ERIE **2030** DISTRICT

2023 ANNUAL PROGRESS REPORT

Green Building Alliance

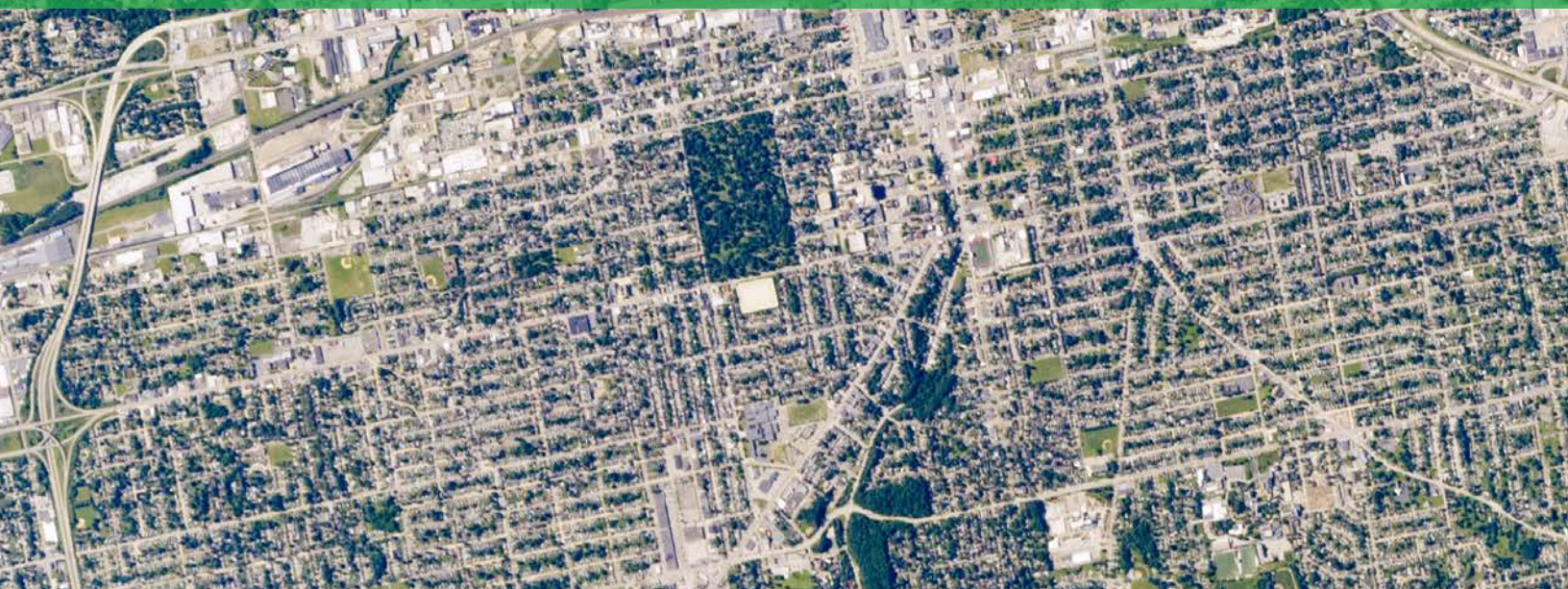
PUBLISHED AUGUST 2024

Photo credit: Andre Carrotflower

Photo credit: ISS Crew Earth Observations Facility and the Earth Science and Remote Sensing Unit, Johnson Space Center

Statement of land acknowledgement

We recognize that the City of Erie and many of the 2030 District properties occupy the historic land of the Erie people.[1] We honor the past, present, and future people, community, and culture of the Erie people and express our gratitude for this land as we work to respect and care for it.



BUILDING RESILIENCE FOR ERIE'S FUTURE

2023 was in many ways a glimpse of Erie's future climate. Hotter temperatures led to a record absence of snowfall and drastically decreased the amount of ice on Lake Erie – the lowest ever seen since NOAA started recording ice levels in 1973.[2,3] Erie is disproportionately affected by climate change. It's among the top 10 fastest-warming US cities – its average annual temperature has increased 4.6˚F since 1970.[4] More heat means more heat-related illnesses; more disease-carrying mosquitos, ticks, and pests; and a longer pollen season – health effects we can expect to see in Erie in the upcoming decades.[5] Climate change causes economic and recreational impacts to natural assets like Presque Isle, which is highly susceptible to changing weather patterns that endanger its $1.2B tourism industry.[6] For instance, lake ice supports ice fishing, protects fish species, and protects shorelines from erosion, while higher temperatures encourage damaging algal blooms and reduce the amount of protective ice.[7]

Though the vision for our future is scary, we can prevent the worst from happening. Tackling climate change and cutting carbon emissions can often feel overwhelming and impossible, but it doesn't have to be. If you have been changing lights to LEDs, upgrading your HVAC system, and improving your building performance, you are already making an impact.

You are not alone. The efforts you have made may feel isolated or insignificant, but when combined with the projects of your neighbors, the cumulative impacts multiply. For example, the City's Central Fire Station solar energy and battery storage resiliency project has not only inspired local neighbors but also cities across PA to consider opportunities in renewable energy and disaster preparedness and will reduce carbon emissions and energy costs throughout its lifespan. Each project you and others take to reduce energy usage and carbon emissions is helping Erie to be healthier and more economically competitive for years to come, and there has never been a better time for federal funding to do so.

The Inflation Reduction Act (IRA) of 2022 included substantial incentives for greenhouse gas emissions reduction and clean energy production. The IRA expands numerous tax credits to incentivize renewable energy production, carbon capture projects, electric vehicles, and building energy efficiency, and are available even for local governments and nonprofits.[8]

As a city in rebirth, Erie continues to make investments in repopulating offices and storefronts, improving housing, and reducing blight, but sustainability and resiliency are essential for these investments to be transformative for the region. Broad economic revitalization projects have begun to attract outside investors to Erie,[9] and companies increasingly value properties and renovations that prioritize sustainability at the beginning of design, when major layout and equipment decisions can still incorporate a resiliency mindset.

These approaches extend property life cycles, reduce long-term operating and maintenance costs, and offer a more attractive environment for tenants and visitors, all of which impact a building owner's bottom line. And with unprecedented funding resources available for energy efficiency and renewable energy projects, an economic development approach that deprioritizes sustainability goals is leaving money on the table.

If you, a neighbor, or business partner haven't yet started to address energy efficiency at your properties, reach out to us. We are here to help you every step of the way. If you have started, let's go even further. Lead the charge by electrifying your building. Put solar panels on your roof or sign a power purchase agreement with a renewable energy provider. Make improvements to your building envelope. Show your neighbors and your community how we can ensure a brighter future, together.

Join us.

Ashley DiGregorio
2030 District Senior Director

Paige Colao
Director of Strategy & Analysis

2023 DATA

17.5%
ENERGY REDUCTION

35.3%
CARBON EMISSIONS REDUCTION (INCLUDING RECs)

$4.2M
ANNUAL UTILITY COST SAVINGS

TOM RIDGE ENVIRONMENTAL CENTER

ERIE COUNTY PUBLIC SAFETY BUILDING

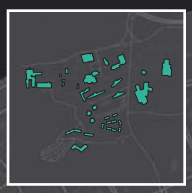
HERITAGE APARTMENTS

MERCYHURST UNIVERSITY

MOUNT SAINT BENEDICT

ERIE FOOD CO-OP

SISTERS OF ST. JOSEPH



PENN STATE BEHREND

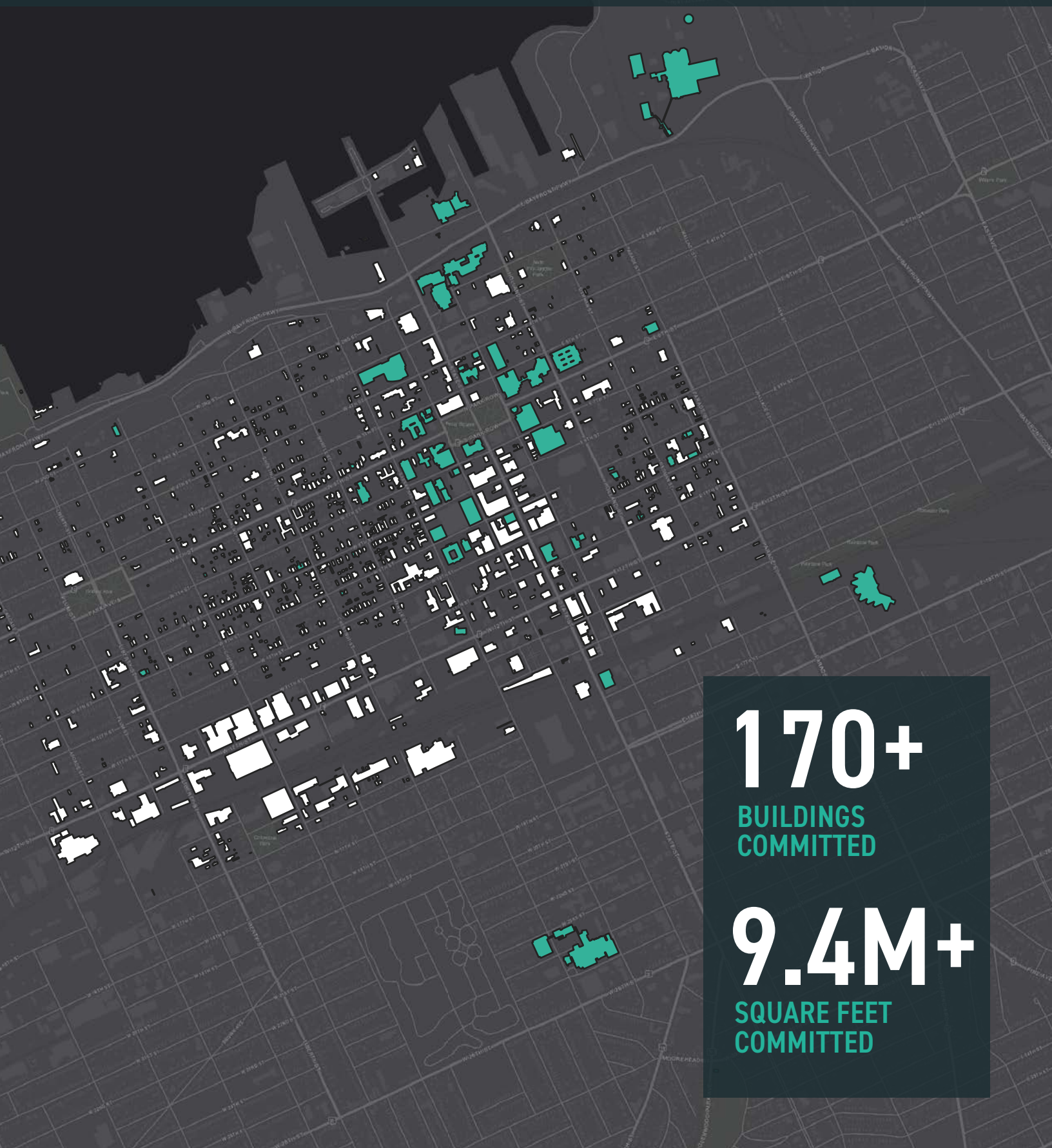
COMMITTED

NOT YET COMMITTED

30,500
METRIC TONS OF CO_2e EMISSIONS AVOIDED

CARBON REDUCTION EQUIVALENT TO
6 MILLION
CAR TRIPS AROUND PRESQUE ISLE STATE PARK

$17.6M
CUMULATIVE UTILITY COST SAVINGS



170+
BUILDINGS COMMITTED

9.4M+
SQUARE FEET COMMITTED

THE 2030 DISTRICTS NETWORK

A Community of High-Performance Buildings

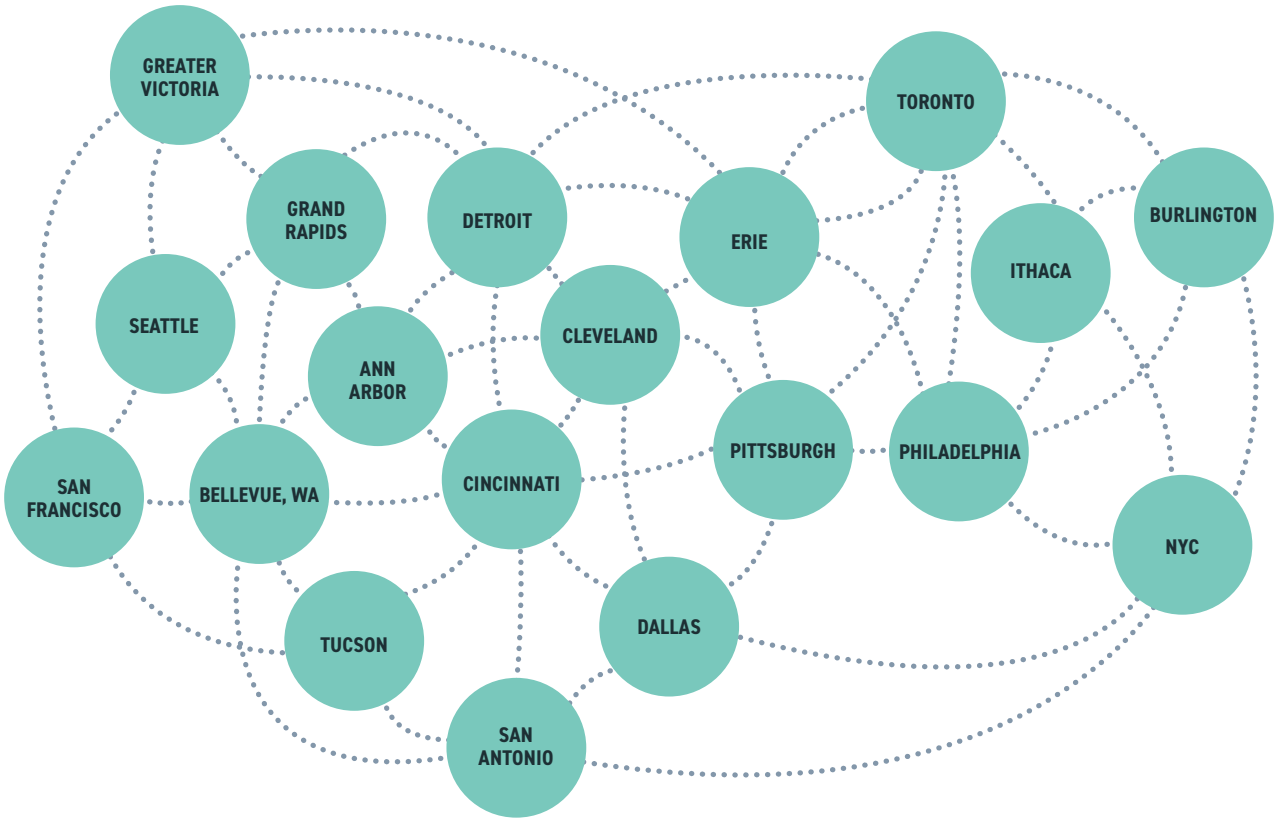
A strategic initiative of Green Building Alliance, the Erie 2030 District is creating a groundbreaking, high-performance building district through private-public collaboration. Committed Property Partners strive to make dramatic reductions in carbon emissions and energy use in their buildings.

To date, the Erie 2030 District comprises 20 Property Partners totaling 173 buildings and 9.4 million square feet. Through the 2030 District program, the Green Building Alliance team provides resources and technical assistance needed to manage, improve, and develop high-performance buildings. Partners can access a robust network of experts by leveraging Community and Resource Partners, Green Building Alliance members, and local building professionals. These actions keep Erie competitive and reflect the collaborative nature of our region.

A Network of Influence

As part of the 2030 Districts Network, Erie punches above its weight and joins the ranks of major cities such as NYC, Toronto, and Philadelphia, but with its own distinctive qualities. The Erie 2030 District represents a mid-sized city with a greater mix of property use types compared to its large metropolitan peers – differences that should be celebrated and replicated. Expanding 2030 Districts to places like Erie bolsters the local economy by providing education on energy efficiency practices and how to design new or retrofit existing buildings to make them highly efficient and high performing.

As a rust belt city, Erie has suffered from the economic downturn following the collapse of large American industrial manufacturing - but compared to some of its larger neighbors, Erie is uniquely positioned to capitalize on the benefits of Lake Erie to revitalize its economy. Utilizing funding from both private sources, foundations, and government grants, developers are looking to jumpstart redevelopment of Erie, bringing vibrancy back to the city center.



BEYOND 2030: ACCELERATING TO ZERO

According to the United Nations, building construction and operations account for 37% of energy–related carbon emissions.[10] The 2030 District Challenge aligns targets for reducing building–based carbon emissions with the United Nations 2030 Agenda for Sustainable Development.

The Erie 2030 District is a great example of how the built environment can work towards decarbonization and decrease the likelihood of devastating effects. The good news is that decarbonization efforts can not only reduce the negative impact of our building operations on global temperature rise, but also can simultaneously ensure that our buildings cost less to operate and are more adaptive and resilient to the changing temperatures and storm impacts we are seeing in our communities. The work of Property Partners in the Erie 2030 District is essential to improving our chances to reduce global warming and protect our building assets.

Accelerating to zero carbon calls for education, building electrification, increasing renewable energy, reducing embodied carbon, and advocating for carbon reduction incentives.

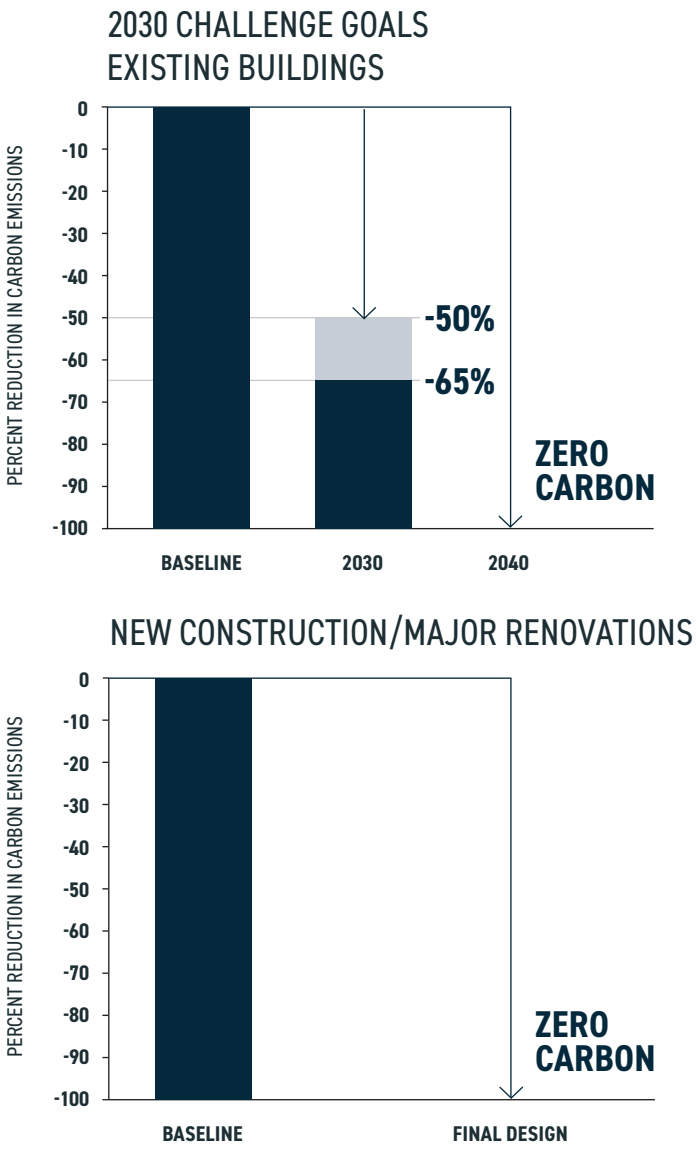


figure 1

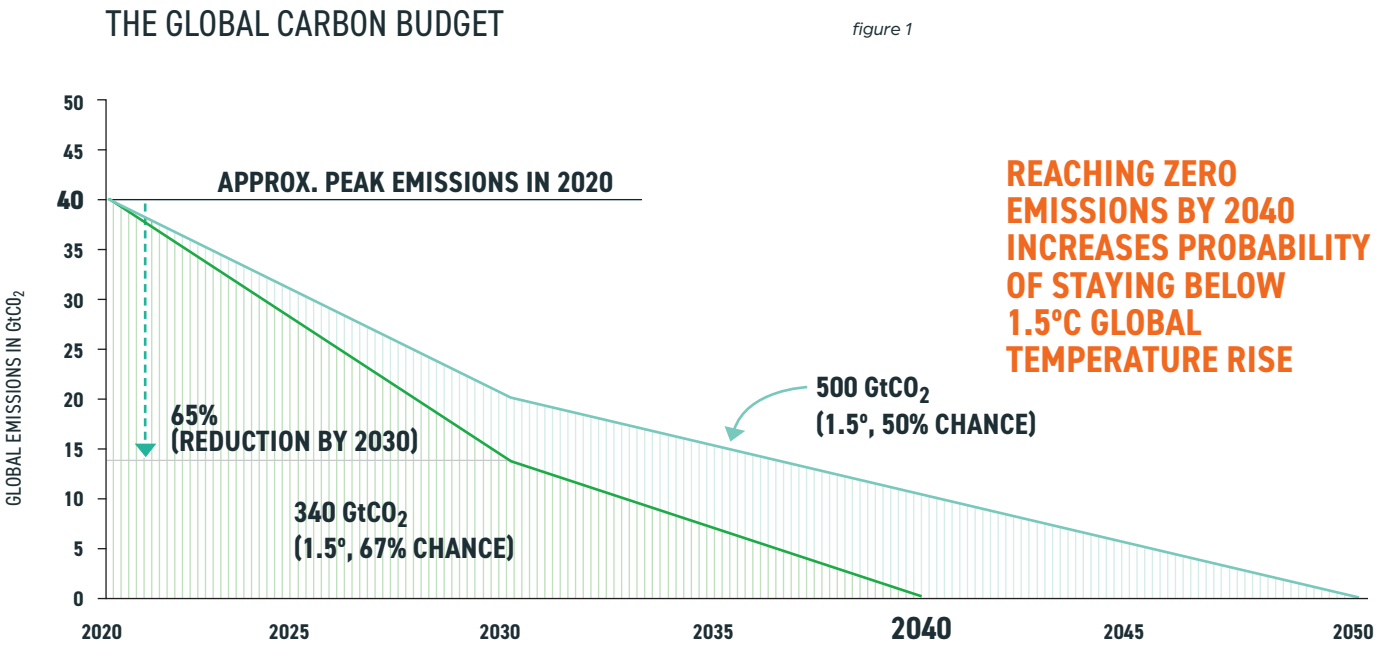


figure 2

Baseline & Performance Metrics

Determining a building's reduction in emissions and energy use requires an initial point of comparison, known as a baseline. Using the best available data, each building is assigned an initial baseline value, which considers various features depending on the metric. Unique use types, such as museums and stadiums have custom baselines referencing their historic performance.

	CARBON EMISSIONS	ENERGY
BASELINE TYPE	National Baseline	National Baseline
BASELINE SOURCE	2003 Commercial Building Energy Consumption Survey (CBECS)	2003 Commercial Building Energy Consumption Survey (CBECS)
BASELINE CONSIDERATIONS	• Climate zone • Building use type(s) • Occupancy • Weather	• Climate zone • Building use type(s) • Occupancy • Weather
IMPACT METRIC	Annual Emissions Intensity (EI)	Annual Energy Use Intensity (EUI)
MEASUREMENT UNITS	kg CO_2e/square foot/year	kBtu/square foot/year
TRACKING METHOD	ENERGY STAR Portfolio Manager	ENERGY STAR Portfolio Manager
REPORTING 2023 PERFORMANCE	69 buildings, 6.2 million square feet, 67% of total committed square feet	69 buildings, 6.2 million square feet, 67% of total committed square feet

table 1

CARBON EMISSIONS

Converting Energy to Carbon

With the exception of renewable energy, producing and using energy creates carbon emissions, and different types of energy have different emissions factors. ENERGY STAR Portfolio Manager tracks emissions by determining the amount of each fuel type used and multiplying it by a corresponding emissions factor.[11]

District Performance

2023 marks the third year that the Erie 2030 District measured carbon performance. While the size of the District has remained steady, this year we were able to include several partners that were not included in prior reports: Erie Insurance and Gannon University. Adding these two partners resulted in an additional 2 million square feet in the building analysis compared to last year's report.

The District showed consistently good performance in carbon emissions in 2023 at 35.3% below the baseline. While this is slightly worse than last year, it still reflects meaningful progress toward the 2030 goal of a 50–65% reduction. Renewable energy purchase and production continues to be an area for growth in the Erie 2030 District – it accounted for only a small fraction of a percent of the emissions reduction in 2023. We continue to encourage our partners to investigate renewable energy purchasing, whether through power purchase agreements or renewable energy credits (RECs). We look forward to several of our partners exploring renewable energy purchasing or producing renewable energy on-site in the coming years, especially with the favorable solar energy financing of tax credits from the Inflation Reduction Act covering up to 40% of project costs.[12]

2023 METRIC TONS CO_2e AVOIDED:

33,000

The Social Cost of Carbon Emissions

Carbon emissions include air pollutants that cause increased rates of asthma, respiratory illnesses, and heart disease. These toxins have direct costs for families, businesses, and governments. The 'social cost of carbon' is a measurement that accounts for these economic impacts by assigning a dollar value to each ton of carbon emitted.[13] Carbon reductions from Erie Property Partners resulted in $1.6M in related social cost savings in 2023.

2023 CARBON EMISSIONS REDUCTION EQUIVALENT TO

6 MILLION

CAR TRIPS AROUND PRESQUE ISLE STATE PARK

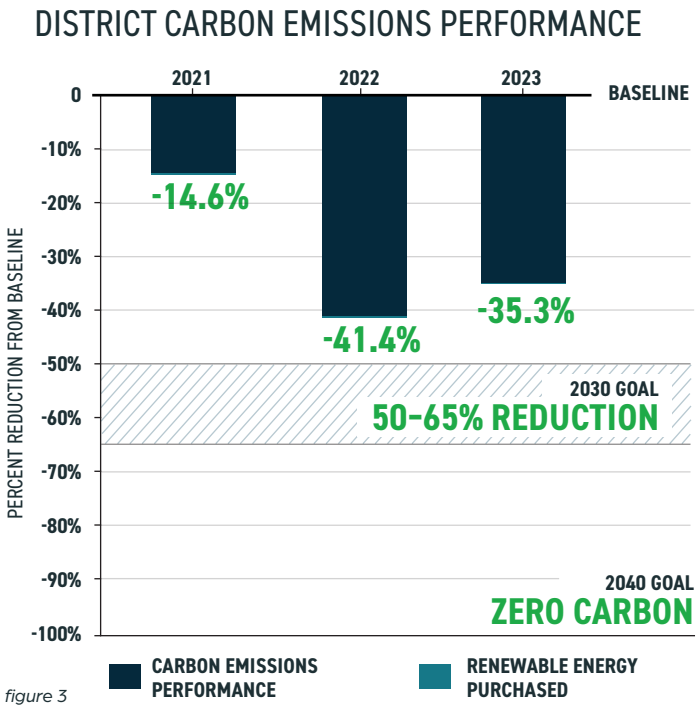


figure 3

ENERGY

District Performance

Energy performance improved slightly in 2023 to 17.5% below the baseline. With the major effects of COVID behind us, buildings have adapted to new occupancy schedules and operating hours. Nowhere is this more apparent than office buildings, which have seen substantial changes in occupancy due to hybrid work schedules. While energy performance stayed mostly steady from 2022 to 2023, Erie Insurance's campus of nearly 2 million square feet is a driver of the positive change in energy use.

Adapting Buildings for the Future

Erie is one of the fastest warming cities in the United States[14], and as we have already seen, the effects of this are hazardous. Air conditioning in Erie's buildings is becoming increasingly necessary. Air conditioner installation is becoming more common, bringing comfort but also higher energy use and energy costs.

In the case of older buildings, which are plentiful in Erie, energy costs can drastically increase as A/C is installed and electricity usage goes up. Many older buildings have poor building envelopes, including single paned windows, old roofs, and a lack of insulation. This leads to the loss of conditioned air and further drives up energy usage.

Combined with the fact that numerous partners have mentioned drastically increasing electricity prices, envelope upgrades are an essential strategy to increase comfort, efficiency, reliability, and cost savings. Upgrades can take a variety of forms: increasing building insulation, replacing windows with double or triple pane versions, or resealing door and window frames.

While envelope upgrades are expensive, they are a crucial step in significantly reducing energy use, especially natural gas, and ensuring the long-term performance of our buildings. Reducing the demand for natural gas usage in Erie has potential for high impact, since the number of heating degree days remains drastically higher in the area than cooling degree days. As we continue to adapt to changing regional needs for both heating and cooling, tightening building envelopes is a necessity to reduce leakage, usage rates, and costs, and ensure that building occupants will be comfortable as Erie's climate continues to change.

TOTAL ENERGY USE AVOIDED

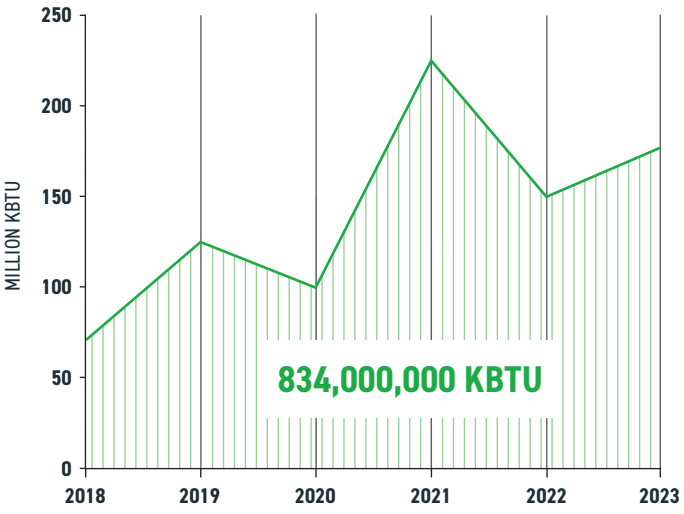


figure 4

2023 ENERGY COST SAVINGS:

$4.2M

CUMULATIVE ENERGY COST SAVINGS:

$17.6M

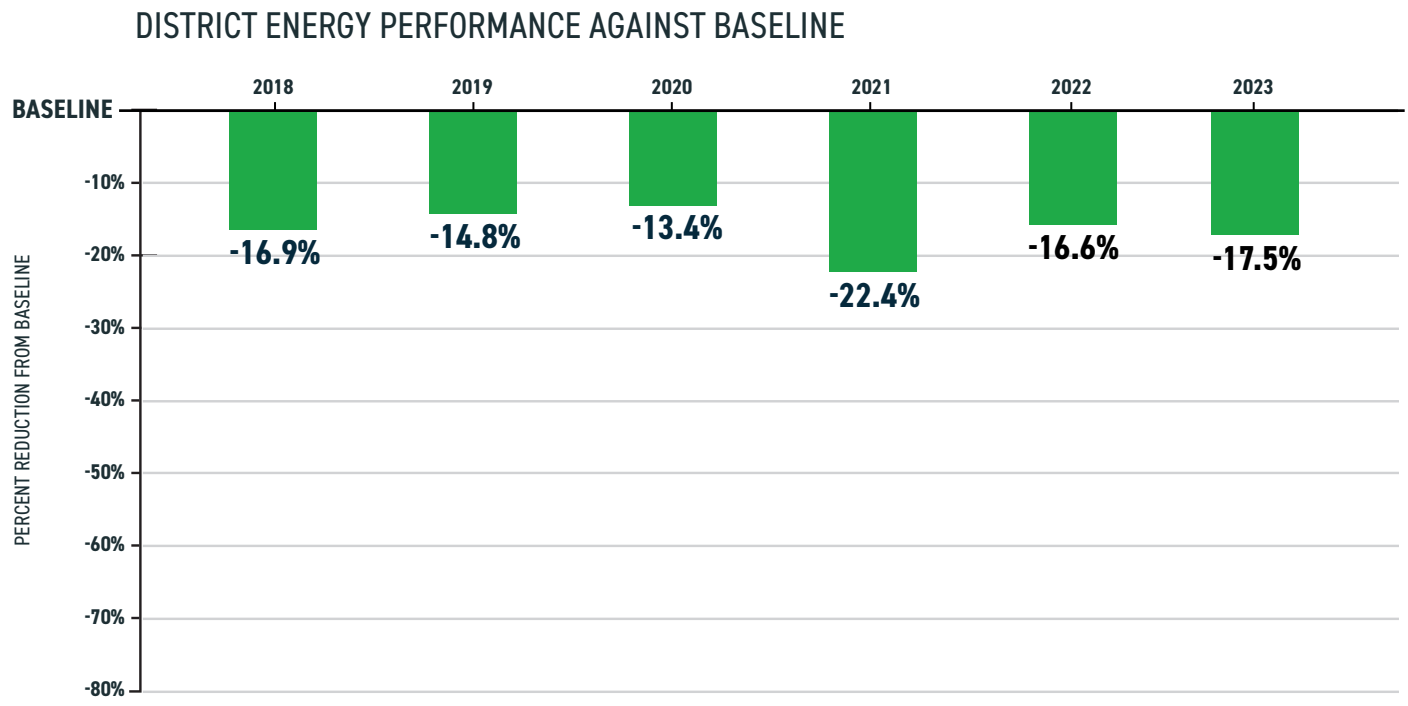


figure 5

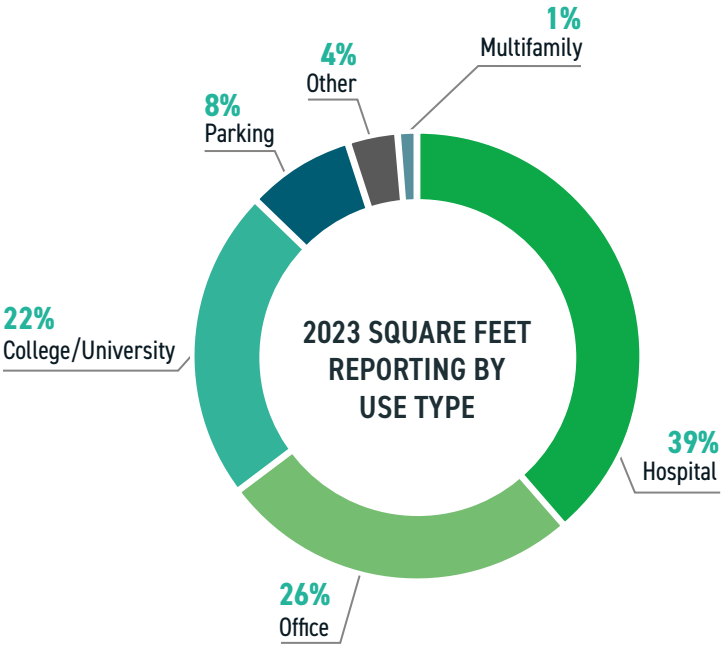


figure 6

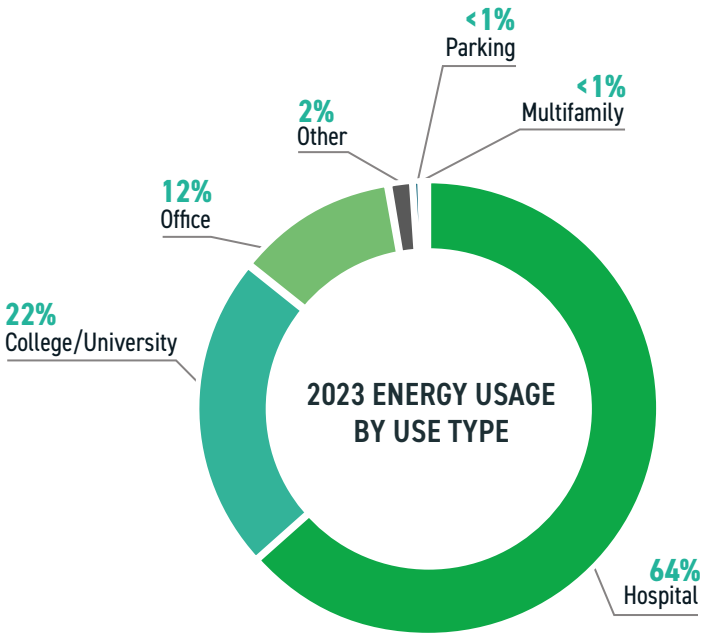


figure 7

CASE STUDY

Protecting Presque Isle State Park from the Impacts of Climate Change

Photo Credit: Visit Erie

Presque Isle's location on the shores of Lake Erie makes it uniquely vulnerable to the effects of climate change, since rising temperatures have an impact on storm severity, water conditions, flooding frequency, and harmful algal blooms.[15] The Department of Conservation and Natural Resources (DCNR) has been proactive on preparing public lands for the anticipated effects of climate change. Following their 2018 organization-wide climate change mitigation and adaptation plan, DCNR created a plan specific to Presque Isle in 2021. It outlines actions that park staff will take to adapt the park for anticipated effects of climate change, including shoreline erosion, changing water levels, and severe weather.

A major emphasis of the plan is strengthening shorelines, trails, and infrastructure against erosion and high water levels, allowing the park to continue functioning in changing weather patterns. Not all of the changes are structural—operational changes are a critical component: from improved weather monitoring and reporting to modified educational programming, the staff is expanding their capabilities and flexibility to respond to various situations. One element that was recently completed was an installation of a 280kW solar array, enough to power the whole park.[16] Aside from the environmental benefits, the solar array will allow park facilities to function in the event of grid failures.

Presque Isle's climate adaptation plan is a guiding example of how to prepare for climate change. Start with identifying how the anticipated effects of climate change will impact your building and use that information to strategize ways to protect it for the future.

Adaptation is a continuing process: incorporating future changes into your current long-term capital planning will set you up for a safer, more resilient building far into the future.

The Erie 2030 District program has provided Erie Insurance valuable information regarding building performance, tax incentives, carbon emissions, and sustainable opportunities that tie directly to our ESG initiative.

Erie Insurance is committed to being a responsible neighbor and business leader, and my team and I look forward to continuing our work with GBA in creating a more sustainable Erie.

Pat Feikles, FMA, RPA, CPMM
Vice President – Environmental Management & Energy / Corporate Service
Erie Insurance

JOIN THE ERIE 2030 DISTRICT

The Value of Community

The Erie 2030 District's success stems from its close-knit and dedicated network of partners and sponsors. In conjunction with the Pittsburgh 2030 District, Erie Partners are invited to regular meetings throughout the calendar year that feature presentations from technical experts, service providers, and building owners that showcase successful projects. These sessions are framed through a regional lens in which Partners share best practices and challenges with other local public and private organizations.

Become a Property, Community, or Resource Partner

Distinguish your organization or school district by joining Western Pennsylvania's most influential network of building owners and developers! Upon commitment to the 2030 Challenge goals, Property Partners gain access to a community of technical experts, service providers, and fellow building management professionals, as well as individualized property benchmarking and evaluation. Any new or existing developments in Western Pennsylvania are welcome to join.

Individual Building Performance Evaluations

GBA consults with Property Partners one-on-one to identify critical investments toward improving building performance and reducing utility costs. Partners receive a confidential annual performance report that analyzes their progress towards zero carbon, energy reductions, water reductions, and indoor air quality performance. These reports highlight Partners' current and former performance, while GBA staff provide context and ideas for specific building upgrades. Where possible, reports also compare a building's performance to similar, anonymous local buildings.

Property Partners

1001 State OZ Operator, LLC

Allegheny Health Network

Benedictine Sisters of Erie*

Cathedral of St. Paul

City of Erie

Emmaus Ministries Inc.

Erie Art Museum

Erie City Mission*

Erie County*

Erie Food Cooperative

Erie Insurance

Erie United Methodist Alliance

First Presbyterian Church of the Covenant

Gannon University

Mercyhurst University*

PA Department of Conservation and Natural Resources

PA Performing Artists Collective Alliance (PACA)

Penn State Behrend

Sisters of St. Joseph of Northwestern Pennsylvania*

UPMC Hamot*

*Founding Property Partner

Community & Resource Partners

Architecture 2030

Bridgeway Capital

Community Resilience Action Network of Erie (CRANE)

Erie Bird Observatory

Generation180

International Living Future Institute

Keystone Energy Efficiency Alliance (KEEA)

Master Builders' Association of Western Pennsylvania

PA Sea Grant

Pennsylvania Solar Center

PennFuture

Pennsylvania Environmental Council

Pennsylvania Technical Assistance Program (PennTAP)

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Green Building Alliance

Green Building Alliance (GBA) positively transforms the world through the built environment for a sustainable, healthy, and just future for everyone. As Greater Pittsburgh's authority on sustainable design, GBA drives the market for healthy communities while equipping designers, manufacturers, developers, and policymakers to catalyze systemic change. GBA manages the largest 2030 District in North America, and in 2019, established Pittsburgh as the 2nd International Center of Excellence on High Performance Building in the world. GBA partners with organizations across Western Pennsylvania and internationally, with strategic alliances including the 2030 District Network, Architecture 2030, the United Nations, and International Living Future Institute.

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Photo credit: Andre Carrotflower