious about their school's solar panels. Solar energy terms are provided with definitions and source links, as well as links to learn more about solar energy and greenhouse gas emissions. School staff and students can download or order a Solar School poster to promote their solar energy generation and carbon offset.

6.2 Other technologies

TDSB has one school (H J Alexander Community School) utilizing ground source heat pump (GSHP) technology. The following TDSB schools utilize water source heat pump (WSHP) technology: East York C.I., Elmlea JS, Northlea, West Humber JMS, York Humber HS, Owen PS, Brookhaven PS, and Portage Trail PS. The school board is exploring the possibility of air source heat pump technology in its schools. No TDSB schools employ solar thermal systems.

Part 3: The plan for the next 5 years (2024-2029)

Every year since 2021, following the directive from the Board of Trustees, TDSB sets out annual [Climate Action Plans](#). This 5-year ECDM plan will provide an overarching framework for the annual Action Plans and help guide the Board in achieving its overall conservation goals.

1. Future energy conservation goals

The Board has set out the following year on year energy intensity reduction conservation goals for the next five fiscal years.

Table 7 Annual energy intensity conservation goals

Annual Energy Intensity Conservation Goal	Fiscal Year 2023 to 2024	Fiscal Year 2024 to 2025	Fiscal Year 2025 to 2026	Fiscal Year 2026 to 2027	Fiscal Year 2027 to 2028
ekWh/ft ²	0.02	0.17	0.78	0.52	0.51
Percentage Decrease	0.10%	0.83%	3.89%	2.62%	2.57%

The following table shows the Board's cumulative energy intensity conservation goal for the next five fiscal years.

Table 8 Cumulative conservation goal

Cumulative Conservation Goal	Fiscal Year 2023 to 2024 through Fiscal Year 2027 to 2028
ekWh/ft ²	2
Percentage Decrease	10%

2. Energy efficiency measures

For the Board's relevant projects over the next five years, please refer to workbook **Calculating Energy Conservation Goals (FY2024 through FY2028) - TDSB**. Continuing and expanding our successful Building Systems Help Desk initiative will play a crucial role in supporting the implementation of these projects and achieving the Board's savings goals over the next 5 years. Our 2024 Climate Action Report will detail the Building Systems Help Desk's results and expansion plans.

3. Other information

3.1 Environmental programs

In Fiscal Year 2022 to 2023, schools within the Board participated in environmental programs such as EcoSchools. As detailed in the Board's [2023 Climate Action Plan](#), 134 TDSB schools and outdoor education centres EcoSchools-certified in 2022/23, with 51% achieving Platinum certification. The board has an [EcoSchools portal on its website](#) to assist schools in achieving certification.

3.2 Energy efficiency incentives

The Board applies to incentive programs to support the implementation of energy efficient projects on a regular basis and maintains close working relationships with IESO and Enbridge representatives to assist in maximizing available funding.

3.3 Energy procurement

The Board participates in the Ontario Educational Cooperative Marketplace (OECM) electricity procurement consortium. The Board procures its natural gas from AECO futures market by RFP, in consultation with independent natural gas procurement professionals.

3.4 Demand management

The Board uses invoices, real-time data, and online data from Toronto Hydro to monitor electrical Demand. The board uses equipment scheduling, phased/staged use of equipment, and demand-limit equipment to reduce electrical demand in its facilities.

4 Organization role and impact

From experience, we know that organizational alignment and engagement are essential for successful execution of energy efficiency initiatives. With its unique challenges of size, range of building ages, asset renewal backlog, and fluctuating school populations, TDSB has developed robust organizational structures to address these challenges. The board's senior management is fully supportive of energy and emissions efforts balanced with cost efficiency. Engagement across the board has included advisory bodies such as:

- Environmental Sustainability Community Advisory Committee
- Joint Management–Labour Environment Committee

For implementation and capacity building, the team has developed a process where the board is divided into Learning Centres – groups of schools serviced by a maintenance and operational improvement program. The Learning Centres are supported by our new Building Systems Help Desk initiative, which provides technical knowledge and training for building facilities staff. After the successful pilot launch of the Help Desk, the initiative will be expanded to more TDSB schools. Implementation of this plan will roll out through this structure and will require additional resources, including staff and service contractors, which are included in the ECDM Plan budgeted costs.

The board actively seeks out opportunities to incorporate new technologies and strategies. We are participating in the Enbridge Pay for Performance pilot incentive program, testing new approaches to refining operations, reducing natural gas and emissions, and receiving incentives for cubic meters of gas saved.