

DATE: October 22, 2024

TO: Board of Trustees

FROM: Darrel Robertson, Superintendent of Schools

SUBJECT: Division Energy and Environment Strategy Update

ORIGINATOR: Cliff Richard, Chief Infrastructure and Technology Officer

RESOURCE STAFF: Darryl Kaminski, Maegan Lukian, Coreen Moccia, Christopher Wright

REFERENCE: [Division Energy and Environment Strategy 2023–2026](#)

ISSUE

The Division’s Energy and Environment Strategy guides work related to environmental stewardship through continual improvement and modeling best sustainability practices. An important pillar of this work is the City of Edmonton’s [Corporate Climate Leaders Program](#) (CCLP), a program to support member organizations in reducing greenhouse gas (GHG) emissions and increasing climate resiliency.

BACKGROUND

In 2021, the Board of Trustees approved a [motion](#) supporting the Division’s membership in the CCLP and in 2023, approved a [recommendation](#) to set emissions reduction targets of five per cent by 2025, and 45 per cent by 2035. Administration worked with expert consultants to develop an action plan to achieve the targets, and provides updates to the Board of Trustees on a range of sustainability initiatives conducted across the Division as well as progress made in relation to the overall reduction targets.

CURRENT SITUATION

Status of 2023 Action Items

Below is a summary of the progress made on the 2023 action items outlined in the Division Energy and Environment Strategy 2023–2026.

- Establish greenhouse gas (GHG) emissions reduction targets for 2025 and 2035 and share those targets publicly.
 - This work was completed in 2022 and in spring of 2023 the targets were shared at public Board and unanimously approved by the Board of Trustees.
 - Following that meeting, the targets were formally shared with the City of Edmonton to satisfy CCLP program requirements.
- Increase awareness of the CCLP and enhance the profile of environmental initiatives on the Division’s website.
 - Emissions reduction [targets](#) and [solar](#) news stories were shared on the Division website, highlighting the program and the Division’s Energy and Environment Strategy.
 - EcoSchools content and sub-pages (Initiatives and Events) were added to [epsb.ca](#).
 - Numerous social media posts were shared to update the general public throughout the year, including Elmwood School’s gardener in residence, the Division’s technology refurbishing

- and recycling program, the Division’s organics recycling pilot, the Lights Out campaign for Earth Day, as well as Division solar stats for Solar Appreciation Day.
- Additionally, Division Communications coordinated media pitches that resulted in coverage of the Elmwood School gardener-in-residence program and Riverdale School Earth Day activities.
 - Test and finalize the Environmental Dashboard and lead an internal Division-wide launch.
 - The finalized Division Environmental Dashboard was completed in 2023, giving staff access to summarized environmental and utility information as well as a Division solar map using an engaging and intuitive interface (additional details and images are noted below, see Upgraded Environmental Dashboard).
 - Colour-coded charts show data from a Division view or individual school view.
 - Work continued throughout the year to collect feedback on the resource from school leaders through Energy and Environment Principal Committee meetings.
 - Consider intentional ways in which closed school buildings can be divested, ensuring that community voice is heard and that public lands are used for public benefit.
 - The Division’s closed building inventory accounts for 4.5 per cent of the Division’s total carbon footprint.
 - Included within the Division Energy and Environmental Strategy is recognition of the benefit of divesting of non-operational school sites as part of a comprehensive strategy for reducing the Division’s carbon footprint.
 - In support of the Division Energy and Environmental Strategy, the following closed school surplus recommendations were approved by the Board of Trustees:
 - Mount Royal
 - Montrose
 - Rundle
 - Lawton
 - R. J. Scott
 - Queen Mary
 - These six sites are currently proceeding through the formal disposition process and once the titles of these facilities have been transferred, the Division will realize the benefit of a reduction to the Division’s emissions and carbon footprint.
 - In addition to the recent surplus declarations, in December 2023, the Board of Trustees approved the disposition of the Sherwood School site which was transferred to Conseil scolaire Centre-Nord in the spring of 2024.
 - Review the feasibility of purchasing electricity from renewable sources, such as solar and wind farms (includes exploration of the “consortium” opportunity described in the main report).
 - Administration explored the consortium model for purchasing renewable energy and determined that strategy was not the right fit for the Division at the time.
 - Edmonton Public Schools initiated work with an energy procurement consultant whose scope of work includes advising on processes that aid in purchase of green energy. This is detailed further in the Additional Initiatives for the 2023–2024 School Year section.
 - Target approximately 40 to 50 per cent of Infrastructure Maintenance and Renewal (IMR) and Capital Maintenance and Renewal (CMR) funds toward energy efficiency and sustainable operations.
 - With the priority for IMR and CMR funding being deferred maintenance, energy efficiency is incorporated into planned work to help achieve the Division’s sustainable priorities. The target for 40 to 50 per cent of IMR and CMR funds toward energy efficiency and sustainable operations was achieved and will persist into the future.

- Control systems were replaced in 12 schools, allowing for improved overall system efficiency and optimized energy use. This leads to reduced energy consumption, which directly lowers carbon emissions associated with both natural gas consumption and grid-based electricity generation.
- High efficiency boiler upgrade-replacements were completed in five schools (Coronation, Laurier Heights, Hillview, Malmo and Sweet Grass). The higher efficiency translates to less energy waste per unit of heat produced (lower carbon emissions per unit of heat).
- An air handling system upgrade was completed at McKee School, resulting in optimized airflow within the building, reducing the energy needed for heating and cooling.
- Window replacements were completed at six schools (Jasper Place, Gold Bar, Scott Robertson, Satoo, Overlanders and Ellerslie schools) and are in design at the Academy at King Edward. Improving the insulating properties of a building's 'envelope' leads to reduced energy consumption, which directly lowers carbon emissions associated with both natural gas consumption and grid-based electricity generation.
- Roofing replacements were completed at three schools (Vernon Barford, Overlanders and Queen Elizabeth) and shingles were replaced at Jackson Heights school.
- LED lighting upgrades were completed at seven schools (Malcolm Tweddle, Calder, Mary Butterworth, Waverley, Parkview, Killarney and Laurier Heights).
- Continue to collaborate with external industry experts and consultants to develop a more robust framework for reporting carbon footprint implications represented by individual maintenance and renewal projects.
 - Administration assessed the feasibility of more granular reporting on individual buildings and specific projects and found that it is feasible with a strategic approach; however, there are additional costs associated with more detailed reporting.
 - Capturing the 'before and after' specifications of small retrofit projects has allowed the EnviroMatters team to conduct high-level energy and carbon reduction calculations which could be leveraged on future, larger projects.
 - In coming years, the Division can investigate what projects most benefit from a granular level of carbon reporting and initiate where needed.
- Develop recommendations, funding strategies and possible school locations for future phases of the Division Solar Strategy.
 - Phase Two, consisting of 12 schools and 2900 kilowatts (kW) of solar modules, was completed in early 2023.
 - Investigation into Phase Three was completed, narrowing site selection down to two more potential school sites (additional details are noted below, see 'capital investment on energy efficiency').
 - Site lists will be further developed and funding strategies further explored if and as the Division considers future phases.
 - Work has begun to develop a more comprehensive renewables strategy, including green energy procurement and heat pump studies, with the goal of piloting preferred systems.
- Investigate the feasibility of an electric bus pilot project.
 - A Request for Information (RFI) was released in spring 2024 and Student Transportation is coordinating electric bus demonstrations with carriers to better understand how the technology could be utilized within the Student Transportation system.
 - Further details on how themes submitted in the RFI are incorporated into Student Transportation's upcoming procurement for yellow bus service will be available in the department's annual operations update later this fall.

- Review the feasibility of greening procurement practices which would require external vendors to contribute to Division emissions reduction goals.
 - Infrastructure worked with Purchasing and Contract Services to send a notification to existing vendors through the Bonfire eProcurement platform regarding Division carbon reduction efforts and how they can contribute to achieving them.
 - The notice outlined CCLP goals and that vendor commitments may be required on future requests for proposals.
 - Division units with large procurement functions, such as the Distribution Center and Information Technology Store, have also been engaged.
 - This work is ongoing and will be built upon in coming years, including the possibility of updating boilerplate terms and conditions used with vendors to include Division reduction targets.

Additional Initiatives for the 2023–2024 School Year

In addition to the 2023 action items identified within the Energy and Environment Strategy that were addressed during the 2023–2024 school year, a number of other initiatives were undertaken in order to further the Division’s efforts to reduce emissions:

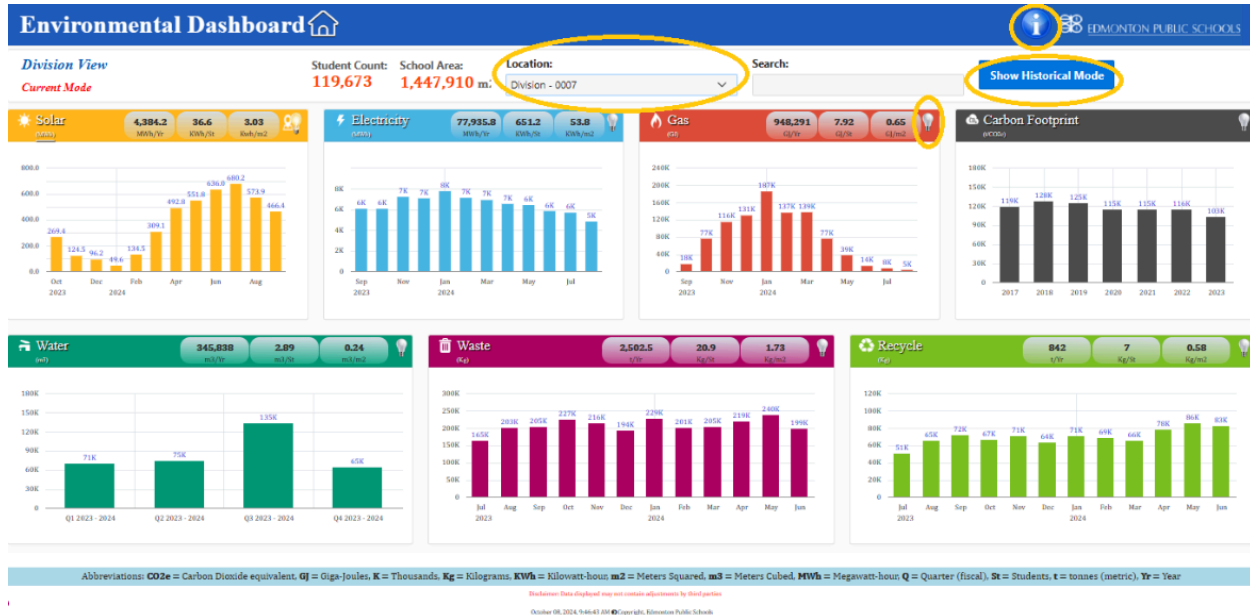
- Capital investment on energy efficiency
 - In spring 2023, the Board of Trustees approved a [\\$2 million capital investment](#) on energy efficiency and all of these funds have been allocated to standard design fees and project completion and not to consultant reports. Work included in this initiative, scheduled to be completed during the 2024–2025 school year, includes:
 - Detailed planning for the Phase Three solar installation has been completed for a combined 378 kW on W. P. Wagner and Londonderry schools. These sites have been chosen for their unique characteristics that will help improve payback and are estimated to generate 367,000 kWh/year, equivalent to the electrical consumption of 52 Alberta homes. Installation of the solar panels is anticipated to be completed in early spring 2025.
 - LED lighting retrofits are complete at Parkview School (754 tubes and fixtures saving an estimated 96,000 kWh, or \$17,000, per year) and are in progress for John D. Bracco, Hazeldean and Riverbend (with similar savings estimated for those three sites).
 - Re-commissioning of building systems on approximately 12 schools and retro-commissioning on up to five older schools to improve energy efficiency has been initiated. This work optimizes systems, resulting in reduced emissions and extended building system lifespans.
 - Leveraging artificial intelligence to optimize heating/cooling systems on up to four schools has been initiated. Through an analysis of building thermal mass, near-term weather forecasts and sensor data, the technology can alter equipment setpoints frequently resulting in reduced energy consumption.
 - Water cooler energy conservation measures have been installed at Hardisty school. Lessons learned from using simple digital timers on water chillers will inform the possible expansion of the initiative at other schools.
- Energy savings (targeted energy reduction and behavior change strategy)
 - Infrastructure worked with expert consultants to identify recommended operational and behaviour change initiatives to achieve targeted energy reductions. Two main pathways for behavior change were recommended: awareness initiatives and best practices.

- In the 2023–2024 school year, the immediate priority was to enhance energy awareness in the Division and develop standards of practice around efficiency and plug-load use to reduce consumption on an annual basis and especially over holiday periods.
- Several resources have been developed for staff and students, including behavior change checklists, plug-load information sheets and Digital Conversation Cards, with plans to release them for use in the Division this school year.
- Expansion of the EcoSchools program
 - The 2023–2024 school year was the most successful year in the program to date, with 11 Division schools being certified, up from three certifications in the previous year.
 - Certifications received:
 - Greenfield, Hillcrest, Elmwood and W. P. Wagner schools each received Platinum.
 - Aleda Patterson, Patricia Heights and Brander Gardens schools each received Gold.
 - Mary Butterworth school received Silver.
 - Highlands, Sweet Grass and the Academy at King Edward (Victoria Site) each received Bronze.
 - This year, 14 schools were awarded as participants, up from four awarded participants the previous year.
 - Registrations in the program nearly tripled, from 16 schools registered in spring 2023 to over 45 schools registered in spring 2024, surpassing the goal to double the number of schools that signed up.
 - The success of the EcoSchools communications and engagement strategy is highlighted by the fact that 84 per cent of schools with active plans were new to the program; the remaining 16 per cent of schools with plans had participated in previous years.
 - In June, the Division signed up to pilot the new [EcoSchools Board Program](#), which will offer a suite of supports and resources for school jurisdictions across Canada.
- Further explore the purchase of low carbon electricity
 - Work has progressed to adjust the Division’s electricity procurement methodology (decoupling conventional retail billing services from tranches of electricity hedges) in order to reduce risk and cost while laying the groundwork for future purchases of low carbon electricity.
 - As the amount of green electricity produced within the province continues to [grow](#) and as prices relative to non-renewable electricity become more affordable, the Division anticipates procuring tranches of green electricity to further reduce the Division’s Scope 2 emissions and carbon footprint.
- Staff and student engagement
 - Student Senate
 - The EnviroMatters office presented to the Student Senate in the fall of 2023 about Edmonton Public Schools’ sustainable initiatives in an effort to raise awareness about how students can contribute to Division emissions reduction targets through EcoSchools and other activities.
 - This is ongoing work, with a goal to engage with the Student Senate on an annual basis.
 - Principal engagement and support for schools
 - Introductory presentations and engagement were provided to the Infrastructure Principal Committee in March 2023 and at the Superintendent's Community of Practice in Education (SCOPE) in April 2023.
 - A new Division Energy and Environment Principal Advisory Committee was formed to specifically address this work and allow for ongoing engagement. In the

2023–2024 school year, four meetings were held to gain valuable feedback on initiatives and help shape school resources.

- 16 schools participated in the committee (nine elementary schools, two elementary-junior high schools, two junior high schools, two senior high schools and one school representing outreach programs).
 - Topics discussed included the Division Energy and Environment Strategy, the Division Environmental Dashboard, the EcoSchools certification program, Division behavior change study and initiatives, capital investments toward energy efficiency, and raising awareness through communications strategies.
 - Integrated Infrastructure Services (IIS) project and maintenance staff engagement:
 - The EnviroMatters Office held an information and engagement session at the annual IIS professional development day in spring 2024, with the goal of engaging IIS staff in a meaningful way. Information sharing and collecting feedback supports a shared ‘sustainability’ lens among maintenance staff groups as they work in schools.
 - Feedback was collected around what actions staff are capable of participating in, how best to empower staff to take the opportunity for change and what are the most effective motivators for change.
 - General feedback themes included efficiency and resource conservation, training and education, as well as automation and equipment schedules.
 - The goal is to compile feedback into effective resources and tools for staff around behavior change. Professional development and engagement sessions will be continued annually.
- Expanded sorting station and organics pilot
 - In spring 2024, organics collection bins were placed in eight schools and seven administration sites.
 - Standardized sorting stations were placed in all pilot sites that did not have existing systems, to keep waste sorting options and messaging consistent across all pilot sites.
 - From April to June, over 25 tonnes of organic waste was diverted from the landfill (this equates to approximately 465 household 120-litre garbage bins).
 - Nearly all pilot sites saw an increase in waste diversion rates from Q1 (before the pilot started) to Q2 (after the pilot started).
 - Some notable achievements at administration sites, three months after adding organics collection to existing sorting stations:
 - Bennett Centre waste diversion rates increased from 17 per cent to 46 per cent.
 - Distribution Centre waste diversion rates increased from 28 per cent to 47 per cent.
 - Centre for Education diversion rates increased from nine per cent to 25 per cent.
 - IIS (maintenance building) diversion rates increased from seven per cent to 30 per cent.
 - Some notable achievements at school sites, three months after adding sorting stations and organics collection:
 - W. P. Wagner school diversion rates increased from nine per cent to 32 per cent.
 - Ellerslie Campus diversion rates increased from seven per cent to 49 per cent (the largest increase in waste diversion rates out of all the pilot sites).

- Electronics recycling and resale
 - In 2023, the Division’s electronics recycling and reuse program resulted in over 210,000 pounds of recovered resources from recycling and over 2,000 IT assets reused within the Division.
 - Program expansion led to battery collection from Division sites for recycling.
 - In 2023, the Division benefitted from a rebate of over \$50,000 from electronics resales, re-invested into classroom technology.
- Energy Star initiatives
 - Work began to investigate current and upcoming Division contracts for the procurement of large appliances, in an effort to prioritize Energy Star rated appliances for purchase in the Division.
 - Technology and Information Management (TIM) considers efficiency in the purchase of equipment and prioritizes Energy Star rated computer equipment and monitors.
- Funding and grant opportunities
 - The Division applied to the Federal Low Carbon Economy Challenge grant to reduce carbon emissions via major building envelope improvements at Grovenor, Donnan and Inglewood schools.
 - Although the application was unsuccessful, the design work was leveraged in the 2025–2027 CMR plan submitted to the province in August 2024 and Division Infrastructure hopes to proceed with these projects if future-year CMR funding is sufficient.
 - The Division completed an Expression of Interest (EOI) for the Alberta EcoTrust Environmental Impact grant to study potential heat pump retrofit carbon reductions in multiple building types.
 - The EOI was unsuccessful; however, the potential of this work has led the Division to commit to self-funding a study with a portion of the Division approved [Accumulated Operating Surplus \(AOS\) Plan](#) funds identified for energy efficiency capital investments. The study could support the Division in pursuing a new potential funding stream, the Alberta EcoTrust Retrofit Accelerator, which could help bridge the gap between the study and a future Deep Energy Retrofit pilot.
- Upgraded Environmental Dashboard
 - Following the release of the Environmental Dashboard to Division staff, a 2.0 version with expanded features and tools was released in early 2024 based on feedback received from Principal Committee members and internal stakeholders.
 - New features (pictured below) include a permanent ‘Information’ button to describe all major features, a Historical Mode that can display utility data going back to 2019, a refreshed alphabetical location list of buildings, and new “Did You Know?” light bulbs that display environmental tips and facts.



Upcoming initiatives for the 2024–2025 School Year

Outlined below is a brief summary of some of the key initiatives from the Division emissions reduction plan that are in planning to be completed during the current school year:

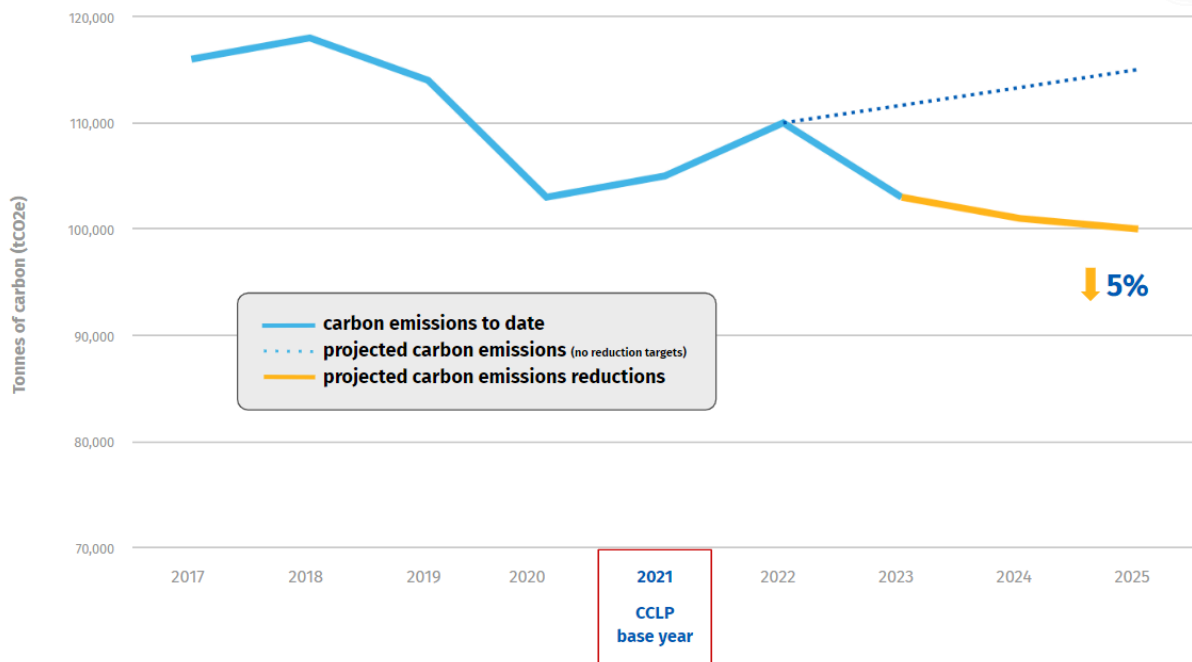
- Maximize the EcoSchools program with a goal to see over 15 schools certified in the 2024–2025 school year and 60 schools registered for the program in total.
- Purchase low carbon electricity to help meet our 2025 emissions reduction target.
- Initiate efforts to align the Division Capital Plan with emissions reductions and decarbonization strategies, including developing sustainability metrics, where possible, to integrate into planning systems.
- Continue to target 40-50 per cent of IMR and CMR funds toward energy efficiency:
 - Targeted CMR funding will span across 23 sites, including upgrades to windows (approximately \$1 million), lighting (approximately \$1.5 million), roofing design and new roofing (approximately \$1 million), and boiler design and upgrades (approximately \$1.2 million).
 - IMR funding includes roofing design and replacement (approximately \$1.6 million across four schools), new window installations (approximately \$300,000 across three schools), lighting upgrades (approximately \$350,000 across four schools), boiler and HVAC upgrades (approximately \$450,000 across four schools), and mechanical controls (approximately \$300,000 across nine schools).
- Conduct a maintenance vehicle fleet fuel review for possible efficiencies, including investigating routing efficiencies, GPS, scheduling, electric vehicle infrastructure and costs, and setting targets for fuel consumption reductions.
- Expand work on the targeted energy reduction and behavior change strategy to build on awareness initiatives and best practices, including:
 - Conducting an energy behavior audit to develop a baseline and overarching picture of the range of energy efficiency behaviors in place.
 - Gamification (adding game-like elements, contests and competitions to tasks) to motivate energy efficiency behavior.

- Exploring a reduced impact procurement strategy to build on the commitment to using environmentally-responsible vendors and encouraging sustainable practices.
- Set energy savings targets through the year and over holiday periods by utilizing the Division Environmental Dashboard and other resources to identify high consuming sites, investigate causes and develop solutions.
- Investigate a strategic organics program expansion that focuses on Division sites that produce the highest levels of organic waste (sites with cafeterias and CTS/foods programs, etc.) to maximize diversion rates.
- Utilize Division approved AOS Plan funds of \$500,000 for the following work:
 - Conduct administration site and school Level 2 energy audits.
 - Work with expert consultants on a Division heat pump study.
- Continued exploration of available municipal, provincial and federal grants to support emissions reductions work.

Annual Carbon Footprint Findings

Edmonton Public Schools’ 2023 carbon footprint represents a continuing improvement against both last year and the year the Division started annual reporting in 2017. Total emissions recorded a positive six per cent reduction compared with 2022.

The graph below highlights the Division emissions footprint from 2017 to 2023. Totals are rounded to the nearest whole number and are subject to annual recalculations, which can impact previous years (including base years) due to improvements in data collection, changed emission factors or calculation methodologies and identification of additional emissions sources. For CCLP target setting, the baseline year set was 2021 and total emissions have decreased by approximately two per cent from the base year of 2021 to 2023. Over time, emissions are trending downward despite increased student numbers and increased area utilized.



In general, emissions reductions in 2023 can be attributed mostly to a decrease in equipment fuel (natural gas) due to a mild winter. However, contributing factors also include increased solar generation and ongoing energy efficiency measures. It is important to note that there may be annual fluctuations in Division emissions from year to year due to weather or necessary recalculations. However, the goal is to see a long-term overall trend downwards in emissions and efforts to achieve emissions reductions in the specified target years of 2025 and 2035, regardless of fluctuations from year to year.

Edmonton Public Schools is a member of the [Instep Carbon and Sustainability Programme](#) in order to support efforts to track emissions reductions accurately. The Division has received an Instep Gold certification status for emissions reductions achieved in 2023. The Division is on track to achieve the first target of five per cent emissions reductions by 2025 and will continue to build momentum leading up to the target year to ensure success.

Communications Strategy

Many of the strategies around emissions reductions require a shift in perspective and behavior change for nearly 10,000 staff employed by the Division.

Over the 2023–2024 school year, the Communications department focused on educating, and building momentum and excitement among staff about sustainable practices. Some key campaigns that were part of the communications strategy include:

- Supporting the push to increase EcoSchools participation.
- Updating the EnviroMatters office internal Connect page as a central hub for the Division’s energy and environment work.
- Creating a regular storytelling feature to shine the light on staff and students who are doing interesting work or inspiring others to reduce their carbon footprint.
- Supporting work to launch the Environmental Dashboard.
- Developing resource materials and communications to support the sorting station and organics collection pilot.
- Coordinating social media campaigns and media pitches to showcase sustainable initiatives in the Division, both centrally and in schools.

KEY POINTS

- All 2023 action items outlined in the Division Energy and Environment Strategy have been completed.
- Additional action items and goals for the 2023–2024 school year have been completed or are in progress, to be completed by the end of the 2024 calendar year or by early 2025.
- Planning and implementation of the 2024–2025 school year action items and goals has begun and updates on these items will be provided in the next Energy and Environment Strategy update report.
- Division emissions in 2023 experienced a positive reduction of six per cent compared to 2022.
- Division emissions were reduced by two per cent from the CCLP base year of 2021 to 2023.
- The Division is on track to achieve the target of a five per cent reduction in emissions by 2025.
- Communicating achievements and news stories throughout the year has been successful, with positive feedback and engagement from staff and the public.

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