

VORNADO  
REALTY TRUST

# Sustainability 2023

THE PENN DISTRICT  
PLAZA33

April 2024



# Vornado Realty Trust Is a Preeminent Owner, Manager, and Developer of Office and Retail Assets

VORNADO'S PORTFOLIO is concentrated in the nation's key market — New York City — along with premier assets in both Chicago and San Francisco. Vornado's portfolio is concentrated on premier office and high street retail properties in New York City, which has a long history of strong real estate fundamentals and is now leading the urbanization trend in the United States. Together with THE MART in Chicago and 555 California Street in San Francisco, the focused collection of assets in these most important cities uniquely positions Vornado to help shape the way Americans live, work, play, and shop.



► Advanced IT infrastructure districtwide to create campus network effect.

► PENN 1 redevelopment achieved an 88% reduction in embodied carbon emissions (86,012 tons CO2e). As part of its redevelopment, it underwent a full building window replacement with triple-pane glazing and added an amenities offering that includes community space, a fitness center, restaurants, and conference areas.

► The redevelopment of THE PENN DISTRICT has resulted in a half mile of new sidewalk paving, over two acres of green space and open-air plazas, and 73,000 SF of outdoor tenant space.



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# From Our Chairman



**OUR BOARD AND SENIOR MANAGEMENT** are proud of Vornado's continued national leadership in sustainability, improving our communities, our buildings, and our tenant experiences. We continue to build upon our Vision 2030 and Science Based Target commitment through our robust sustainability program. Our complete plan can be found on our website at [www.vno.com/sustainability](http://www.vno.com/sustainability).

## KEY ACHIEVEMENTS INCLUDE:

- Procured 100% renewable energy credits (RECs) for electricity directly managed by Vornado in the key markets in which we operate. These RECs include those sourced from hydroelectric, solar and wind facilities located in the states of New York and California.
- Achieved a 32% reduction in overall energy consumption across our in-service office portfolio, compared to our 2009 baseline
- Reached a 65% waste diversion rate across our in-service office portfolio, making significant progress towards our long-term target of 75%
- Received multiple awards recognizing our continued industry leadership in sustainability including (i) the 13th NAREIT Leader in the Light Award, (ii) Energy Star Partner of the Year with Sustained Excellence, and (iii) ranked #1 amongst peers in the USA, Diversified – Office/Retail in the Global Real Estate Sustainability Benchmark (GRESB)

We continue using data to measure progress against our goals, align our goals with our tenants, plan for our longer-term projects and engage with our stakeholders in meaningful ways. This past year we focused on operational optimization and how data can improve the performance of our buildings, benefiting our tenants, our shareholders, and our building teams. We are proud of the savings that we saw across our portfolio, even as occupancy recovered.

We constantly seek to enhance the health and well-being of our best-in-class employees with continuing education and career development. Through our Vornado Volunteers program, our employees supported local organizations including Habitat for Humanity, Breaking Ground, the Central Park Conservancy and Project Cicero. We expanded WorkLife, Vornado's amenity ecosystem that allows our tenants, employees, and communities to focus on work and self-care, into Chicago and San Francisco.

Our Board, and particularly our Corporate Governance and Nominating Committee, is assigned with oversight of sustainability, which includes climate change risk. In 2023, our Executive Compensation program once again included sustainability performance metrics. Our discussion of corporate governance is included in our proxy statement, which can be viewed at [www.vno.com/proxy](http://www.vno.com/proxy) and the governance section of our website at [www.vno.com/governance](http://www.vno.com/governance). In 2024, we will continue to monitor regulatory requirements. Our sustainability narrative is told with transparency and supported by data. All can be found at [www.vno.com/sustainability](http://www.vno.com/sustainability).

Thanks to SVP Lauren Moss and her team, who lead our sustainability efforts.

Steven Roth  
Chairman of the Board and  
Chief Executive Officer





► PENN 2 opened with a brand-new facade, lobby, and amenities center. The renovation saved 60.3 million kg CO<sub>2</sub>e of embodied carbon, a 75% reduction.







PENN 2



# 2023: Another Year of Excellence

 <p><b>GRESB MEMBER</b></p>	 <p><b>2024 ENERGY STAR PARTNER OF THE YEAR (ESPOY)</b></p>	 <p><b>S&amp;P GLOBAL CORPORATE SUSTAINABILITY ASSESSMENT (CSA)</b></p>	 <p><b>SCIENCE BASED TARGETS</b></p>
<p>► <b>#1</b> in the USA among our peers for Diversified Office/ Retail REITs.</p> <p>► <b>“Green Star”</b> distinction for the 11th time and a 5-star rating.</p> <p>► Score an <b>“A”</b> for its ESG public reporting.</p>	<p>► 9th time awarded this distinction, demonstrating our long-term partnership with <b>ENERGY STAR</b>.</p>	<p>► Vornado performed in the top quintile for the <b>Real Estate Industry</b> in the S&amp;P Global Corporate Sustainability Assessment (CSA).</p>	<p>► As of 2023, we have reduced our Scope 1 and Scope 2 location-based and market-based emissions by <b>4% and 61%</b> respectively over our 2019 baseline.</p>

 <p><b>LEADER IN THE LIGHT</b></p>	 <p><b>EMPIRE BUILDING CHALLENGE</b></p>	 <p><b>EP100 MEMBER</b></p>	 <p><b>CARBON DISCLOSURE PROJECT</b></p>
<p>► Awarded <b>National Association of Real Estate Investment Trusts (NAREIT)</b> respected Leader in the Light Award for sustainability for diversified REITs for the 13th time.</p>	<p>► PENN 1 was awarded a <b>\$1 million incentive</b> from NYSEERDA toward the implementation of condenser water heat recovery.</p>	<p>► Vornado is <b>75%</b> of the way to its EP100 goal, achieving a 50% increase in Energy Productivity in 2023 while continuing to align its energy management with the Department of Energy’s ISO 50001 Program.</p>	<p>► Vornado maintained a <b>Carbon Disclosure Project (CDP)</b> response score of “B” with improvement in disclosure acumen, progress on our goals, assessment of risk and opportunities, and regulation preparedness.</p>

# Key Achievements



<b>Progress on Vision 2030</b>	<p>► As of 2023, our Scope 1 and Scope 2 emissions are 70,154 MTCO2e or have reduced 66% over our 2019 baseline, leveraging both market-based carbon accounting and reduced emissions from carbon offsets.</p>
<b>Operational Optimization</b>	<p>► Across the Vornado portfolio, building engineering teams focused on continuous improvement of operations and successfully reduced 3,053,824 kWh of electricity.</p>
<b>Pinnacle Award</b>	<p>► PENN 11 was awarded this year’s BOMA Pinnacle Award for Best Historical Building of the Year. Renowned for its vaulted lobby and ornate ceiling, PENN 11 recently underwent a lobby ceiling refurbishment to restore it to its original splendor.</p>
<b>ActiveScore</b>	<p>► Achieved the first ActiveScore Gold-certified commercial project in the United States at the historic Farley Building. ActiveScore is a building certification program centered on active travel for building occupants.</p>
<b>Organics Collection</b>	<p>► In September 2023, while celebrating Climate Week NYC, Vornado expanded its organics collection program into 100% of our in-service office portfolio. We now provide access to food waste diversion programs to all office tenants across our New York, Chicago, and San Francisco regions, representing over 27 million SF.</p>



# Sustainability Governance

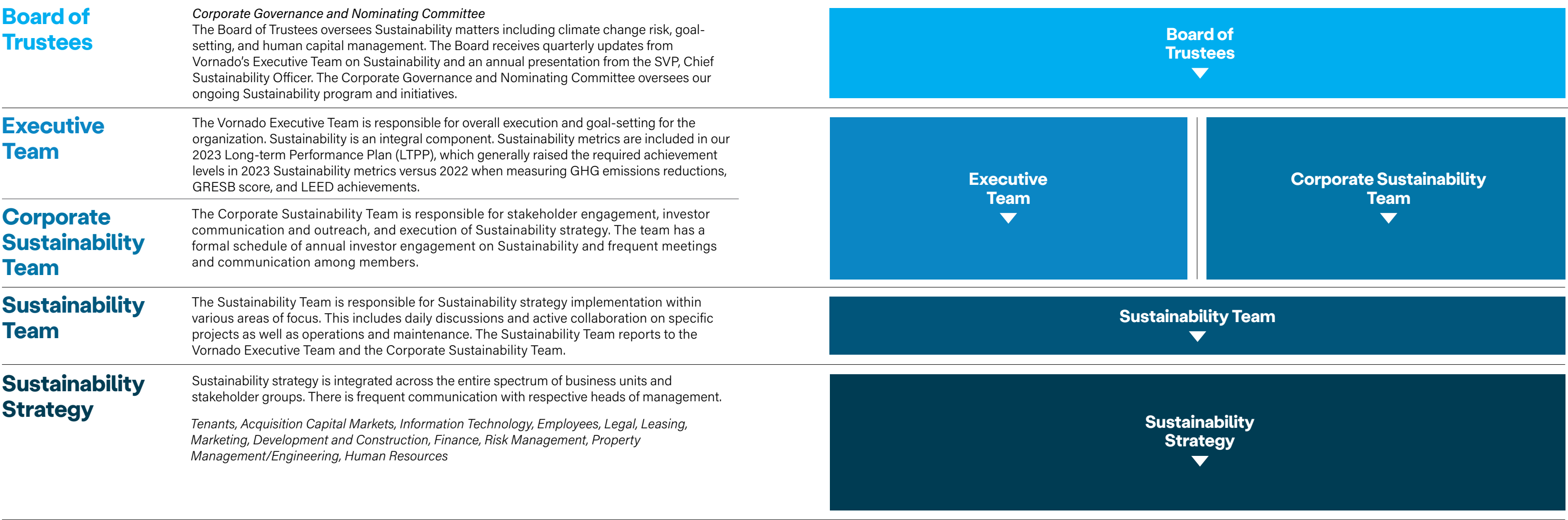
GRI 2-6, 2-9, 2-10, 2-12, 2-13, 2-14, 2-24, 3-1, 3-2, 3-3

VORNADO HAS LONG BELIEVED a focus on sustainability, inclusive of environmental, people, and places, is responsible management of our business and important to our tenants, investors, employees, and communities. It has been central to Vornado’s business strategy for over 15 years. The Corporate Governance and Nominating Committee of Vornado’s Board of Trustees is assigned the responsibility for oversight of sustainability matters while our Corporate Sustainability Team oversees our day-to-day strategy and goal development. Our sustainability initiatives are carried out by a dedicated

team of professionals that work directly with our business units to integrate sustainability into all areas of our company. Our Corporate Sustainability Team is comprised of our senior decision makers on corporate strategy as well as our pertinent divisional heads and subject matter experts. The team includes the following roles:

- *Lead Trustee*
- *President and Chief Financial Officer*
- *EVP, Finance and Chief Administrative Officer*
- *EVP, Corporation Counsel*
- *SVP, Chief Sustainability Officer*
- *SVP, Human Resources*

Our leadership is committed to evaluating and disclosing climate-related risks material to our business. We institute a top-down approach for the ongoing assessment and management of climate-related risks, which includes the execution of tasks throughout all levels and divisions of our business, and the Board receives regular updates on sustainability topics from the Vornado Executive Team. Our Board’s Lead Trustee, also our Corporate Governance and Nominating Committee Chair, oversees environmental matters, including climate-related risks and opportunities.





# THE PENN DISTRICT

**THE PENN DISTRICT**, New York City's most accessible neighborhood in the heart of Manhattan, has been recently transformed into a sustainable campus of best-in-class office, retail, food and beverage, and open spaces. Vornado is in the process of completing a \$2.4 billion transformation of the neighborhood to include over a half mile of new sidewalk paving, over two acres of green space and open-air plazas, and 73,000 SF of outdoor tenant space.

FARLEY, PENN 1, and PENN 2 have undergone significant renovations resulting in a cohesive and collaborative destination focused on health, wellness, hospitality, and accessibility. The entire district has 100% zero-carbon electricity, supplied by in-state renewable resources, and PENN 2 is being delivered as a carbon-neutral asset. PENN 1 underwent a full building window replacement with triple-pane glazing and a new amenities offering to include community space, a fitness center, restaurants, and conference areas, while PENN 2 was completely reclad with a high-efficiency modern curtain wall and new mechanical equipment, as well as new tenant amenities to be shared in concert with PENN 1.

Vornado is executing a master plan to revolutionize THE PENN DISTRICT into the future sustainable epicenter of New York, which includes:

- Transforming 9M SF of existing properties
- 10+ acres of new public plazas and sidewalks
- New landscaping and green space throughout
- 1.1M+ SF of new retail offerings
- Vornado's WorkLife campus amenity program

Vornado completed the new Moynihan Train Hall, a modern sky-lit grand train hall within The Farley Building, the former 1912 James A. Farley Post Office, that services Amtrak and will serve as the new home for the Long Island Rail Road. Additionally, Vornado has completed the new entrance into the Long Island Rail Road main concourse at Penn Station located at Seventh Avenue and 33rd Street. Vornado is currently developing and re-tenanting the expanded LIRR Concourse that will connect Seventh Avenue to Moynihan Train Hall.

Vornado is changing the landscape from Seventh to Ninth Avenues, with new stone-paved plazas, sidewalks, and planting new trees and vegetation throughout the district.

- New street trees located on Seventh Avenue at PENN 2 and PENN 15
- The pedestrianization of 33rd Street between Seventh and Eighth Avenues

## 33rd Street Pedestrian Plaza

Recently pedestrianized, the stretch of 33rd Street at Seventh Avenue has been transformed into an open and versatile courtyard for the entire PENN DISTRICT. Lush green space, flexible seating, and proximity to new food and beverage options at PENN 1, PENN 1 East, and PENN 2 define the space as an ideal place to meet, relax, shop, and dine al fresco.



► PLAZA33 neighbors PENN 2 with 18,000 SF of space for the public to use and enjoy, ensuring all visitors have access to open public space and greenery.

PLAZA33



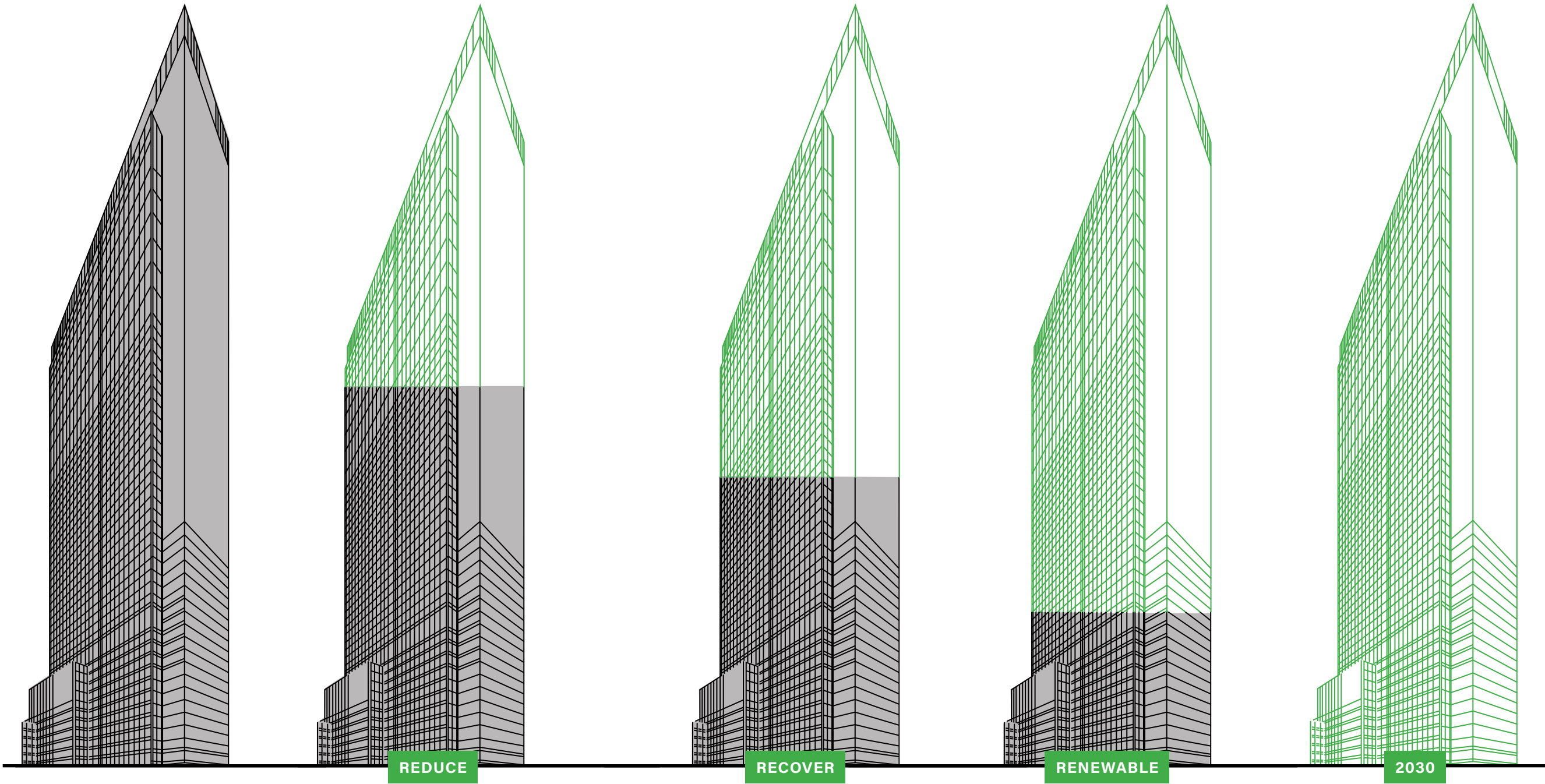
► Our objective at Vornado is to reduce the environmental impacts of our buildings through efficient management and informed decision-making. We strive to achieve year-over-year reductions in utility and resource consumption across our portfolio.

# Environmental



# Vision 2030

Rendering of PENN 1



## Vornado's Commitment to Carbon Neutrality

**VISION 2030** is Vornado's commitment to reach carbon neutrality by 2030. We rely on meaningful stakeholder collaboration with our employees and our tenants to optimize operations and eliminate excessive usage. In 2021, we made an SBTi commitment to reduce our Scope 1 and 2 emissions intensity by 64% per square foot by 2030 below a 2019 base year. Our commitment is 1.5 degrees C-aligned, the most ambitious designation offered.

1

**Reduce**  
We prioritize energy efficiency through building upgrades and retrofits to more efficient equipment and systems, making operational changes to permanently reduce peak demands, and providing high-performance guidelines for future tenant build-outs. We continue outreach and engagement with our tenants to identify opportunities to reduce tenant metered electricity usage.

2

**Recover**  
As usage is reduced, we identify opportunities to recover waste energy. This is accomplished by recapturing heat that would otherwise be discarded and reintroducing it to make hot water. We also retire fossil-fuel-based heating and cooling equipment and convert steam chiller plants to ultra-high-efficiency electric chillers as existing equipment reaches the end of useful life.

3

**Renewable**  
There are limited opportunities to install on-site renewables in our existing portfolio. We incorporate renewables into development projects whenever feasible. By reducing usage, recovering wasted energy, and deploying on-site renewables as the electric and steam grids go green, we will minimize the amount of purchased RECs and carbon offsets required to meet Vision 2030.



# Goals & Progress

GRI 2-24, 3-2, 3-3

**METRICS & TARGETS** Meaningful metrics and targets help us to evaluate our climate-related risks and opportunities, as defined in our Risk Management assessment detailed further on pages 92-93 of this report. We have a third-party firm provide assurance on certain metrics. See further discussion at the Independent Accountant’s Reports on 116-117 and pages 126-127 of this report.

Based on our 2023 progress, we continue to implement a sustained model of how operations and utilities are used in our buildings. We expect to see continued energy management progress with the reduction of our reliance on fossil fuels, implementation of energy efficiency projects, and active tenant engagement. We continue onboarding tenants into our organics diversion program and have our annual tenant recycling education programming, incorporating in-person and virtual methods. We will see continued water reduction progress with retrofitting plumbing fixtures, HVAC efficiency projects, and water reuse efforts, adhering to ongoing best practice maintenance and cleaning programs.



► One Park Avenue exemplifies the impact of identifying low- and no-cost opportunities to reduce energy usage, paired with the cooperation of an engaged and sustainable tenant.

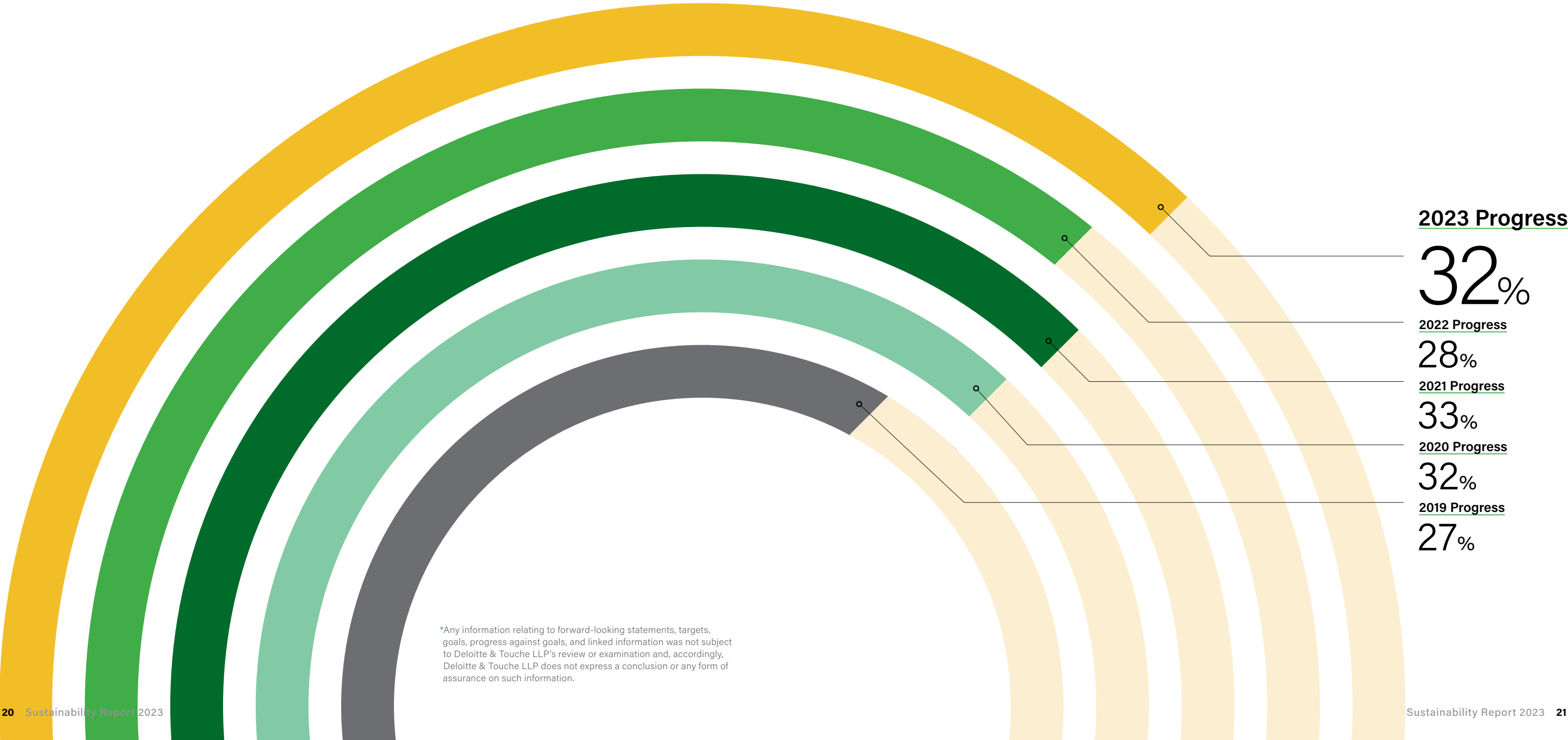


Energy Management\*

**Goal:** 50% reduction in energy consumption below our 2009 base year by 2030

**Goal:** 55% energy reduction of landlord-controlled energy by 2030  
**2023 Progress:** 36%

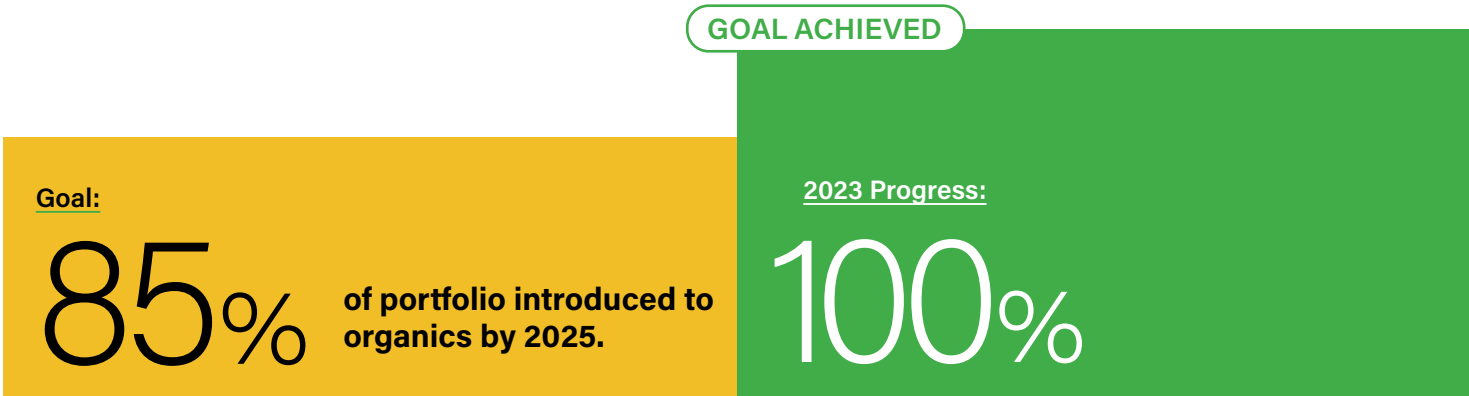
**Goal:** 45% energy reduction of tenant-controlled energy by 2030  
**2023 Progress:** 27%



\*Any information relating to forward-looking statements, targets, goals, progress against goals, and linked information was not subject to Deloitte & Touche LLP's review or examination and, accordingly, Deloitte & Touche LLP does not express a conclusion or any form of assurance on such information.

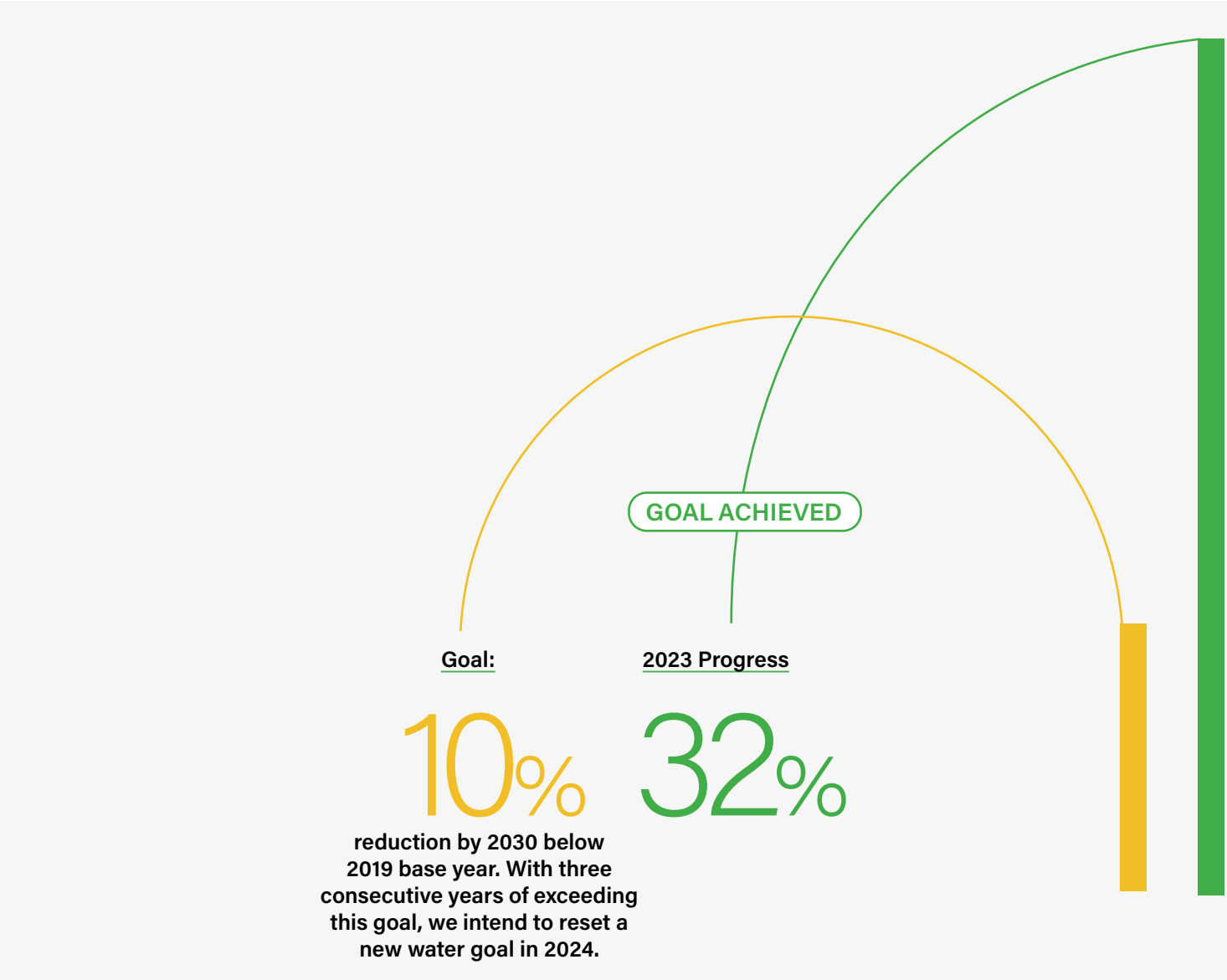


Waste Management\*



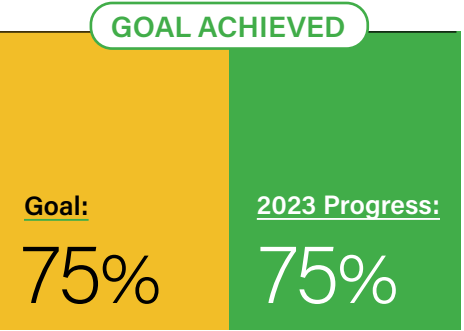
\*Any information relating to forward-looking statements, targets, goals, progress against goals, and linked information was not subject to Deloitte & Touche LLP’s review or examination and, accordingly, Deloitte & Touche LLP does not express a conclusion or any form of assurance on such information.  
\*\*Vornado will reevaluate its education goal for 2024 reporting based on exceeding our target consecutive years in a row.

Water Management\*



Procurement and Responsible Contracting\*

Goal: Purchase 75% of cleaning supplies that meet sustainability criteria, including certifications designated by UL ECOLOGO, Green Seal, and EPA’s Safer Choice Standard.





# Environmental Results 2023

GRI 2-24, 3-2, 3-3, SASB IF-RE-130a.5



- Beginning in 2021, our location-based Scope 2 emissions differed significantly from our market-based Scope 2 emissions due to our investment in renewable energy certificates in 2023. We will continue to report our Scope 2 emissions on both a location and market basis, as per our SBTi commitment.
- Because the market-based approach reflects progress on our Vision 2030 carbon neutrality commitment, we will rely on the market-based approach for reporting on our emissions-related goals and targets, including those tied to green debt instruments and executive compensation.
- Our Scope 2 emissions inventory includes emissions from tenant electricity that is submetered downstream from our building electricity accounts. We consider these emissions to be within our financial control. If the emissions from submeter tenant electricity were instead to be considered Scope 3 emissions, we estimate our Scope 2 emissions for 2023 to be 70,749 MTCO<sub>2</sub>e and our Scope 1 and 2 location-based emissions intensity to be 0.0030 MTCO<sub>2</sub>e/SF.
- If Category 5: Waste generated in operations were included in our Scope 3 emission inventory the subtotals would be 54,862, 45,376, 43,138, 47,223, 48,173 MTCO<sub>2</sub>e from 2019 through 2023 respectively, marking a total reduction of 12% over the 2019 base year.\*\*\*\*

**VORNADO’S** Scope 1 and Scope 2 emissions come entirely from the operation of our buildings, including our submetered tenants. Energy costs of a property are often among the largest controllable expense.

In 2019, Vornado committed to making its buildings carbon neutral by the year 2030. This plan, known as Vision 2030, combines various methods to reduce or offset all Scope 1 and Scope 2 emissions. Energy efficiency is the prioritized component of Vision 2030 with a goal of reducing 50% below a 2009 base year by the year 2030. Further information on this plan can be found in the Vision 2030 section of this report. Our energy reduction measured 32% at the end of 2023. As business activity returns to our buildings with tenants and building operators motivated to operate efficiently, we are observing stable progress toward our energy efficiency goal. We continue to measure our energy consumption and evaluate our targets and goals.\*

GRI 305-1, 305-2, 305-3

## Greenhouse Gas (GHG) emissions inventory\*\*

Financial Control Method  
GHG emissions by scope (MTCO<sub>2</sub>e)

Emissions data is presented on an absolute basis. Location-based reflects emissions for our properties based on the grid average emission factor, while market-based reflects emissions that we are responsible for due to our purchasing decisions. Our Scope 1 emissions include on-site combustion from oil and natural gas; Scope 2 emissions include our district steam consumption and electricity consumption, including electricity consumed by our submeter tenants; Scope 3 emissions include other utility consumption within the direct control of our tenants.

	2019	2020	2021	2022	2023	% Change 2022-2023	% Change 2019-2023
Scope 1	28,577	29,190	29,864	31,311	30,231	-3%	6%
Scope 2							
Location-based	177,977	133,997	131,405	166,129	159,056	-4%	-11%
Subtotal emissions (Scope 1+ 2 location-based)	206,554	163,187	161,269	197,441	189,287	-4%	-8%
Market-based	177,977	133,997	83,295	61,472	46,665	-24%	-74%
Subtotal emissions (Scope 1+ 2 market-based)	206,554	163,187	113,159	92,784	76,896	-17%	-63%
Carbon Offsets***	0	0	0	0	(6,742)		
Subtotal emissions (Scope 1 + 2 market-based, and inclusive of carbon offset reductions)	206,554	163,187	113,159	92,784	70,154	-24%	-66%
Scope 3							
Category 13: Downstream leased assets	49,760	42,997	39,633	43,871	44,506	1%	-11%
Total emissions (Scope 1+ 2 location-based + 3)	256,314	206,184	200,902	241,311	233,793	-3%	-9%
Total emissions (Scope 1+ 2 market-based + 3)	256,314	206,184	152,792	136,654	121,402	-11%	-53%
Total emissions (Scope 1+ 2 market-based + 3, and inclusive of carbon offset reductions)*	256,314	206,184	152,792	136,654	114,660	-16%	-55%

## Alexander’s Inc. GHG emissions inventory (breakout, included in inventory above)

	2019	2020	2021	2022	2023	% Change 2022-2023	% Change 2019-2023
Scope 1	1,688	1,826	1,948	1,838	1,631	-11%	-3%
Scope 2							
Location-based	9,886	9,154	10,840	13,011	13,327	2%	35%
Subtotal emissions (Scope 1 + 2 location-based)	11,574	10,980	12,788	14,849	14,958	1%	29%
Market-based	9,886	9,154	8,281	4,699	1,750	-63%	-82%
Subtotal emissions (Scope 1 + 2 market-based)	11,574	10,980	10,229	6,537	3,381	-48%	-71%
Scope 3							
Category 13 - Downstream leased assets	15,752	13,313	13,347	18,763	17,946	-4%	14%
Total emissions (Scope 1 + 2 location-based + 3)	27,326	24,293	26,135	33,612	32,904	-2%	20%
Total emissions (Scope 1 + 2 market-based + 3)	27,326	24,293	23,576	25,300	21,327	-16%	-22%

\*Any information relating to forward-looking statements, targets, goals, progress against goals, and linked information was not subject to Deloitte & Touche LLP’s review or examination and, accordingly, Deloitte & Touche LLP does not express a conclusion or any form of assurance on such information.

\*\*We have chosen to report our emissions based on financial control from the World Resource Institute’s Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard: Revised Edition. We report all consolidated entities, and unconsolidated joint ventures with over 20% Vornado ownership, as of 12/31/2023. Buildings not included are those where 90% or more of the building’s office or residential square footage is under development as of 12/31/2023. For buildings that have a pro rata share ownership percentage, RECs are subtracted from total energy usage prior to emission calculations and residual values are then prorated.

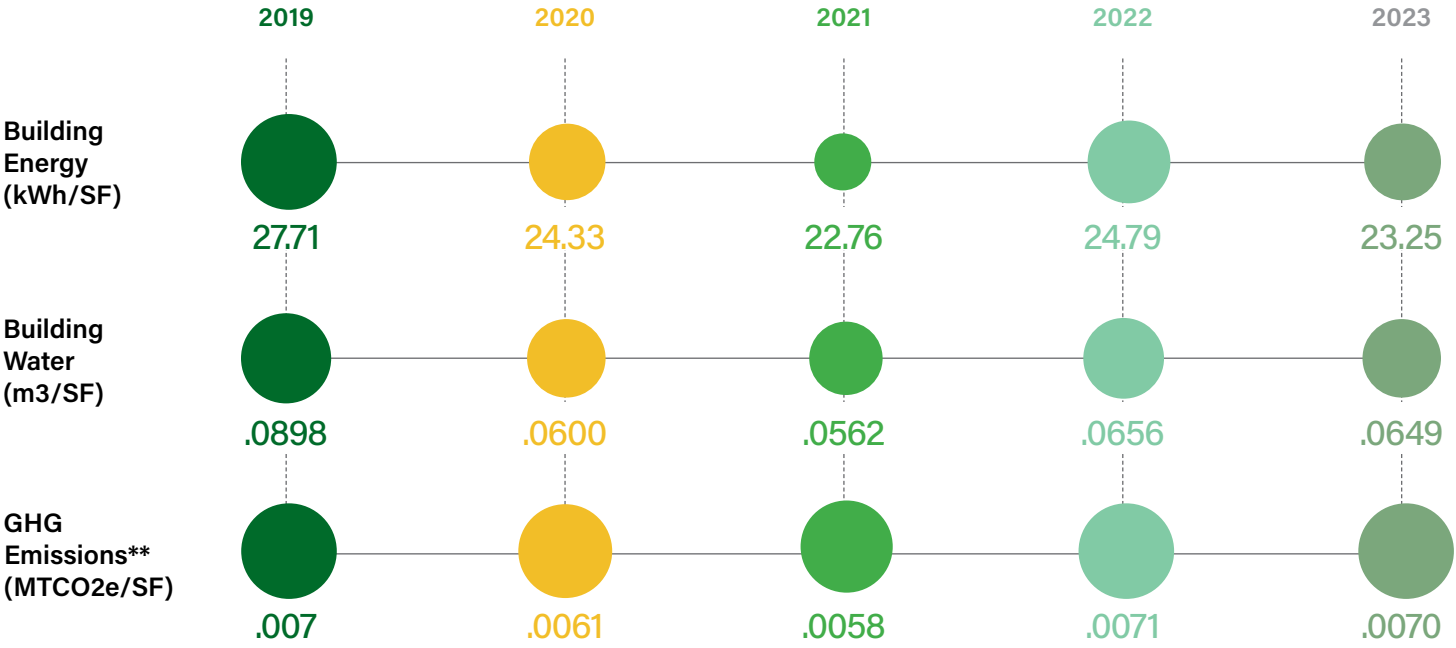
\*\*\*The quantity of offsets purchased, 6,742 Emission Reduction Tonnes from American Carbon Registry (“ACR”) US-622-2020-1544-464363 to 471104. The Project Name is Foam Blowing Agent Project 003F, located in Winchester, Virginia, and is an Industrial Process Emissions project type. This disclosure was not subject to Deloitte & Touche LLP’s review and, accordingly, Deloitte & Touche LLP does not express a conclusion, opinion, or any form of assurance on such information.

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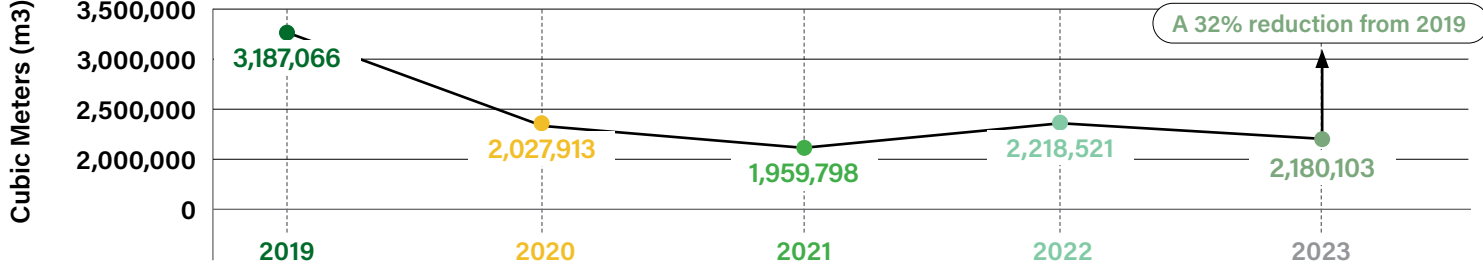


Intensity Measures\*

Vornado uses intensity measures to benchmark our portfolio’s energy, water, and emissions progress with our company’s growth. It is a useful unit of measure when assessing new acquisitions or planning developments.



Water Withdrawal\*



Nonhazardous Waste (Metric Tons)\*

	2019	2020	2021	2022	2023
Recycled	11,242	3,403	3,457	4,685	4,323
Energy Recovery	6,583	2,761	3,979	3,994	5,665
Composting	2,621	935	694	1,692	1,988
Landfill	2,123	698	91	1,117	123
Total	22,569	7,796	8,221	11,488	12,099

An additional 108 METRIC TONS of hazardous waste was recycled in 2023.

\*For reporting boundaries, see note on p. 115.  
\*\*GHG Emissions Intensity includes location-based emissions from Scopes 1, 2 location-based, & 3. The reported sharp increase in 2022 emissions is due to increased eGRID factors in 2021 and 2022. Please see page 41-43 for more information about the 2022 eGRID factors specifically relating to the NYC/Westchester region.





GRI 302-1, 302-2

Energy Consumption (MWh)\*

Energy by Type

	2019	2020	2021	2022	2023
Chilled Water	12,702	9,220	11,540	10,384	10,264
District Steam	259,472	186,163	178,230	191,294	164,230
Electricity	556,572	440,095	416,020	435,101	409,055
Fuels	182,586	186,127	187,256	201,890	197,841
Cogenerated Fuels*	38,894	55,391	54,337	61,907	70,089
Total	1,011,332	821,605	793,046	838,669	781,390

\*Fuel consumption is inclusive of cogenerated fuels.

Energy by Scope

Scope 1: 164,638 MWh
Oil & Natural Gas Heating and Cooling
Cogenerated Fuels
Scope 2: 481,987 MWh
District Steam
Base Building Electricity
Submetered Tenant Utilities
TOTAL: 646,625 MWh
Scope 3: 134,765 MWh
Direct Metered Tenant Utilities

\*For reporting boundaries, see note on p. 115.

\*GRI references apply to noted sections.

\*\*This disclosure was not subject to Deloitte & Touche LLP's review and, accordingly, Deloitte & Touche LLP does not express a conclusion, opinion, or any form of assurance on such information.

Cumulative Savings Since 2012\*\*

We have been investing in building energy efficiency since 2012 and realized significant utility cost savings and permanent emissions reductions. Vornado has allocated **\$31.7 Million** towards capital expenditures for energy efficiency projects since 2012.

\$8.2 MILLION

in ConEd incentives

\$3.4 MILLION

in NYSEDA incentives

\$44.7 MILLION

in portfolio-wide energy savings

289,000

Metric Tons CO2 saved



# Renewable Energy

SASB IF-RE-130a.5

**VORNADO PROCURES** renewable energy certificates (RECs) to demonstrate our commitment to renewable energy and the environment. In June 2021, Vornado contracted to procure RECs sourced from hydro energy facilities located throughout New York State. In 2022, we transitioned our San Francisco buildings to 100% clean in-state off-site energy. Vornado selected these products as a localized solution that supports investment in both NY and CA State renewable infrastructure, furthering state-wide goals, and increasing and providing clean energy to all communities. In Chicago, where our largest asset resides, we procured RECs offsetting 100% of its electricity load.

Vornado regularly evaluates opportunities to invest in renewable energy. We believe that on-site renewable energy is the most impactful in reducing carbon emissions. The local grids in which we operate have decarbonization goals that will, in turn, enable

our electricity and district steam operations to be carbon free by 2050. As a supplemental strategy until regional grids meet their goals, off-site renewable energy provides a virtual carbon offset to our Scope 1 and Scope 2 emissions.

As our electricity consumption decreases through efficiency efforts, the regional grids become cleaner over time, our procurement of RECs will decrease. With eGRID factors changing in recent years, it is clear that location-based emissions will initially intensify before renewable sources are added to respective regional electricity grids. This is the balance of emissions that has not been reduced by energy efficiency, energy demand optimization, or renewable energy procurement. Carbon offsets, like renewable power, should bear localized benefit if possible and wherever possible should align with those which are defined in the Climate Leadership and Community Protection Act (CLCPA) passed in New York State in 2019.

## Demand Response\*

Vornado remains dedicated to participating in demand response events. We voluntarily shed electric load without impacting tenant comfort when the regional utility grids experience distress. Our NYC buildings contributed 6 MW of curtailment and the MART committed 4 MW in 2023. 555 California shed 18,000 kWh throughout the year and received special recognition from the San Francisco Public Utilities Commission for being the largest contributor in the City in their effort to shift peak loads.

\*This disclosure was not subject to Deloitte & Touche LLP’s review or examination and, accordingly, Deloitte & Touche LLP does not express a conclusion, opinion, or any form of assurance on such information.

# Case Study: Building Management Systems Upgrade\*

► Between 2019 and 2023, Vornado completed the upgrade of building management systems (BMS) across five of our largest office buildings: PENN 1, 1290 Avenue of the Americas, PENN 11, 90 Park Avenue, and 888 Seventh Avenue. To maximize the savings potential and increase available incentives, the building controls work was thoughtfully combined with other necessary building upgrades, such as the upgrade of outside air dampers, the installation of variable frequency drives, or the replacement of VAV boxes. Air-quality monitors were installed at all five properties to enable demand control ventilation, whereby real-time concentrations of air contaminants inform the opening and closing of dampers to introduce fresh air into the buildings. These five projects are expected to save \$1.4 million annually in both electricity and steam costs, and eliminate 2,500 tons of carbon emissions each year. The projects were also eligible for over \$3.5 million in incentives from the utility, bringing down the overall ROI to just over one year.

In 2023, our total renewable energy purchases were 289,013 MWhs or 36.99% of our company’s total energy consumption. The regional breakdown of our renewable purchases are:

37.64%  
of our New York energy

53.87%  
of our California energy

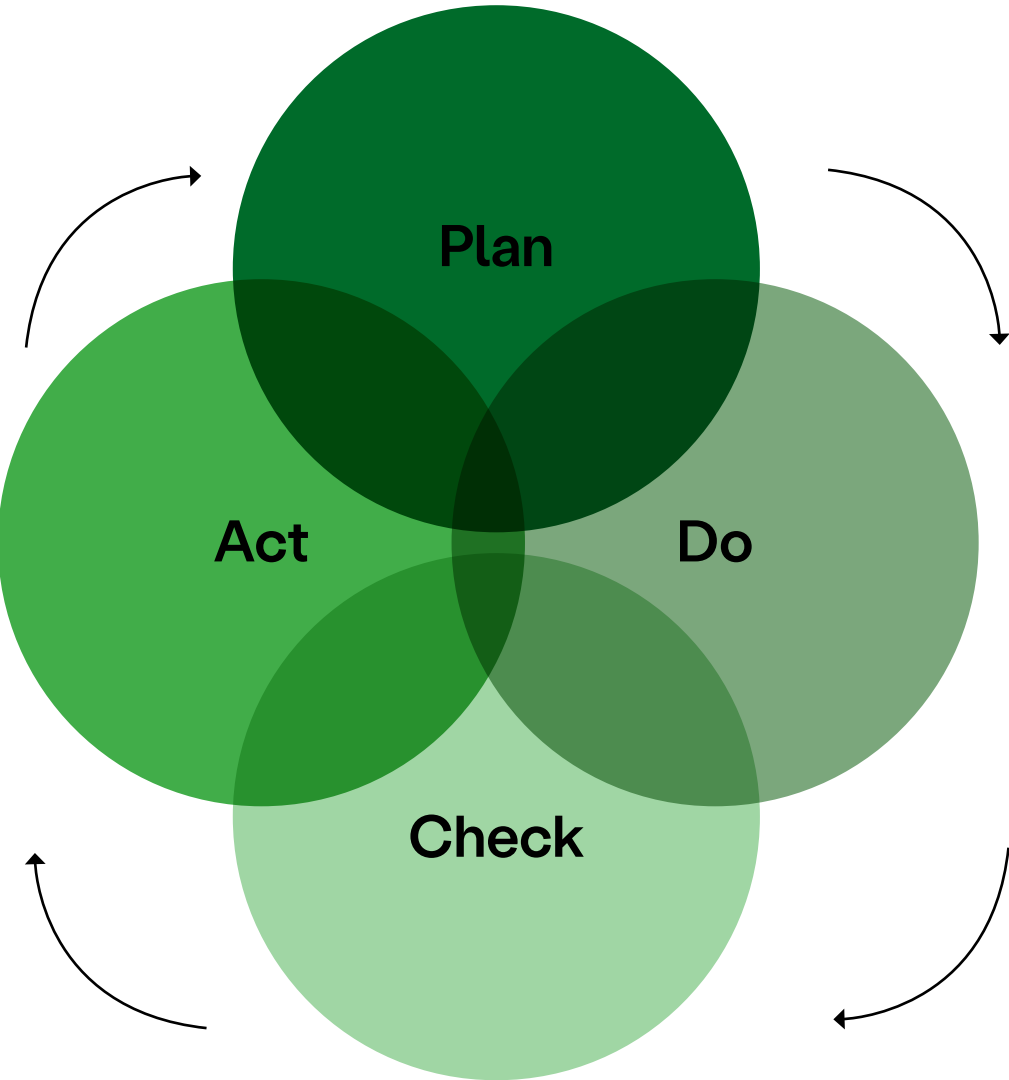
46.16%  
of our Chicago energy





# Environmental Management System (EMS)

GRI 3-3, SASB IF-RE-130a.5



**VORNADO STRIVES** to improve upon our environmental objectives and minimize our environmental footprint by applying the Plan-Do-Check-Act principles of (2015) ISO 14001 Environmental Management System (EMS) across our organization. Following a cyclical pattern of continuous improvement, we identify topics and develop/modify company-wide Environmental Commitments & Policies that are material to our business; plan and implement initiatives; evaluate and correct actions; and ultimately communicate material results throughout the organization, both to management and external stakeholders.

## Plan

**Org Level:** *The Board, Executive Team, Corporate Sustainability Team*

- ▶ Leveraging outcomes from **Act** stage, stakeholder feedback, regulation, and market trends to develop our commitments and policies.
- Materiality assessment
- Steering committee and Board presentations
- Involvement/leadership in industry-relevant organizations, speaking engagements, educational events
- Regulation
- Stakeholder feedback (investors, tenants, employees)

## Check

**Org Level:** *Executive Team, Corporate Sustainability Team, Sustainability Team & ESG Strategy Business Units*

- ▶ Assessment of **Do** stage deliverables are completed, communicated, and reviewed. Feedback is iterated and integrated.
- Benchmark operational performance
- Measurement and verification for efficiency projects
- Annual asset-level sustainability meetings with asset management and engineering
- Corrective/preventive action is incorporated
- Financial returns are assessed
- External assurance engagement and internal audit
- Data collection, reporting, disclosure
- Presentations to investors

## Do

**Org Level:** *Sustainability Team and Sustainability Strategy Business Units*

- ▶ Implementation of **Plan** stage deliverables are established, championed, and infused throughout the company.
- Establish and update policies and processes including EMS
- Audits and retro commissioning reports
- Assess and pilot technologies
- Submetering
- Green leasing
- Budgets
- Energy and Water Efficiency projects, both operating and capital driven
- Tenant engagement
- EV charging installations
- Building certifications and energy ratings
- Renewable procurement strategy
- Workforce development training

## Act

**Org Level:** *The Board, Executive Team, Corporate Sustainability Team*

- ▶ Management reviews and communication of **Check** stage, and the iterative process restarts.
- Steering committee meetings
- Presentations to the Board





# Results by Region

**VORNADO REALTY TRUST** (NYSE: VNO) is a fully integrated real estate investment trust (REIT). In New York, we have 57 Manhattan operating properties consisting of:

**20.4 MILLION**  
square feet of office space in 30 properties

**2.4 MILLION**  
square feet of street retail space in 50 properties

**1,662**  
residential units in five Manhattan properties

We also have multiple development sites, including 350 Park Avenue, Sunset Pier 94 Studios, and the Hotel Pennsylvania. THE PENN DISTRICT is our campus-like development currently consisting of 9 million square feet in over a dozen buildings and land sites surrounding New York’s Pennsylvania Station, the busiest transportation hub in North America. We have a 32.4% interest in Alexander’s, Inc. (NYSE: ALX), which owns five properties in the New York metropolitan area, including 731 Lexington Avenue, the 1.1 million square foot Bloomberg L.P. headquarters building; signage throughout Times Square and THE PENN DISTRICT; and BMS, our wholly owned subsidiary, which provides cleaning and security services for our buildings and third parties.

We have one property in Chicago, the 3.7 million SF THE MART; and in San Francisco, we have a 70% controlling interest in 555 California Street, a three-building office campus in San Francisco’s financial district aggregating 1.8 million SF.



# Certifications and Ratings

GRI 2-24, 3-2, 3-3, SASB IF-RE130a.5

## LEED-Certified Properties\*

96%

Vornado's In-Service Office Portfolio is LEED-Certified

95%

Vornado's In-Service Office Portfolio is LEED Gold or higher

Totaling over 24 million SF of LEED Gold or Platinum

100%

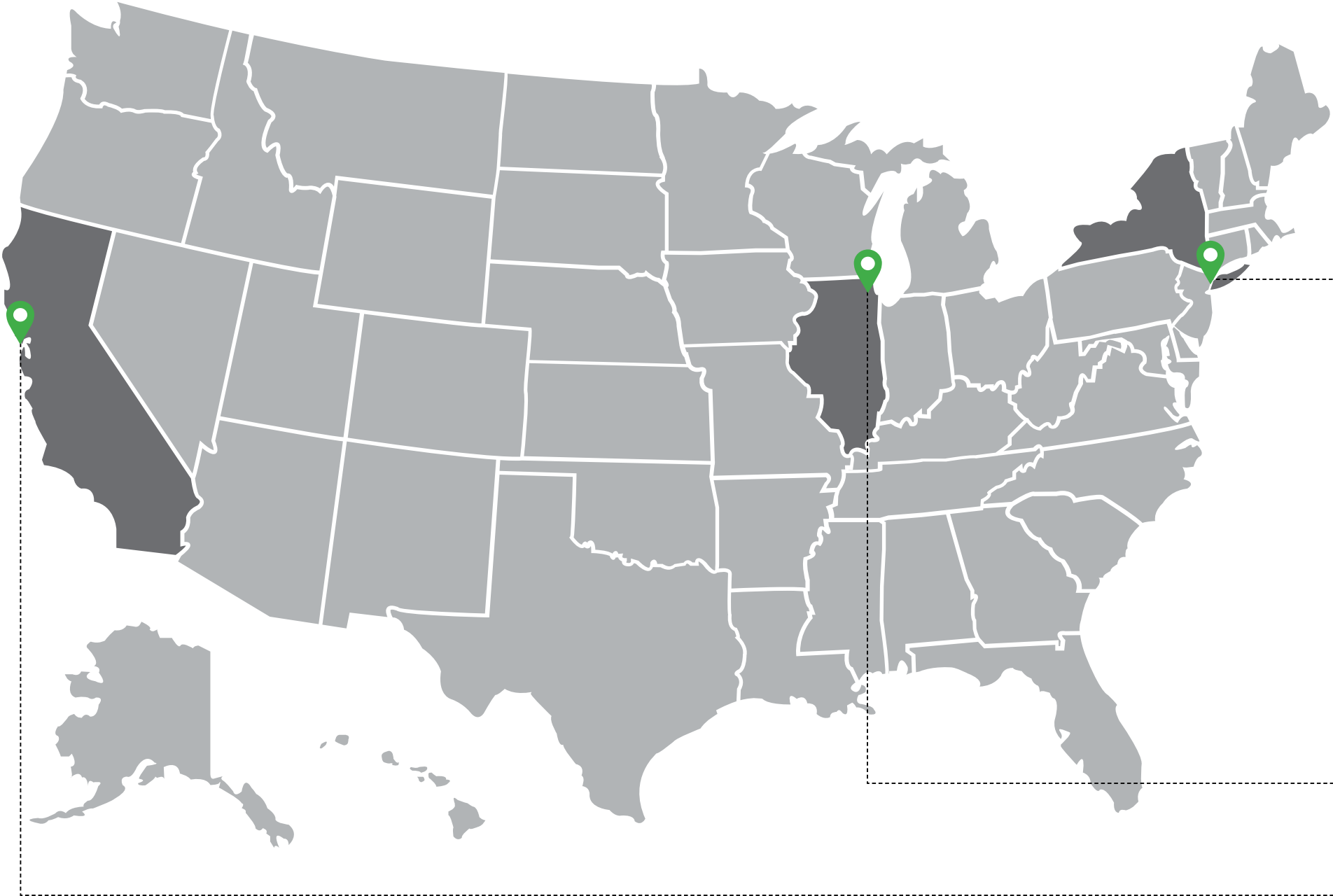
Vornado's In-Service Office Portfolio is ENERGY STAR rated

The total SF of ES rated office properties is 33.5 million and the total SF of ES certified office properties is 6.6 million

► Vornado upholds energy ratings, benchmarking, and certifications as an important recognition tool and performance indicator. We understand that our tenants prefer buildings that have earned green building certifications and demonstrate competitive energy ratings such as a high ENERGY STAR score. Because our core business is the maintenance and operation of existing assets, we believe that certifications based on ongoing performance are more relevant to us than those based on performance-modeled design objectives. These efforts are further demonstrated through our programs and commitments.

### Legend

- LEED Silver
- LEED Gold
- LEED Platinum
- BOMA 360
- Fitwel
- ActiveScore
- ENERGY STAR Certified



### New York City\*

#	Building	Certifications
1.	100 West 33rd Street	<div><div></div><div></div><div></div></div>
2.	1290 Avenue of the Americas	<div><div></div><div></div></div>
3.	150 East 58th Street	<div><div></div><div></div></div>
4.	770 Broadway	<div><div></div><div></div><div></div></div>
5.	909 Third Avenue	<div><div></div><div></div><div></div></div>
6.	PENN 11	<div><div></div><div></div></div>
7.	One Park Avenue	<div><div></div><div></div></div>
8.	330 West 34th Street	<div><div></div><div></div><div></div></div>
9.	650 Madison Avenue	<div><div></div><div></div></div>
10.	731 Lexington Avenue	<div><div></div><div></div><div></div></div>
11.	888 Seventh Avenue	<div><div></div><div></div></div>
12.	90 Park Avenue	<div><div></div><div></div><div></div></div>
13.	PENN 1	<div><div></div><div></div><div></div></div>
14.	350 Park Avenue	<div><div></div><div></div></div>
15.	595 Madison Avenue	<div><div></div><div></div><div></div></div>
16.	640 Fifth Avenue	<div><div></div><div></div></div>
17.	689 Fifth Avenue	<div><div></div><div></div></div>
18.	7 West 34th Street	<div><div></div><div></div><div></div></div>
19.	Paramus	<div><div></div></div>
20.	50 West 57th Street	<div><div></div><div></div></div>
21.	FARLEY	<div><div></div><div></div><div></div></div>
22.	PENN 2	<div><div></div><div></div></div>
23.	512 West 22nd Street	<div><div></div><div></div></div>
24.	61 Ninth Avenue	<div><div></div><div></div></div>
25.	280 Park Avenue	<div><div></div><div></div></div>
26.	140 Crosby Street	<div><div></div></div>
27.	260 Eleventh Avenue	<div><div></div></div>
28.	825 Seventh Avenue	
29.	85 Tenth Avenue	

### Chicago\*

1.	THE MART	<div><div></div><div></div></div>
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### San Francisco\*

1.	315 Montgomery Street	<div><div></div><div></div></div>
2.	555 California Street Campus	<div><div></div><div></div></div>

\*This disclosure was not subject to Deloitte & Touche LLP's review or examination and, accordingly, Deloitte & Touche LLP does not express a conclusion, opinion, or any form of assurance on such information.



# Certifications



## BOMA 360

► The bulk of our in-service office properties were certified through the BOMA 360 program. This performance program sets global standards for operational and management practices in the CRE industry.



## LEED

► Vornado owns and operates 25 million square feet of LEED (Leadership in Energy and Environmental Design) certified buildings, representing 96% of our in-service office portfolio, with 24 million square feet earning LEED Gold or Platinum. Vornado continually retains these LEED certifications, which have become an industry standard synonymous with sustainability and performance.



## ActiveScore

► Achieved the first ActiveScore Gold-certified commercial project in the United States at the historic Farley Building. ActiveScore is a building certification program centered on active travel for building occupants. Active travel is crucial in creating satisfaction among occupants as well as helping meet overall decarbonization goals.



## Fitwel

► Our flagship property, PENN 1, has earned a 2-star MTBB Fitwel certification. Fitwel focuses on occupant health and well-being, a central theme of Vornado’s operations. We work very closely with our tenants to ensure that they understand the benefits of sustainability. Providing tenants with Fitwel-certified spaces enhances satisfaction, thus improving our ability to work toward our sustainability goals.



## Green Building Institute (GBI)

► Vornado has begun working with the GBI to join the Green Globes Net Zero Pilot Program. This is a certification that enhances decarbonization in the built environment by requiring commercial landowners to conduct a comprehensive review of performance and evaluate potential for impactful change. We are actively working to meet this certification, which is earned once a 100% reduction is met in either site EUI or CO2e.



## LEED v5

► In addition to our Existing Buildings Certification within LEED, Vornado was one of a select few companies selected to join the LEED v5 Beta Program. We hope that our participation in this Beta will help guide USGBC in their efforts to refine language and functionality. LEED v5 seeks to incorporate operational, transportation, and embodied carbon in its program along with equity and resilience being key themes. Vornado is proud to be on the forefront of this new LEED version.



## Fitwel Certified Metrics

► Lastly, Vornado has also participated in the Fitwel Certified Metrics Program. This new program presents a way to assess an entire fund/portfolio against evidence-based industry standards. After submitting information pertaining to multiple previously Fitwel-certified properties, the program will provide a report with information and data visualization to show how our portfolio stacks up against research-based industry standards.



PENN 11

► PENN 11 received a BOMA 360 designation in 2023 for its sustainable operations, leading to a BOMA Pinnacle award.

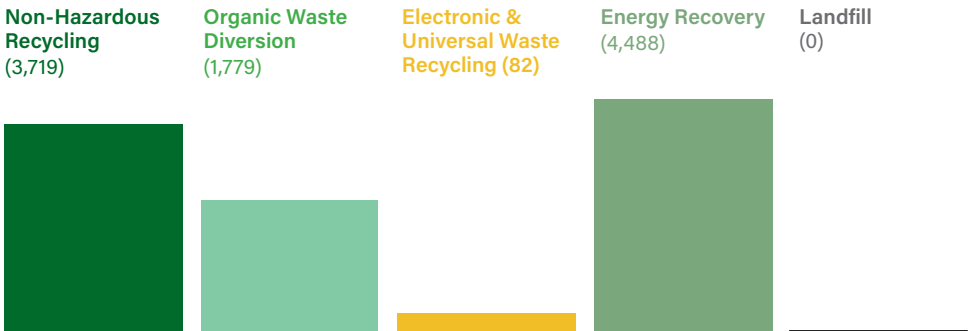




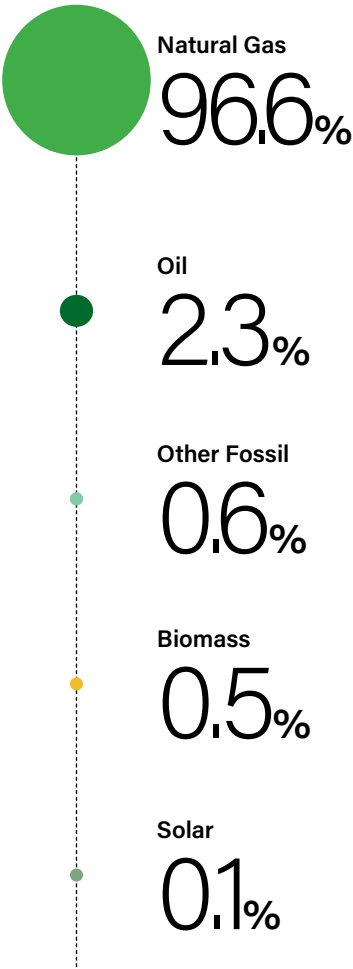
► 770 Broadway's diversion rate increased from 68% in 2022 to 75% in 2023, achieving the highest diversion rate in the New York portfolio for 2023.

New York City

Waste by Region  
(metric tons)

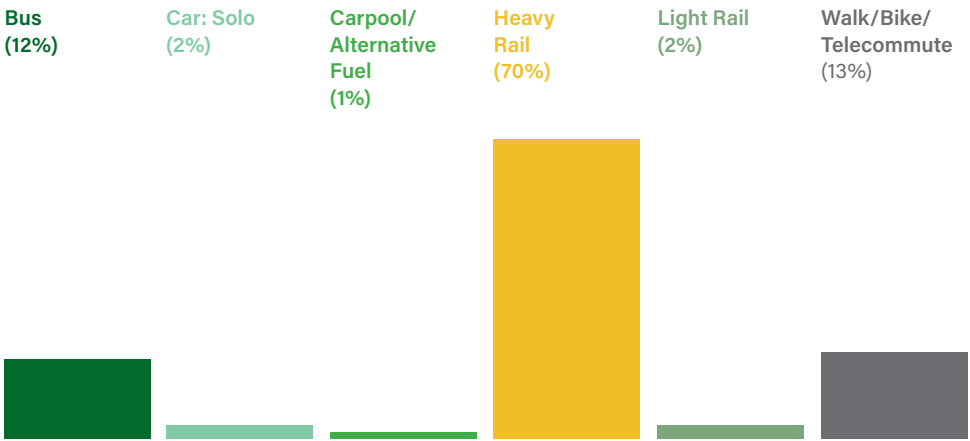


Grid Electricity Mix  
(% of energy supply)



Source: EPA eGRID 2022, NYCW Resource Power Mix

Transportation Survey Results (percentage of tenants)\*



2023 GHG Emissions (MTCO2e)

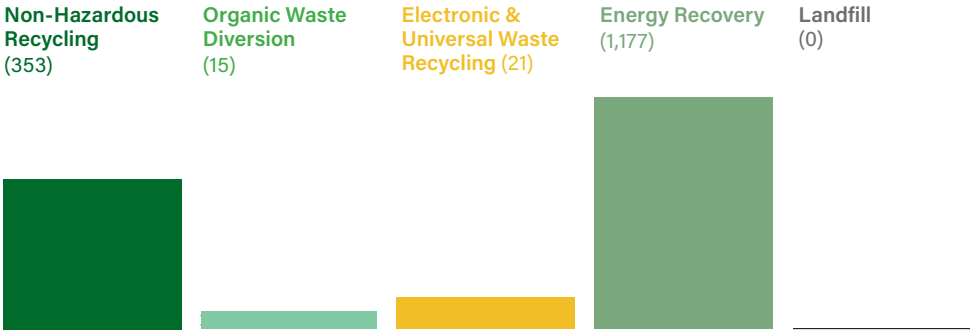
Scope 1 Oil & Natural Gas, Heating and Cooling, Cogeneration	Scope 2 District Steam, Base Building Electricity, Submetered Tenant Utilities	Scope 3 Direct Metered, Tenant Utilities	Total
25,234	131,747	36,953	= 193,934

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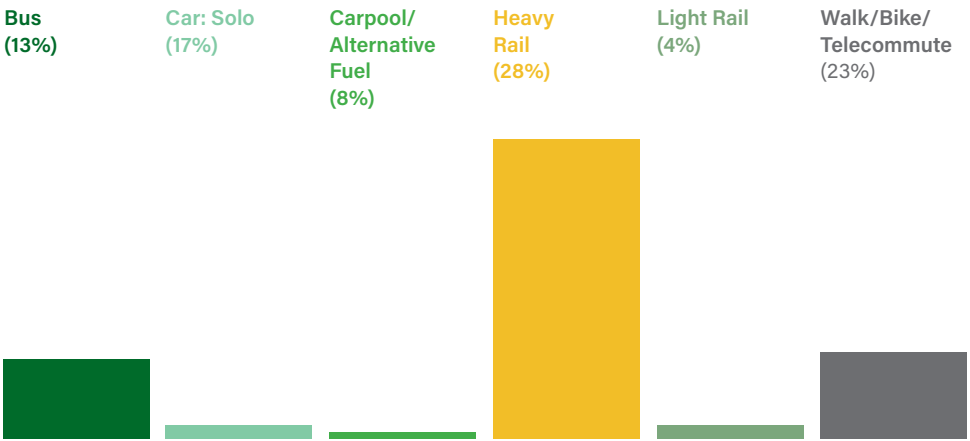


Chicago

Waste by Region  
(metric tons)



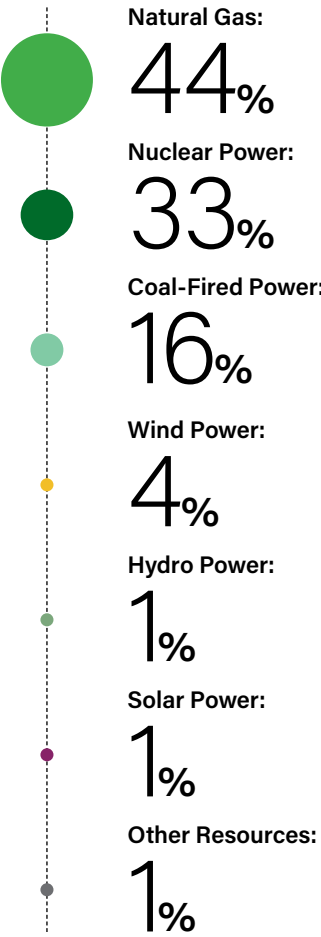
Transportation Survey Results (percentage of tenants)\*



2023 GHG Emissions (MTCO2e)

Scope 1 Oil & Natural Gas, Heating and Cooling, Cogeneration	Scope 2 District Steam, Base Building Electricity, Submetered Tenant Utilities	Scope 3 Direct Metered, Tenant Utilities	Total
3,810	+ 14,177	+ 66	= 18,053

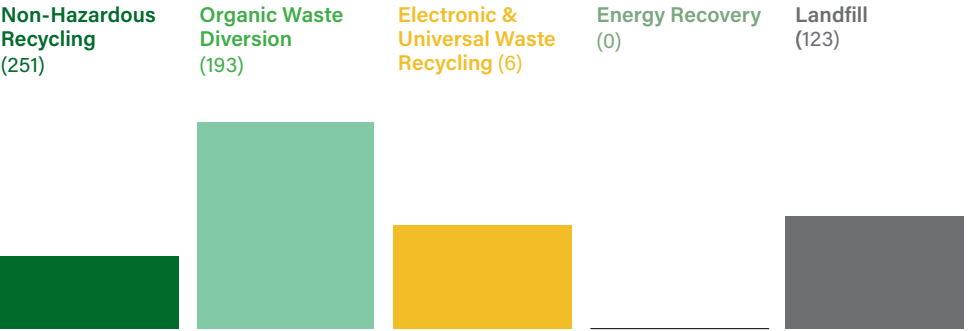
Grid Electricity Mix  
(% of energy supply)



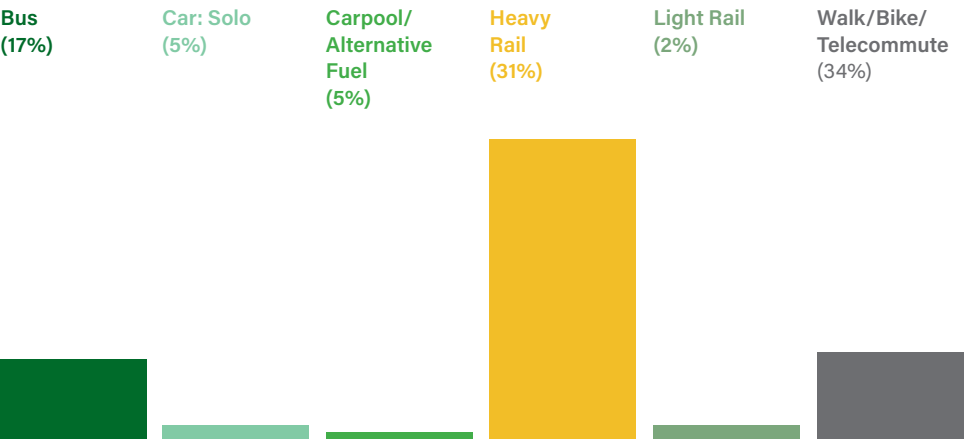
Source: Com Edison Environmental Disclosure Report, 12 months ending September 30, 2023

San Francisco

Waste by Region  
(metric tons)



Transportation Survey Results (percentage of tenants)\*

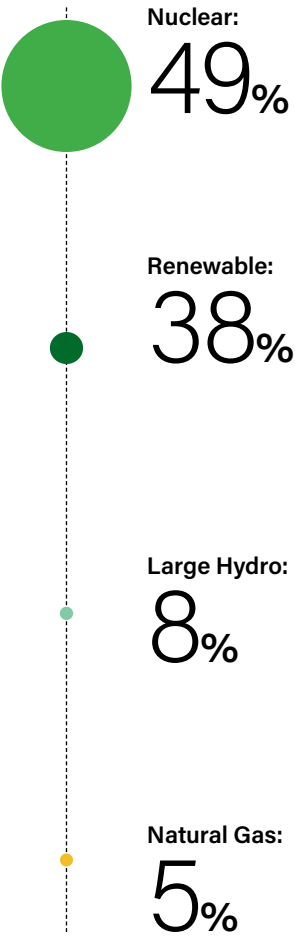


2023 GHG Emissions (MTCO2e)

Scope 1 Oil & Natural Gas, Heating and Cooling, Cogeneration	Scope 2 District Steam, Base Building Electricity, Submetered Tenant Utilities	Scope 3 Direct Metered, Tenant Utilities	Total
79	+ 9,861	+ 0	= 9,940

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Grid Electricity Mix  
(% of energy supply)



Source: PG&E, 2022 Power Mix



# Case Study: Energy Efficiency Programs

GRI 2-24, 3-2, 3-3, SASB IF-RE-130a.5

**ENERGY MANAGEMENT** is incorporated into our investment due diligence process across all our property subsectors. We tour the properties and review capital and operating budgets, including utility bills, to determine opportunities to reduce energy consumption and decarbonize. We assess energy performance through quantifiable methods of consumption and cost on a per square foot basis, and we consider energy labels and benchmark values provided through ENERGY STAR. We gain an understanding of the building’s energy inventory and current energy initiatives implemented at the property.

Our programs are a phased hybrid of both data-driven and qualitative analyses, wherein we prioritize energy efficiency through building upgrades and retrofits, recover discarded waste heat when possible, and integrate renewable energy sources to support grid modernization.

Our building managers and operators in all our property subsectors are trained and supported by our centralized energy management team to employ sound and responsible energy management across the portfolio. Building Chief Engineers perform in-house technical assessments, akin to a walkthrough energy audit, per guidance from the American Society of

Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), as part of ongoing preventative maintenance. We employ third-party engineering firms to complete technical assessments such as ASHRAE Level II Energy Audits and Retro-commissioning at all NYC, Chicago, and San Francisco properties over 50,000 square feet, and aim to update these assessments every five years.

In our NYC market, the Audits and Retro-commissioning reports are part of Local Law 87 and are subject to City review to ensure that all landlord-controlled inventory is included, all low- and no-cost recommended repairs are completed, and that the assessments were completed by licensed professionals. Such technical assessments are the basis for our energy efficiency capital work. Vornado staff aim to complete all low- and no-cost repairs and recommended measures, and considers more capital-intensive measures, in each annual budget cycle, if they help us to achieve our carbon neutrality goals or coincide with a building need to replace equipment that has reached the end of its useful life.



## Tenant Engagement\*

► 2023 was another year of prioritizing tenant engagement, wherein Vornado focused on disseminating and clarifying critical information related to waste management, energy efficiency, community involvement, and greenhouse gas emissions reduction legislation. Property management (PM) teams are an invaluable conduit between tenants and Vornado’s Sustainability Team. The Sustainability Team is focused on acting as an effective

resource to assist tenants in meeting their respective sustainability goals, and in strategizing compliance with upcoming decarbonization legislation. Following introductions by PMs, the Sustainability Team met one-on-one with tenants, hosted tenant roundtables and town halls, as well as virtual and in-person sort-a-thons representing over 15 million square feet of occupied space, to identify energy-saving opportunities. Notable

interventions include mindful operation of tenant lighting and supplemental tenant air-conditioning units operating around the clock. By aligning HVAC equipment schedules with actual occupancy and thoughtfully implementing controls to fully utilize base building cooling, tenants realize direct savings on their submetered electricity, while the building benefits from lower energy consumption and decreased emissions.



## Operational Optimization\*

► Throughout 2023, the Sustainability Team worked closely with each building’s engineering and facilities teams to identify operational optimization opportunities that would facilitate permanent, portfolio-wide energy use reductions.

The below four measures were broadly adopted in combination with a bespoke menu of interventions throughout the portfolio, contributing to an overall reduction of base building energy consumption.

- Limiting chiller demand
- Staging headered pumps
- Scheduling equipment startup
- Reducing fan and pump speeds

One building re-staged pumps to start every five minutes instead of every minute, which yielded a reduction of 123,000 kWh

in base building energy consumption in a single month, or a 17% decrease. Another building utilized a condenser water wet bulb reset for the building cooling tower, completed a perimeter air system optimization, and lowered fan speeds.

While prioritizing occupant comfort, other strategies instituted by our Chief Engineers included resetting air handling unit setpoints based on return air temperatures, installing VFDs, installing bi-level lighting and controls in stairwells, and replacing outside air dampers with leak-free models.

Additionally, NYSERDA has awarded Vornado a Building Operations and Maintenance Training grant to be used toward team training focused on short- and long-term optimization and decarbonization strategies.

## Data Management\*

► Over the past five years, Vornado has worked with WatchWire by Tango on our energy and sustainability data management, reporting, and procurement strategies. We expanded our energy data management platform to include real-time energy monitoring, which will fortify our compliance with various reporting frameworks, multi-layered legislation and evolving standards, the SEC climate disclosure rule, as well as increased demands from both tenants and investors. The platform has been deployed to Vornado personnel including the Sustainability Team and Operations, Engineers, and Accounting departments to ensure that our buildings’ performance aligns with our business efforts. This complements the existing tenant submeter portal.

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One Park Avenue\*\*

► Through time, One Park Avenue has benefited from pragmatic systems adjustments, while always prioritizing tenant comfort. Three times daily, the four-engineer building operations team does rounds, checking the building BMS and equipment rooms and looking for preventative maintenance opportunities. Throughout the year, Vornado’s Chief Engineer worked closely with a tenant’s

facilities manager, exemplifying Vornado’s building and tenant coordination. They optimized BMS settings and began the process of AC unit maintenance and condenser cleaning. In another 55,600 square feet of tenant space, the facilities team saw beyond metal enclosures and identified radiators in need of TRVs (thermostatic radiator valves). The building team also installed Danfoss Control Valves

to avoid simultaneous space heating and cooling and encouraged the tenant to work with their BMS vendor to develop an AC unit schedule. Base building optimizations saw a 25% decrease in electric consumption between July and December.



Local Law 97\*

► Since NYC’s adoption of the Climate Mobilization Act (CMA) in 2019, Vornado has focused on complying with Local Law 97 (LL97), the centerpiece of the CMA. We have comprehensively assessed our compliance against stringent local law requirements, ensuring that necessary re-tuning or equipment replacement occurs to assure that each property continues to offer best-in-class spaces. By staying up to date with the evolving knowledge of LL97 requirements as NYC Department of Buildings issues additional guidance and rule making, and managing our buildings effectively, Vornado does not anticipate a material financial impact from the fines on our portfolio in the first compliance period between 2024 and 2029.

\*Two pieces of climate legislation were passed in 2019: New York State enacted the Climate Leadership and Community Protection Act, mandating a statewide net-zero carbon economic path by 2050 and a zero-carbon electricity grid by 2040; and New York City passed Local Law 97 (LL97) as part of the Climate Mobilization Act, setting ambitious carbon caps for large buildings/buildings over 25,000 square feet starting in 2024.

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Thalo Labs Partnership: PENN 1\*\*

► In 2023, Vornado began working with technology provider Thalo Labs to accelerate our energy reduction goals. Thalo Labs is a next-generation building decarbonization platform that helps operators directly reduce Scope 1 emissions through real-time emissions measurement, predictive modeling, fault detection, and on-site carbon capture. Thalo’s advanced continuous emissions monitoring equipment is installed on existing assets to provide real-time measurement of CO2, methane, and a variety of other greenhouse gases. Insights derived from this high-fidelity data empower on-site teams to proactively tune systems to improve efficiency and combat fugitive methane.

# Energy Progress

GRI 2-24, 3-2, 3-3

## Decarbonization\*\*

► Vornado continued its uniquely comprehensive approach to decarbonization throughout 2023. Benefiting from years of consistent improvements that include innovative building management systems (BMS) upgrades and equipment re-tuning, we took a centrifugal approach to building analysis, focusing on Whole-Building

enhancements that incorporated best practices for operations, design, and programming to facilitate integrated — and reduced — energy use consumption. We achieved this by providing tenants with the necessary resources to make informed operational changes to facilitate energy savings, in addition to working hand in hand

with our Operations team. These actions have worked in tandem with distilling and disseminating complex information related to mandated GHG emission reductions requirements, enabling us to visualize each building’s challenges and opportunities to achieve decarbonization by 2030 in a detailed and systematic roadmap.

## NYSERDA Empire Building Challenge\*\*

► In the 2021 Phase 1 Empire Building Challenge award, we developed a roadmap to 100% carbon neutrality by 2030 at PENN 1, a 2.5 million square foot commercial building. In 2023, we were awarded a Phase 2 award for the cornerstone project. This deep carbon retrofit design that details advanced waterside heat recovery, where in waste heat from the building’s condenser water loop will be recaptured and reused to reduce heating loads instead of rejecting waste heat in to the atmosphere. This measure is predicted to

reduce steam usage by 20% and carbon emissions by 8%. Implementing advanced waterside heat recovery at PENN 1 will showcase the thermal dispatch model, which high-lights how carbon-free energy sources can be optimally deployed to meet large commercial buildings’ heating and cooling loads. By utilizing available technologies in innovative ways, this project sets a replicable decarbonization precedent we hope will be seen throughout the New York City building sector and beyond in years to come.

*“Vornado is focused on the next frontier of sustainable real estate through technology, resiliency in performance, and total tenant health, which anchors our commitment to achieving carbon neutral operations at PENN 1. This project, in partnership with NYSERDA, allows us to move forward with our goals and then apply the same solutions throughout our 25 million square feet of premier assets, amplifying our impact and furthering decarbonization throughout New York City.”*  
— MICHAEL FRANCO, PRESIDENT AND CHIEF FINANCIAL OFFICER

## Empire Technology Prize\*\*

► The Empire Technology Prize was created to help tackle New York’s biggest climate challenge: buildings. Heating is the largest single source of buildings’ GHG emissions — over 30%. Heat pumps are a great solution for decarbonizing building heat; however, existing technologies can be difficult to integrate into New York’s buildings. New York needs new solutions: a new class of heat pumps that work with the existing steam or high-temperature hot water infrastructure, and new distribution solutions that make it easier to adopt existing centralized low-temperature heat pumps.

*“Vornado is thrilled to be a Demonstration Partner in the Empire Technology Prize, working side-by-side with NYSERDA, The Clean Fight, and the solution providers to decarbonize buildings like those in our portfolio. Vornado’s commitment to carbon neutrality includes implementing new solutions that support our reduction goals along with the transition to clean energy. We appreciate the opportunity to be a part of the team developing new solutions focused on large commercial buildings that will further support our carbon neutrality goal and maintain our first-class building operations.”*  
— LAUREN MOSS, SVP, CHIEF SUSTAINABILITY OFFICER





Better Buildings Challenge\*

► Vornado joined this initiative in 2023 with a 2019 base year and will leverage its extensive resources in technology, engineering, and consulting experience to further decarbonize the portfolio.

*“Leading businesses, manufacturers, cities, states, universities, and school districts commit to improving energy efficiency throughout their building portfolio by at least 20% over 10 years and share their strategies and results.”*  
— BETTER BUILDINGS CHALLENGE

ENERGY STAR Tenant Space Recognition\*

► Through the Vornado-hosted tenant roundtable presentations, we champion and present ENERGY STAR engagement programs. One of our largest tenants, over 400,000 square feet, approached us about

pursuing ENERGY STAR Tenant Space Recognition, aligning their office space to be energy efficient and sustainably operated, including separately submetered electricity with online access to their real-time

data through a dynamic platform, efficient lighting and equipment, and establishment of their office procurement protocol to ensure sustainable attributes in their purchasing decisions.

EP100\*

► As a member of EP100, Vornado has committed to implementing an energy management system (EnMS) aligned with ISO 50001 standards across all in-service office operations by 2029 and to improving energy productivity by 50% by 2030 relative to a 2009 baseline.

96%  
Current Facilities Managed by an EnMS

46%  
Improvement of Energy Productivity

SBTi/GHG Emissions

GRI 305-4

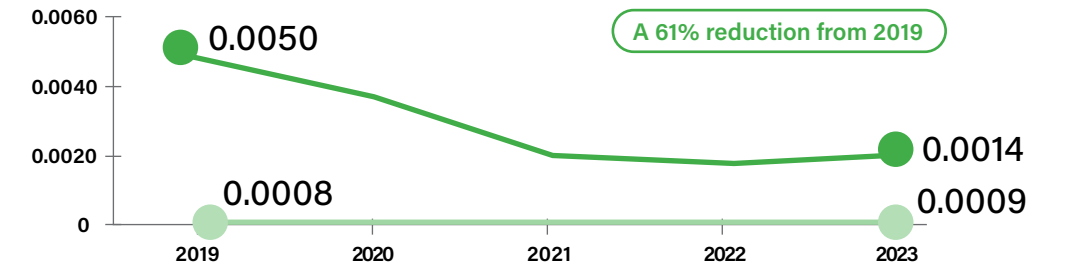
► Vornado’s commitment to carbon neutrality and associated emissions reductions targets have been approved by the Science Based Targets Initiative as consistent with a 1.5°C climate scenario. As of 2023, we have achieved reductions of 61% in our market-based emissions and 4% in our location-based emissions.

Vornado evaluates its carbon emissions from both location- and market-based approaches. Location-based carbon reflects portfolio emissions based on relative grid average emission factors; market-based carbon reflects emissions that we are responsible for due to our purchasing decisions.

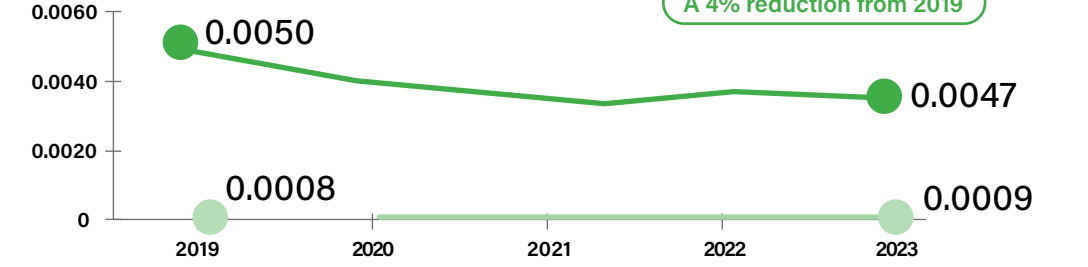
On January 30, 2024, the EPA released the updated 2022 eGRID factors which we have applied to our GHG emissions reporting. In the NYC region, the largest region Vornado operates within, the regional grid’s dependence on non-renewable energy sources has escalated, resulting in a significant coefficient increase as compared to the 2020 eGRID factors, when our Vision 2030 baseline was established. Although this reliance is temporary, these large-scale changes will continue to impact our location-based emission progress until the regional grid implements

long-term renewable solutions. We will continue to implement practicable optimization strategies and make necessary adjustments to improve our existing buildings emissions performance, while sustainable design will be germane to all new development.

Market-Based Emissions (MTCO2e per square foot)



Location-Based Emissions (MTCO2e per square foot)



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# Sustainable Development

GRI 2-24, 3-2, 3-3, SASB IF-RE130a.5

At Vornado, sustainability and resilience are important lenses through which we view all development projects at any scale. Our strategy focuses on sustainable development inclusive of carbon neutrality, operational efficiencies, human health, minimizing material resources, and climate change adaptation.

## Embodied Carbon

Vornado has recently committed to a target to reduce embodied carbon intensity for our new development projects by 10%. We will continue to evaluate every project for additional targets and lower carbon opportunities, depending upon the project scope, project type, and construction approach. To support our commitment, we will complete a life cycle assessment on each new development and redevelopment project to determine how best to meet and/or exceed our target. We will use the LEED v4 guidance and methodology for MRc Building Lifecycle Impact Reduction as our starting point to evaluate opportunities to incorporate reductions in our design and construction.

Vornado has committed to developing and managing environmentally healthy buildings, and is seeking to improve the decarbonization of its new construction and existing real estate portfolio. Our Embodied Carbon Framework, released in April 2024,

was created to establish embodied carbon tracking, create embodied carbon reduction goals, and implement Whole Building Life Cycle Assessments (WBLCA) for new development projects.

Vornado, in partnership with Atelier Ten, developed a Framework for establishing embodied carbon performance on future development projects. The Framework is intended to be a “living document” that is updated periodically to best fit the needs of current projects and future goals. The Framework is intended to shape Vornado’s design strategy and will be used on a project by project basis.

The effort was initiated after Atelier Ten completed WBLCA reports for FARLEY Moynihan Train Hall, PENN 1, and PENN 2 redevelopment projects. These embodied carbon studies facilitated discussions about overall embodied carbon goals for Vornado and how to establish embodied reporting for Vornado

developments in the future. The embodied carbon Framework is divided into four sections: corporate policy, implementation, tools for project teams, and assessment methods.

This Framework will help assess the portfolio, define goals, provide an embodied carbon assessment methodology, and develop a pathway to achieve embodied carbon reductions for new construction and the entire development portfolio. The Framework identifies embodied carbon policy tools to shape Vornado’s procurement strategy for low embodied carbon materials and help refine its process for tracking the results to compare against goals and across projects in a common format. The Framework identifies viable best practices in carbon-focused design features to inform new construction projects, major renovation, and interior fit-out projects to meet company-wide carbon reduction ambitions.

## Greenhouse Gas (GHG) emissions

As our development queue evolves and expands, Vornado commenced tracking GHG emissions for this key function of our business.

GHG emissions for properties Under Development		GHG emissions by scope (MTCO2e)
		2023
Scope 1		694
Scope 2		
Location-based		445
Scope 3		
Category 13 - Downstream leased assets		15
Total emissions (Scope 1 + 2 + 3)		1,154

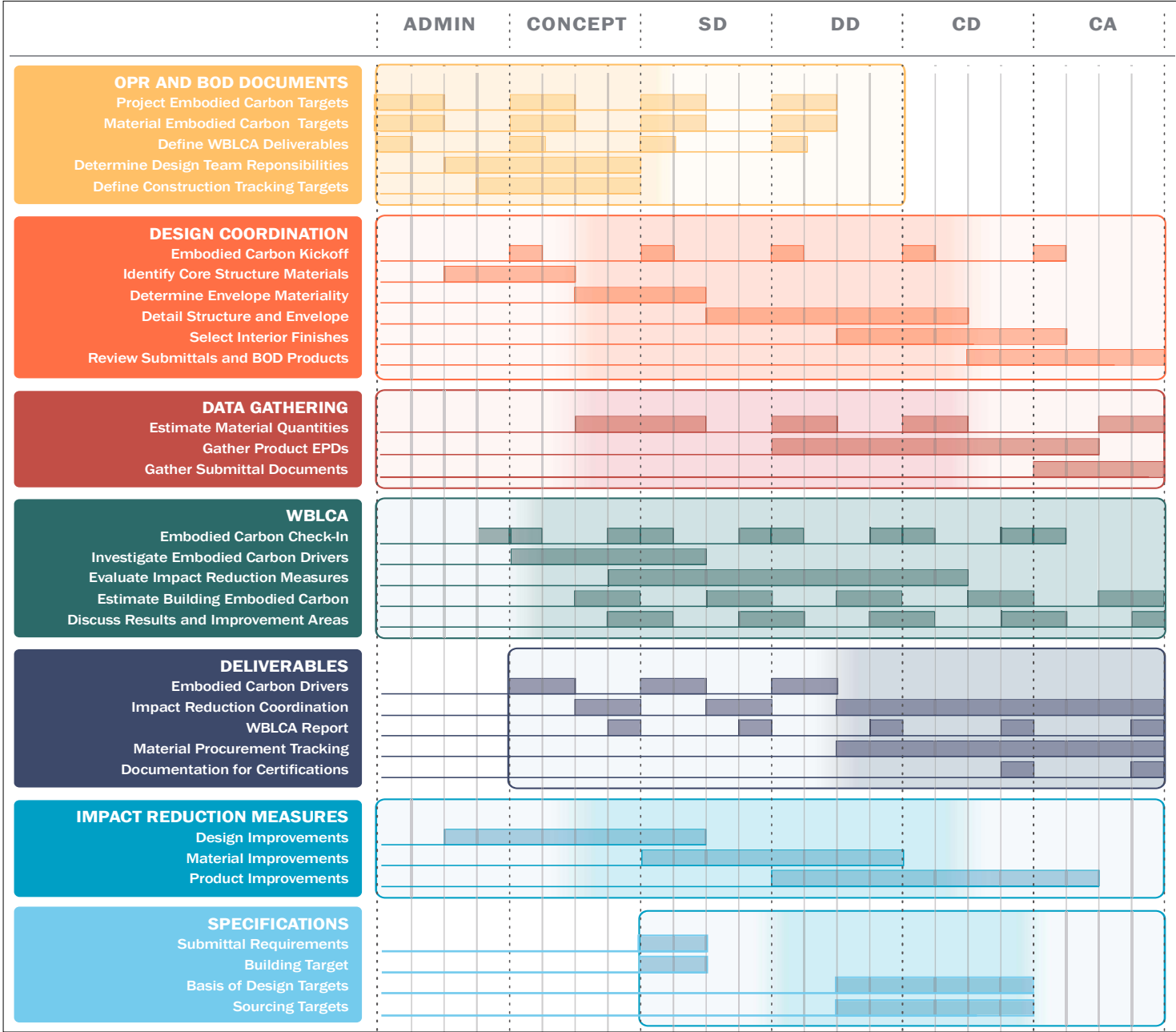


Embodied Carbon Framework: Project Timeline and Approach

►To ensure that embodied carbon is discussed, opportunities are realized, and goals are achieved, each phase of the design and construction process should include a review of the embodied carbon goals and progress. Each design phase should follow the same general format for project meetings, analysis, and deliverables. Each phase will begin with a kickoff meeting to discuss embodied carbon goals, opportunities, reduction strategies, and plan for the design phase.

After the kickoff meeting, embodied carbon studies can be carried out in conjunction with the design work so that embodied carbon assessments are used as an iterative tool to refine the design and maximize embodied carbon reductions.

At the end of each phase, life cycle assessment deliverables should be completed to quantify the project embodied carbon performance and identify core features that need to be carried into the next phase.



Embodied Carbon Framework, produced by Atelier 10 for Vornado, April 2024  
(Contact [sustainability@vno.com](mailto:sustainability@vno.com) for a copy)



Pier 94\*

►The Sunset Pier 94 Studios, currently under construction, will be the first purpose-built studio in Manhattan. It is being constructed in partnership with Hudson Pacific Properties, Blackstone, Inc., the City of New York, and the New York City Economic Development Corporation. The 266,000 SF project will include six sound stages with production control room facilities, support space, and offices. Some of the notable sustainable attributes are that the studio will be all-electric and will include a 650 kW rooftop solar array, which will reduce the site’s reliance on grid power during peak times of the day, and that the parking garage will house electric vehicle charging stations. The studio is also targeting LEED Gold and Fitwel Two Star certifications.

Tenant Fit-outs\*

In 2023, Vornado implemented high-performance fit-out guidelines to ensure that tenant offices not only meet but exceed minimum energy standards to drive efficiency and reduce operating costs. The requirements span electrical systems, HVAC equipment, plumbing, IT, and occupant health for holistic improvements to the tenant’s experience. Some of the requirements are to reduce lighting power density to 30% below code while maximizing the use of daylighting and lighting controls; ensuring that HVAC units incorporate demand-controlled ventilation through the use of indoor air-quality sensors to minimize outdoor airflow; and the implementation of automatically controlled plug load management for 120-volt receptacles that are deemed non-critical or that do not need to be on at all times. Adoption of all the energy savings recommendations is modeled to reduce energy costs by \$1/SF.

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► The renovation of PENN 2 saved 60.3 million kg CO<sub>2</sub>e (75% reduction) of embodied carbon emissions compared to a newly constructed building.

## PENN 2\*

**PENN 2** is opening in 2024 with a brand-new facade, lobby, and amenity center. The renovation saved 60.3 million kg CO<sub>2</sub>e of embodied carbon, a 75% reduction. The largest embodied carbon reduction was from the reuse of the existing building foundation and structure, which avoided 53 million kg CO<sub>2</sub>e of embodied carbon compared to a newly constructed baseline, a 66% reduction. The building was completely reclad with a high-efficiency modern curtain wall and new mechanical equipment as well as new tenant amenities to be shared in concert with PENN 1. This is also our first carbon neutral building with 100% matched renewable electricity. The road to neutrality included:

### Reduce

- Efficient electric chillers.
- Smart building technology that leverages occupancy data and optimizes HVAC control.
- High-performance triple glazed windows.
- Destination dispatch elevator innovation.
- Low-carbon tenant fit-out design.

### Renew

- 100% of the building’s electricity is sourced from hydroelectric facilities in upstate New York.
- Carbon offsets purchased for residual district steam energy consumed at the building.

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## Resilience and Adaptation

SASB IF-RE-130a.5

### Mechanical Equipment

► When a new building is in a flood zone or when feasible, we place all critical mechanical equipment and electrical switchgear above grade to avoid flood damage.

### Green Roofs & Stormwater Retention

► Our new roof landscape systems are designed to absorb and retain stormwater and to slow runoff into the urban landscape and surrounding infrastructure. Green and white roofs also insulate our buildings; reduce current and future demand for heating and cooling; and contribute to heat island reduction, which provides local relief to surface temperature.

### Glazing & Envelope

► Our new glazing and envelope systems are designed to withstand heavy wind and ice conditions. They also are designed to reduce solar heat gains and improve insulation values to minimize heating and cooling demand.

### Flood Barriers

► When a new building is located in a flood zone, we anchor temporary walls and venting systems inside our building lobbies to accommodate storm surges and floods and their associated water pressure buildup without damaging the building. At our existing buildings, we install temporary exterior barriers to prevent floodwater from touching the building envelope.

### Backup Generation

► We install backup generation to support, at minimum, fire and life safety systems, as well as critical infrastructure.

### Energy Management & Smart Building Technology

► Our buildings have the ability to reduce demand during climate events that cause the local grids to operate close to capacity, while continuing to provide comfortable conditions at buildings.

### On-Site Renewables

► We assess opportunities to install on-site renewables at buildings that have the appropriate layout. This positions the building to accommodate on-site renewables, equipping it to operate cleanly and continue to operate if the local grid experiences interruption.



# Nature

Vornado’s portfolio is concentrated in dense urban cores: New York City, Chicago, and San Francisco. Within these highly developed surroundings, informal green and open spaces offer a connection to nature for residents and visitors.

## Tenant Green Space

► Although research into the human-nature connection within the context of working life is relatively new, there is emerging evidence pointing toward the importance of the human-nature connection within these spaces. This list includes: stress reduction, improved health and well-being, fostering creativity, and attention restoration. The Vornado portfolio offers tenants various opportunities to connect with outdoor spaces during their workday.

*“At our 330 West 34th Street office, Structure Tone is fortunate enough to have a terrace on the 11th floor that allows our occupants to take a breath of fresh air during the workday without having to leave the office. During the warmer months, employees often utilize this outdoor space to enjoy their lunch while getting some sunlight or even take a personal call while gazing at the downtown city skyline. In addition to the employee well-being benefits, our beehive is also housed on the terrace and the honeybee colony is thriving. The ability to connect our people with nature is truly a valuable experience and we are grateful for this building amenity and the tremendous value it offers.”*

— RYAN HUGHES, STRUCTURE TONE, SUSTAINABILITY MANAGER

### Vornado Open Space

Green Terrace or Roof  
599,255 SF

Plaza  
289,847 SF

Loggias  
6,960 SF

Total Tenant Outdoor Space  
896,062 SF

## Central Park Conservancy Partnership

► Central Park is an essential natural space, and the Central Park Conservancy is responsible for its day-to-day care and ensuring this green space is accessible to all. Twice annually, Vornado participates in

“Day in the Dirt,” providing 15 to 20 volunteers dedicated to painting benches, planting ground cover, raking leaves, and clearing plant beds. These services help maintain a welcoming space for both wildlife and New Yorkers.



## Public Green Space

► Vornado’s portfolio contains nine privately owned public spaces (POPs), over 180,000 square feet of zoned public space, throughout New York City. These privately owned and maintained spaces are dedicated to public use and enjoyment in the densest areas of the city. They allow our community to sit, relax, people watch, eat, and connect with nature. Other instances of green space can be found throughout Vornado’s portfolio. THE PENN DISTRICT offers 10 acres of granite pedestrian walkways and public plazas, along with newly planted trees. The seven public plazas found within the district were created with unique layouts to provide ample space for outdoor activities and events, or a quiet place to meet a colleague. PENN 2 offers distinctive corner loggias on every floor in addition to a rooftop terrace. The redevelopment of

THE PENN DISTRICT has resulted in a half mile of new sidewalk paving, over two acres of green space and open-air plazas, and 73,000 square feet of outdoor tenant spaces. The FARLEY’s fifth floor contains nearly 70,000 square feet of outdoor landscaped park space in Midtown Manhattan. Near the North Passageway of Grand Central Terminal, entrances and plaza areas leading to 280 Park Avenue guide visitors through abundant green space to an interior atrium containing a museum-quality reflecting pool. In the Meatpacking District, pocket parks are propagated throughout 61 Ninth Avenue, creating an integrated indoor-outdoor environment. In Chicago, THE MART hosts a variety of annual events in its 13,000 square feet of outdoor space, including ART on THE MART.



# Path to Zero Waste\*

GRI 2-24, 3-2, 306-1, 306-2, 306-3, 306-4, 306-5

**VORNADO IS DRIVING** waste diversion and best practices among our tenant base by adopting organics collection in 100% of our in-service office portfolio, resulting in a 65% diversion rate with 1,988 metric tons of food waste diverted and 13,598 MTCO<sub>2</sub>e avoided.\*\*

In addition to wide adoption of the food waste diversion program among our tenant base, we are also changing company culture. Our corporate offices in all three regions of operations — New York, Chicago, and San Francisco — have set up composting programs internally and participate in annual zero-waste training alongside our tenants.

## Zero-Waste Resources & Events for Tenants

► Vornado recognizes the importance of in-person engagement and discussion. The Vornado Sustainability Team hosts annual tenant roundtables sharing zero-waste metrics, progress, and best practice strategies.

We also offer “sort-a-thons,” a lunchtime in-person waste sorting event within tenant spaces upon implementation of an organics program. Attended by Vornado Sustainability and

our zero-waste consultants, the event offers hands-on waste sorting guidance utilizing products and items commonly disposed of by the tenant. It provides real-life examples of each waste stream from the tenant space itself.

The team also provides tenant onboarding during the move-in process, equipping each new tenant with the guidance and resources to set up their space for optimal waste diversion.

In 2023, we designed brand-new waste signage and labels inclusive of the organics stream. Our updated signage features helpful imagery of accepted materials in each stream and details the waste stream’s path from our buildings to its end destination facility, whether that be a windrow farm for food scraps or an energy recovery facility for the trash stream.

## The Janitorial Role

► By engaging the janitorial teams with additional training and understanding their integral role in waste diversion, we have empowered the cleaners to take pride in their part. Our training focuses not only on operational procedures but what happens to each waste stream

once it leaves our building and the positive environmental impacts of properly sorting waste and diverting materials from landfills and incineration. In 2023, BMS completed 73 hours of zero-waste training.

Our janitorial partner in the San Francisco region has

received extensive training on material types to conduct nightly on-site waste sorting. Their efforts and the best practices adopted by our California tenants have resulted in the highest diversion rate in the portfolio at 555 California Street.

## Data Tracking\*\*

► Vornado collects detailed data on our waste reduction efforts, including annual waste audits for all commercial properties and monthly diversion reports. These data points lead to targeted programs designed to effect continuous improvement toward our waste reduction goals.

100%

Access to our organics collection program, representing 27.1 million SF of our in-service office portfolio.

10.8

million SF of tenant space participating in our organic waste diversion program.

98%

Waste stream audits performed in our in-service office portfolio.

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# Water\*

GRI 2-24, 3-2, 3-3, 303-1, 303-3, SASB IF-RE-140a.4

**VORNADO UNDERSTANDS** the importance of conserving water and commits to reducing water consumption wherever possible. Our primary method of mitigating water risk is to reduce our water withdrawals and consumption.

In 2020 Vornado committed to a 10% reduction by 2030 below a 2019 baseline year and for the year ending 2023 measured a 32% reduction. Through advancing efficiency efforts, we have exceeded the goal every year starting in 2020. We will continue to measure our water consumption, and plan to refresh our water targets and goals in the upcoming year.

## Water Use

► Vornado’s portfolio is concentrated in the urban cores of New York City, Chicago, and San Francisco. Primary water consumption includes potable water for drinking across our portfolio; plumbing use; water used for specific business purposes, such as food service or showers in exercise facilities; and water use attributed to heating, ventilation, and air-conditioning (HVAC). We do not consider water consumption used for agricultural purposes to be significant and therefore do not include this consumption in our reporting boundary. Our sources for water

are exclusively municipal water systems, and our discharge destinations are exclusively municipal sewer systems.

Our primary risk of achieving our water consumption reduction target is our lack of control over end users. Increases in occupancy, operating hours, or densification of existing spaces will cause consumption to increase. Diversity of water use — such as retail uses in food service or health and exercise facilities — could also cause an increase in consumption, despite our efforts to reduce it.

## Leak Detection

► Leaks in water supply systems result in inefficient resource allocation and can have significant impacts on water supply and sustainability.  
To mitigate water waste, leak detection

systems are implemented within each of Vornado’s tenant spaces. These systems can be found in working pantries, cold water supply lines to hot water tanks, all local controls, engine rooms, and every sprinkler system.

## Water Stress

► We face water-related environmental constraints and risks that are characteristic of urban places, and use publicly available maps, resources, and tools to gain insights into the risks inherent to our properties, including FEMA’s Flood Map Service Center and WRI’s Aqueduct Water Risk Atlas.  
Approximately 15% of our total properties operate in some regions with high or extremely high

baseline water stress. The World Resource Institute categorizes high and extremely high stress based on the level of available water withdrawn annually to support agricultural, domestic, and industrial users. Our New York and San Francisco regions experience medium to high levels of interannual variability. Our San Francisco locations are subject to medium to high seasonal variability.

## Lease-Driven Provisions

► We believe that our lease fosters a sustainably designed tenant space and an ongoing environment that both encourages the tenant to actively manage and measure their own footprint. Where there is an economic or environmental benefit, Vornado prioritizes sustainability

requirements in tenant fit-outs.  
Our revised tenant fit-out guidelines include enhanced requirements for water-efficient plumbing fixtures. These high-performance design requirements are also outlined in our rules and regulations included in the lease.

## Water Regulation

► Vornado faces water-related regulatory constraints. Our water costs increase regularly to pay for developing and maintaining the infrastructure that supports our municipal water and sewer systems. We incur sewer costs to pay for the treatment of water that is discharged from our buildings. We incur additional costs to reduce

the temperature of the water we discharge into the sewer system. We may incur additional costs to comply with future stormwater management regulation in our regions. We expect costs for water to continue to rise into the foreseeable future, which will increase our operating costs.

## Low-Flow Fixtures/ Retrofitting Plumbing Fixtures

► We reduce our water consumption through retrofitting our plumbing fixtures and modernizing our HVAC systems. Our restroom plumbing fixtures are retrofit as part of renovation efforts, which occur annually as part of a recurring capital improvement process.

Our HVAC water efficiency program includes water reduction and water reuse efforts such as redirecting excess steam condensate to our cooling

towers, to reduce sewer discharge; retrofitting our cooling towers with more efficient mechanical systems; and ensuring our chiller systems are serviced and maintained on an ongoing basis.  
In new construction or redevelopment projects, we also mitigate our stormwater runoff with stormwater retention tanks that reuse stormwater for irrigation and cooling tower use, and green roofs and terraces to capture stormwater.



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► As an employer, building owner, and landlord to thousands of business tenants, we are responsible for maintaining and improving the health of our indoor environments, as well as communicating the value of our health and wellness programs with consistency and clarity to our stakeholders. Healthy buildings contribute to a healthy society and continue to be an important criterion for prospective tenants. We believe that consistent health programming and communications protocols create a responsible behavior framework for our employees, our tenants, and our visitors to consider elsewhere in their daily lives.

# People & Places



# Tenant Engagement

GRI 2-6, 2-24, 2-29, 3-2, 3-3, 201-2, 306-1

**AT VORNADO**, we believe that a building’s sustainability is grounded in meaningful stakeholder collaboration with our tenants, employees, and communities. Our policies and elite standards — from energy efficiency to green cleaning — are implemented across our entire portfolio.

Our approach with our tenants involves forging relationships and partnerships that lead to transformative projects, improving the health and wellness of our community.



13.4 Million

SF of direct tenant engagement in 2023\*

9,846,557

SF of Vornado’s tenancy introduced to ENERGY STAR programs\*

Fitwel Metrics\*

23% of buildings are certified under Fitwel programs

6,002,734 SF certified under Fitwel MTWB

2,504,260 SF certified under Fitwel MTBB

1,339,563 SF certified under Fitwel STWB

Tenant Programming\*

Town Halls

► Hosted both virtually and in-person, these forums allow the Vornado Sustainability Team and tenants to connect, discussing topics concentrated on waste diversion and recycling, in addition to broader corporate ESG trends, regulatory updates, and best practices.

Annual Waste Audits

► By auditing a building’s waste stream, we aim to identify key areas for waste diversion improvement. The results of the audit exercise are shared with our building managers and janitorial teams to drive positive change at the building level.

Sort-a-thons

► Vornado Sustainability and our zero-waste partners host interactive on-site demonstrations to help tenants properly sort their waste and answer questions about zero-waste initiatives.

Energy Reduction Workshops

► Supported through the ENERGY STAR Treasure Hunt Program, workshops are used to identify tenant Energy Conservation Measures (ECMs) to reduce long-term energy use.

One-on-One Meetings

► All tenants are able to request one-on-one meetings with the Vornado Sustainability Team to discuss potential sustainable solutions in their space. Meetings are focused on waste, energy, and areas of interest specific to the tenant.

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Tenant Outreach

LIVE. WORK. DO. App

► Vornado’s App and Tenant Portal provide Sustainability contact information, updated information on ENERGY STAR scores, organics collection, energy savings tips, and upcoming events like Climate Week for participation and engagement. In building tenant outreach via elevator screens, emails, and lobby events; monthly submeter reports; and tenant surveys are also in the app and portal.

Tenant Fit-Out Guidelines

► Where there is an economic or environmental benefit, Vornado prioritizes sustainability requirements in the tenant fit-out guidelines. The guidelines include enhanced requirements for energy-efficient lighting and controls, HVAC equipment, and water-efficient fixtures. We believe this fosters a sustainably designed tenant space and an ongoing environment that encourages the tenant to actively manage and measure their own carbon footprint.

Tenant Energy Competitions

► Vornado Sustainability hosts challenges at properties in NYC and San Francisco throughout the year. We communicate to tenants responsible and efficient best practices during a time when climate is top of mind in those regions, and then a multi-day competition commences for tenants to reduce their energy consumption against each other.

Earth Hour

► Annual event used to raise awareness about energy consumption and its impact on the environment.

Daylight Hour

► Annual event aimed at reducing energy use, improving occupant health, and encouraging everyone to turn off nonessential lighting and use daylight from 12 to 1 pm local time.

America Recycles Day (ARD):

► This Keep America Beautiful national initiative takes place annually on November 15 and aims to promote and celebrate recycling in the United States. Vornado leverages this event to motivate and educate our tenant base to recycle more and better. We mark this occasion with tenant-facing zero-waste messaging in our public spaces and elevators and in-person education events.

Earth Day

► To celebrate Earth Day, Vornado provides information relevant to our tenants’ carbon footprint both in the office and at home. Topics include ENERGY STAR saving tips, Vornado energy-efficiency targets, and waste diversion strategies.

Climate Week

► Launched in 2009, Climate Week is a key summit with a mission to showcase the momentum of global climate action. Taking place right in our own backyard, Vornado dovetails on this important initiative by partnering with tenants to bring energy, climate, and waste education directly to their employees.

Submetering

► Across our office portfolio, Vornado requires or promotes submetered or separately metered electricity consumption for all tenants over 5,000 square feet. We also require submetered or separately metered water consumption for all tenants whose predicted use is expected to exceed normal business practice. The submeter arrangement enables Vornado to share energy and water consumption with our tenants monthly through the generation of the submeter bill. Tenants are billed transparently based on their actual and exclusive consumption as recorded on the submeter.

Surveys

► Tenant surveys create a direct dialogue between Vornado and our tenants. As part of the LEED Certification program, Vornado conducts annual Tenant Comfort Surveys to ensure building performance and quality are up to the tenant’s standards. Areas of focus include thermal comfort and air quality among other comfort indicators.





# Health & Wellness

GRI 2-24, 3-2, 3-3



**IN ADDITION** to individual building certifications under Fitwel, Vornado implemented the Fitwel Viral Response Module (VRM) as a response to the COVID-19 pandemic and has since maintained the certification and procedures for the health and wellness of our tenants. Additionally, we conduct annual surveys to gauge tenant transportation and satisfaction as we constantly look to improve the health and happiness of our tenants. We also offer numerous wellness activities for the occupants of our properties. Yoga, Happy Hours, Subsidized Fitness, proximity to amenities, walking groups, etc., are just some of the activities provided throughout the portfolio. Indoor Air Quality (IAQ) testing is conducted biannually throughout the portfolio to measure Carbon Dioxide, Carbon Monoxide, Volatile Organic Compounds

(VOCs), Particulate Matter, Temperature, and Relative Humidity. If any of these contaminants are above acceptable levels, our specialists will analyze and provide solutions for bringing them down. The property then takes steps to correct the issues, and specialists will revisit the property to test and confirm all potential contaminants are within an acceptable range. Beyond testing, Vornado has been installing IAQ monitors in various buildings. Vornado provides the occupants of its buildings with air-quality protection from MERV 13 or higher filtration systems, entryway control systems, and walk-off mats. Green cleaning is done solely with products that have been certified/assured as safe. We are smoke- and tobacco-free across the entire portfolio and conduct annual Legionella and Domestic Water Testing through our Comprehensive Water Management Plan.

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# Partnerships and Participation

GRI 2-24, 2-28, 3-2, 3-3

Our employees serve as members of and hold board positions in organizations where we make meaningful contributions to sustainability issues in real estate. Our partnerships strategically address topics that include energy and water efficiency, climate policy, green building certifications, building electrification, zero-waste strategies and recycling, reporting frameworks, and sustainable operations and maintenance.

## Office Portfolio Accessibility Metrics\*

Average Transit Score  
100

Average Bike Score  
87.03

Average Walk Score  
98.63

### National

- Better Climate Challenge Partner
- EPA Energy Star Partner
- U.S. Green Building Council’s LEED Existing Building
- Consensus Committee
- Urban Land Institute, Greenprint Center for Building Performance and Product Council
- NAREIT Real Estate Sustainability Council
- Real Estate Roundtable Sustainability Policy Advisory Committee
- Center for Active Design, Leadership Advisory Board

### Regional

- New York Energy Consumer Council (Co-President of the Board of Directors and member of the Board of Directors)
- Real Estate Board of New York Sustainability Committee
- Building Energy Exchange - Board of Directors
- Urban Green Council (Program Committee)
- Retrofit Chicago
- Building Owners and Managers Association (BOMA) New York (Board of Directors), Chicago, and San Francisco
- Regional Plan Association (Board)
- Young Men’s/Women’s Real Estate Association (Board)
- AIA Committee on the Environment (COTE) Zero Waste Design Guidelines Advisory Board



# Occupational Health & Safety

GRI 2-6, 2-8, 2-24, 3-2, 3-3, 303-1, 306-1, 404-1, 413-1, 416-1

**BMS AND VORNADO** maintain a robust and multi-pronged health and safety program targeted to identify and control potentially hazardous situations in the workplace. Vornado recognizes that preventing accidents and increasing safety awareness leads to healthy employees, reduced absenteeism, and improved productivity.

### Safety Training

BMS provides monthly accident and incident prevention training. The training follows OSHA guidelines and covers numerous situations, such as slips, trips and falls, back safety, chemical safety, electrical and fire safety, handling sharp objects, hot and cold stress, first aid, and more.

### Personal Protective Equipment (PPE)

BMS and Vornado frontline team members are provided the necessary PPE for all types of scenarios, from chemical handling to prevention of exposure to bloodborne pathogens and viruses such as COVID-19. Training is conducted annually on the proper ways of donning and doffing PPE.

### Safety Stations

We have created safety stations that provide one centralized location for all staff to access personal protective equipment, a Safety Data Sheet (SDS) binder for all products used on-site, general safety procedures, an eye wash station, the bloodborne pathogens kit, and the regulation-compliant sharps container.

### Pathogen Safety

We take every precaution to prevent or minimize staff exposure to pathogens. BMS staff is provided with pathogen training, including (but not limited to) epidemiology, symptoms, how pathogens may be transmitted, how to prevent exposure under various scenarios, PPE, and how to handle situations of potential exposure.

### Job Hazard Analysis (JHA)

Vornado and BMS complete JHA's to assess potential hazards associated with each task for our engineering and janitorial teams, considering engineering, workplace, and administrative controls to eliminate or reduce risks and determine what PPE is required to conduct the job safely.

# Case Study: BMS & Green Cleaning

GRI 416-1

**BMS**, Vornado's cleaning company, is committed to promoting sustainability, increasing the efficiency and use of recycled resources and decreasing waste, both in BMS's operations and those of its suppliers. At BMS, we ensure a healthy indoor environment for tenants through our industry-leading green cleaning program, which has maintained CIMS-GB with honors and GS-42 certifications since 2014.

In 2023, BMS and Vornado's other janitorial partners achieved 75% sustainable purchases.



### Certification Highlight: Green Seal

► Since 2014, BMS has consistently met or exceeded the rigorous requirements of Green Seal's cleaning services standard (GS-42), which includes criteria for effective cleaning operations, staff training, clear communication, and the use of better equipment and safer products. GS-42 signifies safer indoor air quality, reduced environmental impact, outstanding professionalism, and uncompromising cleaning performance. BMS's compliance is verified through comprehensive documentation, interviews, and site inspections.

► BMS follows enhanced cleaning, disinfection, and maintenance protocols while prioritizing wellness by utilizing disinfectants with Green Seal-preferred safer active ingredients like hydrogen peroxide and using vacuums equipped with HEPA filtration.



### 2023 Supply Purchase Impact

► Chemical Use Reduction = 2,236 Gal from chemical-free floor scrubbers

► Water Use Reduction = 540,680 Gal from chemical-free floor scrubbers

► Packaging Reduction = 125 Tons from chemical concentrates

► Janitorial Products = 100% are assessed for health and safety improvement

► Purchased 58,777 cases of paper products, including 808,448 pounds of recycled paper products, which represents 1,333 cubic yards of landfill space saved.

► By purchasing liners with post-consumer recycled content, BMS reduced emissions by 121 tons of CO2e in 2023.

### BMS Employee Health & Safety Program

76

BMS supervisors and senior-level staff trained in GS-42 green cleaning standards.

100%

of active BMS employees trained monthly in compliance with OSHA standards.

12

Hours of training, per employee, annually.

118

Hours of safety checks in 2023.



# Community Development

GRI 2-24, 3-2, 3-3

## Sustainability as a Key Driver

### THE MART

#### ART on THE MART — Illuminating Public Art

► Founded in 2018, the program is a result of a 30-year commitment by THE MART owner Vornado Realty Trust, in close collaboration with the City of Chicago, with a shared goal to provide public access to innovative contemporary art to the thousands of visitors traversing the Riverwalk each day.

ART on THE MART brings cutting-edge video mapping techniques to Chicago’s Riverwalk, displaying projections of contemporary art across the 2.5-acre facade of THE MART, the largest privately held commercial building in the United States, internationally recognized as a global innovator in culture, design, and technology.

ART on THE MART presents pioneering moving image work by renowned local, national, and international interdisciplinary artists. The program has commissioned work by celebrated names like Derrick

Adams, Charles Atlas, Nick Cave, Barbara Kruger, and more, alongside projections by Chicago-based artists and local partner organizations, from the Art Institute of Chicago and The Adler Planetarium to the Chicago Black Dance Legacy Project and Chicago Public Schools. ART on THE MART amplifies the expressions of the broadest range of artists and partners to realize the power of public art and inspire positive community engagement along the river, throughout Chicago, and beyond.

Projections are visible from Wacker Drive and along the Riverwalk. The platform is free and open to the public nightly, nine months per year, from April through December.

#### River Park

► THE MART’s River Park is the first phase of a building-wide transformation, including interior and exterior renovations. The lush green space along the riverfront offers plentiful alfresco seating. The adjacent drive, with THE MART as a towering backdrop, can accommodate tented galas. There is also the option of using THE MART’s boat dock for guest arrival/departures. The River Park is a completely unique riverside venue.



### THE PENN DISTRICT

#### A Vibrant Campus\*

► THE PENN DISTRICT, the most accessible New York City neighborhood in the heart of Manhattan, has been transformed into a sustainable campus of best-in-class office, retail, food and beverage, and open spaces. Vornado has completed a \$2.4 billion transformation of the neighborhood to include over a half mile of new sidewalk paving, over two acres of green space and open-air plazas, and 73,000 SF of outdoor tenant space. FARLEY, PENN 1, and PENN 2 have undergone significant renovations resulting in a cohesive and collaborative destination focused on health, wellness, hospitality, and accessibility. The entire district has 100% zero-carbon electricity, supplied by in-state renewable resources. PENN 1 underwent a full building window replacement with

triple-pane glazing and a new amenities offering to include community space, a fitness center, restaurants, and conference areas, while PENN 2 was completely reclad with a high-efficiency modern curtain wall and new mechanical equipment, as well as new tenant amenities to be shared in concert with PENN 1.

PENN 2 was delivered as a carbon-neutral property. Efficiency improvements from the PENN 2 repositioning that contribute to this distinction include:

Tenants seek community, amenities, culture, and flexibility in their workspaces. Vornado has a distinct advantage to share in THE PENN DISTRICT alongside the infrastructure and technology advancements that will exceed these evolving expectations. A robust curriculum of engaging programming across physical and digital spaces alike provide access to

- topics in health and wellness, education, entertainment, and culinary industries. We engage audiences to participate and collaborate through curated content and activations and encourage tenants to share their interests. Full live streaming capabilities allow for connectivity across the campus and our retail partners offer opportunities for tenants to partake in special events.
- Advertising Week New York 2023
  - TED Talks at the PENN 1 Social Stairs
  - LIFETIME Classes in PENN 1 West Plaza
  - The Irish Exit Opening at the Moynihan Food Hall
  - Moleskine and Artist in Residence store opening at the Moynihan Train Hall
  - Sadow Arts & Interior Design Programming

\*This disclosure was not subject to Deloitte & Touche LLP’s review and, accordingly, Deloitte & Touche LLP does not express a conclusion, opinion, or any form of assurance on such information.



# Human Capital Management

GRI 2-24, 2-25, 3-2, 401-2

## Workforce



**OUR EMPLOYEES** are the foundation of our business. We provide training and education, promote career and personal development, and encourage innovation and engagement to foster their talent and growth. Vornado upholds strict policies against bribery and corruption, child labor, and forced or compulsory labor. Any trustee, officer, or employee who becomes aware of any existing or potential violation of Vornado’s Code of Ethics is required to notify their Code of Ethics contact person promptly. Violations may be reported anonymously, and all communications will be kept confidential. Our Code of Business Conduct and Ethics is found on our website at [www.vno.com/governance/conduct-and-ethics](http://www.vno.com/governance/conduct-and-ethics). Our policies, including our Grievance policy, are found in our employee handbook, which our employees must review and acknowledge.

## Employee Health & Benefits

### Financial

- 401(k) and Employer Match
- Tuition Reimbursement
- Employee Referral Bonus
- Commuter Benefits
- Cellular Discounts

### Parental Benefits

- Dependent Care Flexible Spending Account
- Maternity and Parental Leave
- Adoption/Surrogacy/IVF Stipend

### Work/Life Balance

- Employee Assistance Program

- Paid Time Off & Elective Holiday
- Summer Fridays
- Vornado Day of Service
- Flexibility to encourage employees to find better balance while supporting the critical need for in-person collaboration in the office

### Health and Wellness

- Medical, Dental, and Vision Coverage including Telemedicine
- Health Savings Account
- Life Insurance
- Short-Term and Long-Term

- Disability Insurance
- Healthcare Flexible Spending Account
- Subsidized Gym Memberships
- Health and Wellness Fairs
- In-Workplace Vaccinations
- CPR Trainings
- Wellness Incentives
- Workplace Walking Challenge Program via WalkingSpree

## Employee Training

- Anti-Harassment
- DE&I
- Cybersecurity
- Excel Training
- Continuing Education Through Building Owners and Managers Association (BOMA), IUOE Local 94, Local 32BJ, and the NYU Schack School of Real Estate
- Green Professionals (GPRO) Training, Administered by Urban Green Council

## Events

- JP Morgan Corporate Challenge
- Various Employee Appreciation Gatherings and Events
- Holiday Parties
- Climate Week
- Earth Day
- ALA Stair Climb Career Day
- School Supply Drive
- Food Drive
- Toys for Tots

# Learning & Development

## Continuing Education

► Vornado has a strong commitment to creating an environment in which employees can develop their strongest potential. Employees are encouraged to seek opportunities - both inside and outside the organization - that provide experiences that allow them to build on existing skills and explore new job-related areas of interest. This includes attending conferences, professional seminars and meetings and participation in professional associations. Employees are also eligible for yearly tuition reimbursement to pursue studies related to their role.

## Mentoring & Internships

► As a business leader in one of the most diverse markets in the world, Vornado has a responsibility to enhance opportunities within our organization and improve representation in the real estate industry. Every year, we work with the Partnership of New York City to host high school students at PENN 1 for Career Discovery Week. This program provides the students with meaningful exposure to both the diverse career opportunities available within the city and the skills and knowledge required to prepare for them.

Along with offering robust summer internship opportunities to students, Vornado partners with The Department of Youth and Community Development through the Ladders for Leaders Program to give interns a unique opportunity to explore their career and educational interests.



# Engagement at Vornado

Our employees are our greatest asset. In their own words, here's what they had to say about their journeys working at Vornado.



**Jiten Gajera**  
**AVP, Property Accounting**  
*4-Year Tenure*

► There are many reasons why I made my career at Vornado. Vornado offers so many great qualities for employees: a family-oriented environment, well-being of the employees, flexibility, opportunity, work-life balance, and most importantly, amazing personal growth support from the management. I work with a great team of individuals who always promote new ideas while challenging themselves. I have felt supported to pursue professional growth while being given the space and time to be fully involved with my family life.



**Yilka Gashi**  
**VP, Operations**  
*10-Year Tenure*

► I've chosen to build my career at Vornado because of its commitment to innovation, its strong values, and the opportunities it has provided for my professional growth over the years. I began my career at Vornado shortly after graduating college and have been given the opportunity to advance my career over the past 10 years. The supportive culture, the chance to contribute to various policies and procedures and impactful projects, and the ability to collaborate with colleagues and peers in different groups have aligned perfectly with my career aspirations.



**Jose Meneses**  
**VP, Financial Reporting & Technical Accounting**  
*9-Year Tenure*

► One highlight of my job at Vornado is being able to work closely with our Controller to assist with the annual Chairman's Letter to our shareholders. This process has given me a deeper understanding of how the CEO/Chairman views Vornado's business, the real estate industry, and the economy. The process provides deeper insight into senior management's view of the business that I otherwise would not have in my day-to-day role with the company.



**Betty Sobers**  
**AVP, Cash Application**  
*23-Year Tenure*

► Vornado is like a home for me; I look forward to coming to work every day. When I have needed personal time, it has been a priority of my managers. I have also been supported to grow professionally and run my department with pride. I have spent my career here growing professionally as well as in my personal relationships.



**Manuel Soto**  
**AVP, Network Operations**  
*23-Year Tenure*

► My best memory working for Vornado was a few years ago during COVID. The IT team had to come together and stand up an environment that allowed our employees to work remotely from their homes. We were able to keep everyone connected and the business running. IT was recognized as "Employee of the Year" shortly after. I felt very proud of our IT staff and myself. It was a great accomplishment for us.



**Audrey Wilson**  
**Development Associate**  
*4-Year Tenure*

► I have had the privilege of starting my real estate career at Vornado, surrounded by industry leaders who have invested in my success. It has been rewarding to see our hard work pay off, particularly in THE PENN DISTRICT, with projects that impact New Yorkers on a daily basis. I'm proud to be a part of a company with such a commitment to excellence.



# Vornado Volunteers

GRI 2-24, 3-2, 3-3, 413-1

Vornado supports volunteerism that enhances and serves the communities in which we live and work. Through employee engagement and social impact assessment, Vornado Volunteers identifies local community organizations focused on economically and socially disadvantaged populations, environmental restoration and protection, and health and wellness. Some of those efforts include:

## Breaking Ground

- ▶ We have partnered with Breaking Ground to provide intervention and support services for the homeless population around THE PENN DISTRICT. Michael Franco, Vornado’s President and CFO, has been a Breaking Ground Director since 2012 and its Chairman since June 2015.  
Breaking Ground professionals work on-site to provide those in need with access to benefits, medical care, mental health care, substance abuse support, and other resources to bring them onto a path toward stability.

## Jersey Cares

- ▶ We continue to support Jersey Cares, a nonprofit that partners with local organizations to address community needs. This year our employees volunteered at a community food bank, packing meal kits for families in need, led a cleanup effort at Branch Brook Park, and put together “giggle bags” for children admitted for long-term hospital stays.

## Project Cicero

- ▶ Project Cicero is a nonprofit annual book drive to help under-resourced New York City public schools create and enhance classroom and school libraries. We store the donated books at PENN 11 throughout the year and work the book fair with employee volunteers.

## Fight for Air Climb New York City

- ▶ Annually, Vornado hosts the American Lung Association’s Fight for Air Climb. Climbing 55 floors at PENN 1, we join our community of tenants, Vornado employees, FDNY, friends and family, and fellow New Yorkers to fight for a world free of lung disease.



## Sharebite

- ▶ Vornado has partnered with Sharebite, a minority-founded and -owned business that acts as a meal benefit platform. For each meal purchased, Sharebite donates a meal through organizations such as Feeding America and City Harvest. Since 2021, 15,035 meals have been donated based on meals purchased by Vornado employees.

## 34th Street Partnership

- ▶ Vornado is an active member of the 34th Street Partnership, which is the not-for-profit management company that serves as the Business Improvement District for THE PENN DISTRICT, whose mission is to convene business and civic stakeholders to maintain the district’s public safety and promote cultural vibrance and economic viability. Gaston Silva, Vornado’s Chief Operating Officer, is the Partnership’s current chair.  
Vornado also directly engages its employee base in THE PENN DISTRICT community. Through our partnership with the New York City Police Department, our employees volunteer to remove graffiti and restore storefronts throughout THE PENN DISTRICT.

## Charitable Contributions

- ▶ Vornado generously supports charities with financial contributions. Our beneficiaries represent a broad range of worthy causes, with an emphasis on community development, education and youth services, cultural institutions, and medical research. Below is a selection of recipients of Vornado’s charitable giving in 2023:
  - American Red Cross
  - Big Brothers Big Sisters of New York City
  - BOMA New York
  - Citizens Budget Commission
  - Center for Architecture
  - Diabetes Research Institute Foundation
  - enCourage Kids Foundation
  - Greater Chicago Food Depository
  - Northwell Health Foundation
  - Project Lyme
  - REBNY Foundation
  - Regional Plan Association
  - Schools That Can
  - WX Inc. (NY Women Executives in Real Estate)
  - Young Men’s/Young Women’s Real Estate Association



# Vornado Honors

GRI 2-24, 3-2



**Carol Lamberg**  
**Visionary Award**  
**Judy Kessler**

► Judy Kessler, Vornado’s Development Consultant, was awarded the 2023 Carol Lamberg Visionary Award for her work with the Settlement Housing Fund in New York City.

The Settlement Housing Fund seeks to bring new and rehabilitated affordable housing to Manhattan, Brooklyn, and the Bronx with amenities, programs, and services that promote strong neighborhoods and housing stability for families leaving shelters.



**REBNY’s Project of the Year Award**  
**Vornado Retail**

► New this year is the REBNY Retail Development/Project of the Year Award, which recognizes developers, architects, general contractors, and consultants who facilitated development of the most impactful and unique retail-focused development in New York City.

Nominated by past chairs of the Retail Committee and voted on by the entire REBNY membership, this award’s first winners are Haim Chera, Edward Hogan, Jason Morrison, and Jenniel Davis of Vornado for the transformation of the 110-year-old Farley Post Office building into Moynihan Train Hall. Moynihan Train Hall has now become the dynamic link between the emerging PENN DISTRICT to the east and the newly constructed Hudson Yards to the west.



**Commercial Observer Top Young Professionals**  
**Nathan Marcus**

► Nathan Marcus, Vornado’s Retail Leasing Analyst, was included in Commercial Observer’s annual 2023 Young Professionals list of the top commercial real estate professionals. This list honors Young Professional leaders in the brokerage, financing, and architecture, engineering, and construction sectors of the industry. Since joining Vornado’s retail team full-time, Marcus’s main focus has been PENN 1, PENN 2, and the Moynihan Train Hall.



**PENN 11 Historical Building of the Year**  
**BOMA**

► PENN 11 is the historic 1,150,000 square foot, 26-floor former Equitable Life Assurance Building, which was designed by Starrett & Van Vleck and completed in 1923. The PENN DISTRICT building is LEED Gold certified and renowned for its incredibly vaulted lobby and ornate ceiling. PENN 11 recently underwent a lobby ceiling refurbishment to restore it to its original splendor and installed a towering 560-square-foot, 25.6M-pixel lobby screen. The lobby features custom art and tenant designs, in addition to an exterior crown lighting element by award-winning Cline Bettridge Bernstein Lighting Design.



**Commercial Observer Power PropTech 30**  
**Robert Entin**

► Robert Entin, Vornado’s Executive VP, Chief Information Officer, was named one of the Commercial Observer Power PropTech 30 in 2023. Entin has combined his technical engineering expertise and his accounting and property management experience to create the Integrated Business System (IBS), becoming one of the acknowledged industry leaders.



# Governance



# Governance

GRI 2-9, 2-10, 2-12, 2-13, 2-14, 2-24, 3-2, 3-3

**OUR LEADERSHIP IS COMMITTED** to evaluating and disclosing climate-related risks material to our business. We institute a top-down approach for the ongoing assessment and management of climate-related risks, which includes the execution of tasks throughout all levels and divisions of our business. Our Board receives regular updates on ESG topics from the Vornado Executive team. Our Corporate Governance and Nominating Committee oversees environmental matters, including climate-related risks and opportunities.

The Corporate Sustainability Team helps to set company-wide priorities and serves as the liaison to the Board on climate-related risks and opportunities. While responsibilities are integrated throughout the company, the Chief Sustainability Officer and team oversee the management of climate risks along our properties' acquisition, development, operation, and disposition stages. Through direct interaction within various divisions, the Sustainability Team continually evaluates transitional, physical, financial, and legal risks and opportunities.

## Corporate Sustainability Policies

Vornado has placed many of our policies on our human capital programming and policy commitments and sustainability resources on our website. These can all be found at [www.vno.com/sustainability](http://www.vno.com/sustainability). The following are some of the posted policies and resources:

- Environmental Sustainability Policies and Procedures
- Vendor Code of Conduct
- Philanthropy
- Human Capital Management
- Human Rights
- Occupational Health & Safety Policy and Program
- Retail Tenant Waste Best Practices
- Sustainability Tenant Organics Guidelines
- Sustainability Tenant Best Practices



# Supply Chain

GRI 2-6, 2-23, 2-24, 3-2, 3-3, 306-2

**AS A COMPANY** that values sustainability, it is important that we encourage our vendors to value the same standards we hold ourselves to. Vornado's purchasing policy dictates that we will only buy environmentally safe and certified products for cleaning and maintenance. It is important to Vornado that we ensure we get the materials we are looking for while also improving the communities we work in.

Vornado is working with Supplier Gateway to assess and further develop our supplier diversity program. Supplier Gateway is a third-party software system that helps to identify, quantify, monitor, and increase diverse and local supplier spend. We are working with Supplier Gateway to identify the vendors used by our Operations team designated with various certifications such as MWBE or small business. We are continuing to launch campaigns to capture and highlight additional details, and expand to all of Vornado's suppliers.

### Vendor Code of Conduct

### Vendor Integrity Program

We require that our suppliers comply with Vornado's Vendor Code of Conduct. In addition to conveying our requirements on business ethics, integrity, and anti-bribery, we require our suppliers to comply with applicable laws and regulations. Our full Code of Conduct can be found at [www.vno.com/sustainability](http://www.vno.com/sustainability).

We actively monitor our suppliers' compliance with our Code of Conduct and perform audits of our supply chain through our Vendor Integrity Program (VIP). Vendors are subject to review every three years. More information can be found at [www.vno.com/sustainability](http://www.vno.com/sustainability).



# Climate-Related Strategy & Analysis\*

GRI 2-23, 2-24, 3-2, 3-3, 201-2

In February 2019, Vornado was among the first American real estate companies to become a signatory of and endorse the TCFD recommendations. Our leadership is committed to evaluating climate-related risks material to our business.

## Task Force on Climate-Related Financial Disclosures (TCFD) Index\*\*

Sustainability Governance

pg. 10-11

Risk Management

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Metrics & Targets

pg. 18

Vornado’s Full TCFD Report can be found at <https://www.vno.com/vornado-tcf-d-report/2022>

\*Any information relating to forward-looking statements, targets, goals, progress against goals, and linked information was not subject to Deloitte & Touche LLP’s review or examination and, accordingly, Deloitte & Touche LLP does not express a conclusion or any form of assurance on such information.

\*\*For more information on our climate-related strategy & analysis program please reference the TCFD Index, as well as, Sustainable Development including Resilience and Adaption and the SASB Disclosure on climate change risk, all within this 2023 Sustainability report and our 2023 proxy statement.

**WE HAVE IDENTIFIED PHYSICAL** climate risk based on the IPCC Representative Concentration Pathway (RCP) 8.5, consistent with a worst-case scenario/business-as-usual scenario and assess physical risks and opportunities over the short- (present–2029), medium- (2023–2049), and long-term horizon (2050–2100). Transition risk has been assessed based on our SBTi commitment to limit global warming by 1.5°C and local regulatory controls.

In 2023, we began using the Risk Factor™ tool to assess physical climate risk scenarios of our in-service office building stock. Results include event type, risk level, timeframe, and cost, all of which are generated through scientific-based models using validated, peer-reviewed resources. Scores are based on a scale ranging from 1 to 10, where 1 is minimal and 10 extreme.

## Vornado’s office portfolio risk scenarios as evaluated by Risk Factor™

Risk Factor	Score	Description
Heat Factor®	6	A nationwide spatial temperature model that shows a specific location’s exposure to extreme heat events based on the surface temperature, topography, land cover, and humidity in the surrounding area.
Fire Factor®	1	A nationwide, fire-behavior-based wildfire model that shows a specific location’s probabilistic risk of wildfire based on vegetation, topography, and likely weather.
Flood Factor®	3	A nationwide model that allows us to determine the potential flood risk from rain, streamflow, sea level rise, tide, and storm surge for any location.
Wind Factor™	5	Focused on how climate change is impacting wind risk to structures within the US. Changes to hurricanes’ intensities and their distribution are forecast to be the largest impacts of climate change on wind risk.

Environmental risk data is provided by Risk Factor™, a product of First Street Foundation®. The Risk Factor models are designed to approximate risk and not intended to include all possible scenarios.

## Physical Risks and Opportunities: Scenario Analysis

### Acute Physical Risks (Short Term)

- Stormwater surge, flood risk in vulnerable areas.
- Inability to transit to work due to flood or power loss.
- Localized loss of power due to severe climate-related events (e.g., hurricanes, floods, etc.).
- Degradation of air quality and public health due to ongoing dirty grid emitting potential increased temperature, SLR and precipitation.

### Chronic Physical Risks (Long Term)

- Accelerated increases in land and ocean temperatures could lead to increased climate-related events, including extreme precipitation events, which could yield significantly higher disaster responses and flood mitigation costs.
- Accelerated increases in sea level rise could lead to increased damage from coastal urban floods.
- Fresh water scarcity.



Transitional Risks and Opportunities: Scenario Analysis\*

Short Term  
(Present–2029)

2030 Medium Term  
(2030–2049)

Long Term  
(2050–2100)

Short Term (Present–2029)		2030 Medium Term (2030–2049)		Long Term (2050–2100)		
Risks	Opportunities	Risks	Opportunities	Risks	Opportunities	
<p><b>Policy and legal:</b> Capital investment required toward energy efficiency or decarbonization to comply with local regulation, namely the Climate Mobilization Act (CMA).</p> <p><b>Policy and legal:</b> Resources incurred to comply with Securities and Exchange Commission (SEC) rules regarding climate-related disclosures.</p> <p><b>Technology:</b> The need for efficient and health-centric innovation.</p> <p><b>Market:</b> Cost of energy, renewables, and impact of market economics.</p> <p><b>Market:</b> Access to capital because of high interest rates.</p> <p><b>Market:</b> Global slowdown due to high interest rates limits new leases.</p> <p><b>Market:</b> Manufacturing and supply chain disruption.</p> <p><b>Reputation:</b> Remote working behavior and our tenants flight to quality to encourage working in offices.</p>	<p><b>Resilience:</b> Accomplishment of Vision 2030 aligning our carbon footprint to a 1.5-degree climate scenario.</p> <p><b>Products and services:</b> Market demand for sustainable and resilient buildings.</p> <p><b>Market:</b> Proven market resilience through 40+ years of real estate cycles.</p> <p><b>Resource efficiency:</b> Reduced energy consumption and costs from energy efficiency measures.</p> <p><b>Energy source:</b> Sourcing energy from renewable grids or on-site renewables.</p> <p><b>Market:</b> Expansion and outreach to our value chain.</p> <p><b>Market:</b> Leverage ESG-focused and sustainable financing mechanisms.</p>	<p><b>Policy and legal:</b> Capital investment required toward energy efficiency or decarbonization in the cities where we do business, namely the Climate Leadership and Community Protection Act (CLCPA).</p> <p><b>Technology:</b> Decarbonization of grid-supplied energy could lead to increased energy costs and operating expenses.</p> <p><b>Market:</b> Changing perceptions of office amortization requirements.</p> <p><b>Reputation:</b> Increased stakeholder concern or negative stakeholder feedback if CMA compliance or ESG targets are not met.</p>	<p><b>Resource efficiency:</b> Our overall energy consumption could decrease, yielding reduced operating cost.</p> <p><b>Products and services:</b> Carbon neutral buildings could be more competitive and could yield higher value to our business.</p> <p><b>Product and services/ market:</b> Alignment of climate-related goals with existing and future tenants increasing collaboration toward decarbonization and reputation.</p> <p><b>Market:</b> Energy storage, on-site renewable energy, and distributed energy resource deployment could yield additional sources of revenue and attract and retain tenants.</p> <p><b>Market:</b> Leverage ESG-focused and sustainable financing mechanisms.</p>	<p><b>Policy and legal:</b> Capital investment toward energy efficiency or decarbonization.</p> <p><b>Policy and legal:</b> Increased legislation limiting development.</p> <p><b>Technology:</b> Increased energy costs due to full transition of grid-supplied energy to renewable sources.</p> <p><b>Market:</b> Increased mitigation costs with long-term climate change impacts.</p>	<p><b>Resource efficiency:</b> Improved air quality due to a cleaner grid could lead to lower HVAC operating and maintenance costs.</p> <p><b>Resilience:</b> Mitigated increases in temperature could lead to reduced costs to adapt our buildings to be resilient to more extreme climate scenarios.</p> <p><b>Energy source:</b> Renewable energy delivered from the grid will reduce source-generated carbon emissions and potentially reduce exposure to climate regulation.</p> <p><b>Resource efficiency:</b> Full transition of grid-supplied energy to renewable sources could lead to decreased off-site renewable product costs.</p>	<p><b>Resilience:</b> Increased demand and value for our product because our assets are located in dense urban areas with alternative means of transportation contributing to business continuity.</p> <p><b>Resilience:</b> Increased demand and value for our product because a low percentage of our assets are located in flood zones.</p> <p><b>Markets:</b> Leverage ESG-focused and sustainable financing mechanisms.</p>

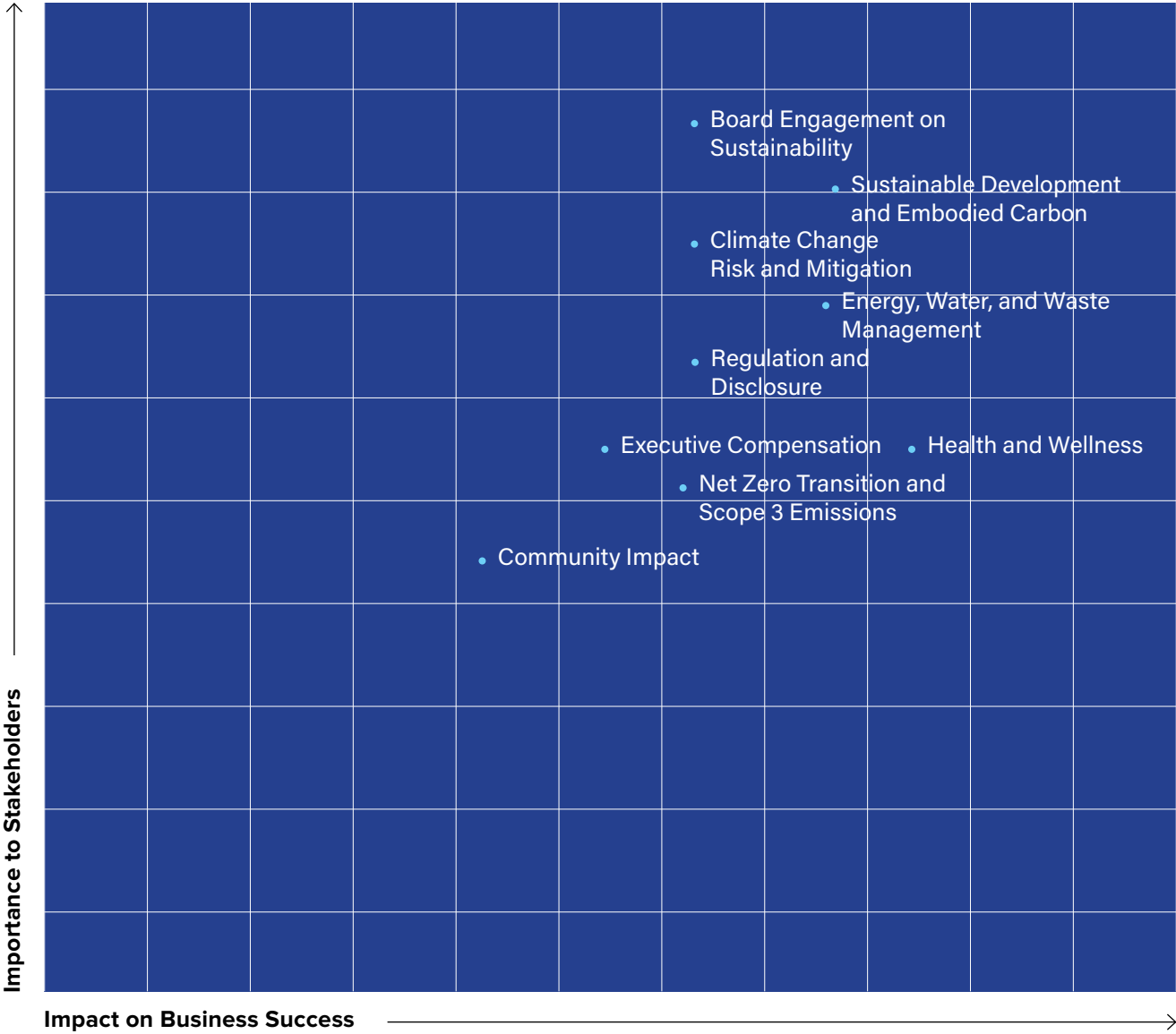
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# Materiality Assessment

GRI 2-29, 3-1, 3-2, 3-3

At Vornado, sustainability and resilience are important lenses through which we view all development projects at any scale. Our strategy focuses on sustainable development inclusive of carbon neutrality, operational efficiencies, human health, minimizing resources, and climate change adaptation.



Stakeholder Group	Nature of Engagement	Frequency of Engagement	Key Topics and Concerns in 2023	2024 Plans
Our Tenants	Active relationship through our property management teams; meetings and discussions on tenant environmental performance; Climate Week and Earth Day campaigns; sustainability roundtables and on-site waste training and webinars.	Daily (property management); as-needed (in person meetings, trainings, and engagement for climate events); quarterly (roundtable/webinars).	Emissions Calculations; Energy, Water, and Waste Management; Local Laws; Community Impact; Health and Wellness.	Continue to engage regularly with tenant roundtables; increased one-on-one tenant engagement to align ESG goals through operational improvements.
Our Investors	Conference calls to discuss corporate governance and ESG issues. Discussions include Vornado's Lead Trustee; President and Chief Financial Officer; Chief Administrative Officer; Corporation Counsel; and heads of Investor Relations, Human Resources, and Sustainability. Conducted calls with investors representing ownership of at least 40% of all outstanding shares.	Annually, or more frequently as requested. Total investors reached represent over 40% of all Vornado's outstanding shares.	Executive Compensation; Management Succession Plan; Long-term Net Zero Transition; Embodied Carbon Targets; Climate Risk and Local Law Exposure; Human Capital Management.	Respond to investor topics and concerns, including TCFD and net-zero planning, local law exposure, and SEC requirements.
Our Board	ESG updates to the Board by the President and Chief Financial Officer; presentation from the Chief Sustainability Officer.	Quarterly (from Chief Financial Officer); annually (from Chief Sustainability Officer).	Operational Optimization and Local Law Exposure; Financial Performance; Executive Compensation; Human Capital Management; Net Zero Transition.	Continue to review our progress and goals with Board to ensure targets are met.
Our Employees	Informal and frequent check-ins on environmental performance; in-person or virtual meetings; support for community involvement and volunteering; employee surveys.	Weekly (informal engagement); annually (in-person meetings).	Human Capital Management; Health & Wellness; Energy, Water, and Waste Management; Net Zero Transition; Sustainable Development.	Continue to develop employee-focused and employee-led programs and continue to support sustainable development and net zero program development.
Our Communities	Active membership and partnerships in community and government organizations focused on civic and environmental issues.	Monthly or more frequently (per meeting schedule).	Net Zero Transition; Energy, Water, and Waste Management; Community Impact; Biodiversity, Climate Change Risk, and Mitigation; Sustainable Development.	Continue to develop sustainability programs for PENN DISTRICT and continue to expand throughout Vornado, inclusive of net zero program focused on impact, nature, and climate change risk.



# Risk Management

GRI 2-24, 3-1, 3-2, 3-3

**OUR CLIMATE RISK** assessment informs the risk profiles of our properties and is a component of our Enterprise Risk Management (ERM) assessment during all stages of a building cycle. Understanding climate-related risks enables us to better assess potential acquisitions through the due diligence process, impacts within our (re)development efforts, and exposure of our operational assets.

Identifying these risks is an iterative process that annually seeks input and reassessment from leadership within each of Vornado’s divisions, alignment with our Energy Management System (EMS), and is then tied to our ERM assessment. Our approach to management of materials topics is through an Internal Audit Risk Assessment (“Risk Assessment”) that is updated as needed to incorporate any future changes in the risk profile of the business,

and at minimum, once annually. The first step is to conduct a Risk Workshop with the Risk Committee, using principles of double materiality, to discuss/assess the risk landscape of the business and how it relates to strategic initiatives, emerging risks, and corresponding mitigating activities, all of which are then compared against financial impact. All risks identified during the workshop and survey are collated into a single risk universe document and gathered additional data points by: reviewing results from prior year internal audit reports; researching peer organizations; applying internal auditor’s institutional knowledge; considering industry hot topics; and discussing regularly in investor meetings/calls and with tenants directly and through roundtable discussions. Based on the results of the risk assessment, a proposed FYE internal audit plan

“

The Corporate Governance and Nominating Committee of Vornado’s Board of Trustees is assigned **with oversight of sustainability matters, which includes climate change risk.**

”

is developed to address the most significant risks. Once the Internal Audit Plan of risk assessment is developed, each identified risk is assigned a high, medium, low score across various risk factors, and risk topics per category are identified and prioritized based on the residual risk scores along with the impact and likelihood of occurrence. Internal Audit Risk Assessment is presented to the Board/Audit Committee in the beginning of the year. The audit plan is approved by the Board/Audit Committee and the plan is then executed, risks are monitored, and assessments are performed at the direction of the Risk Committee. The Sustainability Team and other business units actively manage and monitor topics, leveraging the internal audit plan, metrics and targets, and management and stakeholder feedback throughout the year.

## Risk Identification

### Inputs

- Conduct risk workshop with the Risk Committee to discuss risk landscape of the business and how it relates to strategic initiatives, emerging risks, and corresponding mitigating activities
- Interviews with stakeholders
- Business objectives, organizational goals, and strategic initiatives
- External perspectives, industry trends

### Strategic

### Financial

### Operational

### Technology

### Legal/Regulatory/ Compliance

## Assessment & Prioritization

### Risk Factors

### Potential Impact

### Probability of Occurrence

## Management & Monitoring

### Internal Audit Plan

### Focus Areas



# Technology and Cybersecurity

**CENTRALLY LOCATED IN** the heart of Manhattan, GMSC, our IT and cybersecurity team, is dedicated to providing reliable and efficient security integration solutions for business and organizations. With our expertise in access control and camera systems, we can help ensure the safety and security of your property/office space and assets.

As a New York State licensed provider, the GMSC team is certified by many of the largest security technology companies.

To remain at the forefront of technology, GMSC operates a Research & Development lab to identify and evaluate emerging security technologies, execute proof of concept, and test new hardware and software integrations.

**Our Objective**

Vornado’s core information security goal is safeguarding information assets by actively monitoring networks, conducting tests, and implementing robust management of applications, infrastructure, and physical access.

**Vulnerability Management**

Workstations and servers undergo a rigorous patch management procedure, coupled with routine system scans for the detection and resolution of vulnerabilities. Our security measures encompass a multi-layered approach, incorporating URL filtering, advanced email security, application allow listing, data encryption, and more.

**Disaster Recovery/Business Continuity**

We confirm the daily replication of our vital financial systems at our disaster recovery site. All employees possess secure remote capabilities, ensuring uninterrupted performance of critical tasks for the enterprise. In addition, regular drills and simulations are conducted to validate the effectiveness of our disaster recovery protocols, further fortifying our readiness to swiftly transition operations to the backup site in case of any unforeseen disruptions.

**Security Assessments**

Annually, we engage external cybersecurity experts to conduct comprehensive penetration tests and red team exercises to assess the strength of our security infrastructure. Through these initiatives, we proactively identify potential vulnerabilities and weaknesses in our systems. Any findings are promptly addressed and rectified, reinforcing our commitment to maintaining a resilient and secure environment for our operations.

**Employee Training and Outreach**

Our entire workforce undergoes cybersecurity awareness training and participates in regular email phishing simulations to assess their vigilance. Ongoing communication through newsletters serve as a consistent reminder, fostering active involvement of our employees in our cyber defense efforts.

**Identity & Access Management**

An Identity & Access Management (IAM) system scrutinizes application-level activities, detecting any potentially suspicious behavior that might evade traditional detection methods. Mandatory Multi-Factor Authentication (MFA) is enforced for all remote network access and sensitive on-network applications, enhancing the overall security posture.

**Incident Response**

To ensure organizational readiness for cyber events, we have a well-crafted Cybersecurity Incident Response Plan (CSIRP). Regular validation and enhancement of the CSIRP take place through multidisciplinary tabletop exercises, ensuring its effectiveness and relevance in dynamic cyber threat landscapes.

**Third-Party Risk Management**

A risk management process is in place for third-party service providers, suppliers, and vendors. This includes a thorough vetting process and ongoing monitoring mechanisms designed to ensure their compliance with cybersecurity standards. Third-parties needing network access adhere to the same security protocols, including MFA, and undergo periodic audits to confirm the ongoing necessity of their access.

## Cybersecurity

**VORNADO IS COMMITTED** to rigorous cybersecurity standards with a comprehensive strategy to safeguard our data and computing environment. We collaborate with third-party services for continuous 24/7 network monitoring and vulnerability scans, ensuring our cybersecurity is consistently updated and prepared for emerging threats. In addition, we support and supplement our cybersecurity efforts with physical security to further protect

and maintain the network and computing equipment that allow us to operate our assets efficiently. We believe strongly in educating our employees by utilizing both online cybersecurity education and performing phishing campaigns to understand areas of additional educational need. Our distinct Internet of Things (IoT) and corporate networks enhance data and access segregation. Furthermore, our IoT network is highly segmented for additional

security and to minimize vendor access. External firms conduct audits on our networks, reinforcing our dedication to maintaining the highest level of security. Providing formal reports to both the Audit Committee and Board of Trustees, outlining our current cybersecurity program and future enhancements, assists them in overseeing the company.





Technology

Access Control

- Installation and configuration of access control systems
  - Integration with existing security infrastructure
  - User management and
- access level customization
  - Facial recognition/biometrics
  - Mobile access, including Apple Wallet integrations
  - Visitor management
- Turnstiles installation
  - Destination dispatch integrations
  - Intercom systems
  - Cloud access control

Video Surveillance Systems

- Installation and setup of high-quality surveillance cameras
  - Integration with access control systems
  - Live monitoring and recording
  - On premise or cloud storage options available
  - Partnership with NYPD for
- CCTV monitoring
  - Behavioral analytics with industry leading partners
  - Video management systems
  - Racks and enclosures
  - Panoramic cameras, low-light cameras, specialty cameras
- Additional Services:**

  - Security system design and consultation
  - Training and education for staff on security systems
  - Equipment only sales: access cards, fobs, cameras, printers

Board Planning

GRI 2-9, 2-10, 2-12, 3-2, 405-1

Board and Committee Refreshment

- In 2023, as part of our committee rotation process, Mr. Raymond J. McGuire was added as a member of our Compensation Committee.
- Continued focus on Board composition, refreshment, and rotation.

Board Diversity

- 30% of the Board is comprised of female Trustees and 30% is racially/ethnically diverse.
- Board is comprised of Trustees with diverse skill sets including operational, ESG, technology, and real estate expertise.

Corporate Governance and Nominating Committee Oversight

- The Corporate Governance and Nominating Committee assumed direct oversight to monitor the effects of climate change on the company, in addition to its responsibilities for ESG matters and oversight of company political contributions.
- No direct company contributions to political candidate campaigns in 2020–2023.

Competency/Attribute	Steven Roth	Candace K. Beinecker*	Michael D. Fascitelli	Beatrice Hamza Bassey	William W. Helman IV	David Mandelbaum	Raymond J. McGuire	Mandakini Puri	Daniel R. Tisch	Russell B. Wight, Jr.
Operational	•	•	•	•		•	•		•	•
Public Company Experience	•	•	•	•	•	•	•	•	•	•
Industry Expertise	•		•			•	•		•	•
Financial Literacy	•	•	•	•	•	•	•	•	•	•
Experience Over Several Business Cycles	•	•	•	•	•	•	•	•	•	•
Capital Markets Expertise	•	•	•	•	•	•	•	•	•	•
Investment Management	•	•	•	•	•	•	•	•	•	•
Risk/Crisis Management	•	•	•	•	•	•	•	•	•	•
Accounting Expertise	•		•				•	•	•	
Government/Business Conduct/Legal	•	•	•	•		•	•	•		•
Environmental, Social, and Governance	•	•	•	•	•		•			

\*Lead Independent Trustee



# Appendix

100 Human Capital Management Metrics 102 Global Reporting Initiative (GRI) Content Index 116 Assurance Statement — GRI Content Index 118 Sustainability Accounting Standards Board (SASB) Index 126 Assurance Statement — SASB Index 128 UN Sustainable Development Goals 130 Glossary



# Human Capital Management Metrics

GRI 2-7, 2-8, 3-2, 401-1, 405-1

## Social Demographics: Vornado 2023

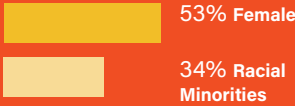
### Key Findings

Gender								
Gender		Total Employees	% All Employees	Permanent	Temporary	Full-Time	Part-Time	Racial Minorities* (%)
All Employees	Male	263	47%	248	15	262	1	30%
	Female	293	53%	283	10	287	6	36%
AVP or Above	Male	75	13%	75	0	75	0	17%
	Female	44	8%	44	0	43	1	23%
Age								
All Employees	< 30 Years Old	121	22%	98	23	119	2	26%
	30-50 Years Old	251	45%	250	1	248	3	40%
	> 50 Years Old	184	33%	183	1	182	2	28%
AVP or Above	< 30 Years Old	0	0%	0	0	0	0	0%
	30-50 Years Old	71	13%	71	0	70	1	23%
	> 50 Years Old	48	8%	48	0	48	0	13%
Region								
New York		256	46%	239	17	250	6	27%
New Jersey		235	42%	227	8	234	1	42%
Chicago		61	11%	61	0	61	0	25%
San Francisco		4	1%	4	0	4	0	50%

Tenure***					
	0-4 Years	5-9 Years	10-19 Years	20+ Years	Total
# Of Employees	231	94	132	99	556
% All Employees	42%	17%	24%	18%	100%

Vornado 2023 Number of New Hires								
By Age			By Gender			By Region		
< 30 Years Old	57	60%	Male	50	53%	New York	48	51%
30-50 Years Old	26	27%	Female	45	47%	New Jersey	39	41%
> 50 Years Old	12	13%				Chicago	7	7%
						San Francisco	1	1%
Total	95	100%	Total	95	100%	Total	95	100%

### Our VNO Employees Are:



## Social Demographics: BMS 2023

### Key Findings

Gender								
Gender		Total Employees	% All Employees	Permanent	Temporary	Full-Time	Part-Time	Racial Minorities* (%)
All Employees	Male	2311	66%	2062	249	1963	348	75%
	Female	1210	34%	1135	75	961	249	77%
Age								
All Employees	< 30 Years Old	503	14%	379	124	384	119	82%
	30-50 Years Old	1474	42%	1350	124	1234	240	78%
	> 50 Years Old	1544	44%	1468	76	1306	238	71%
Region								
New York		2285	65%	2255	30	2248	37	68%
New Jersey		43	1%	29	14	15	28	98%
Chicago		443	13%	166	277	252	191	78%
San Francisco		11	0%	11	0	11	0	100%
Mid-Atlantic		726	21%	723	3	385	341	98%
Other		13	0%	13	0	13	0	77%

Tenure***					
	0-4 Years	5-9 Years	10-19 Years	20+ Years	Total
# of Employees	1998	755	536	232	3521
% All Employees	57%	21%	15%	7%	100%

BMS 2023 Number of New Hires									
By Age			By Gender			By Region			
< 30 Years Old	301	34%	Male	595	67%	New York	509	57%	
30-50 Years Old	395	44%	Female	297	33%	New Jersey	14	2%	
> 50 Years Old	196	22%				Chicago	236	26%	
						San Francisco	5	1%	
						Mid-Atlantic	118	13%	
						Other	10	1%	
Total	892	100%	Total	892	100%	Total	892	100%	

\*These figures represent the diversity of our organization and are inclusive of the following racial minority groups: Black/African American, Hispanic/Latina, Asian/Pacific Islander and American Indian/Alaskan Native.

\*\*Demographics were not collected for employees who left employment in 2023.

\*\*\*Any information relating to employee tenure was not subject to Deloitte & Touche LLP's review and, accordingly, Deloitte & Touche LLP does not express a conclusion, opinion, or any form of assurance on such information.

### Our BMS Employees Are:





# Global Reporting Initiative (GRI) Content Index

MANAGEMENT OF VORNADO REALTY

Trust is responsible for the completeness, accuracy, and validity of the disclosures in the GRI Content Index included within the accompanying Sustainability Report of Vornado Realty Trust as of and for the year ended December 31, 2023. Management is responsible for the collection, quantification, and presentation of the disclosures and for the selection of the criteria, which management believes provide an objective basis for measuring and reporting on the disclosures. Measurement of certain disclosures may include estimates and assumptions that are subject to substantial inherent measurement uncertainty, including, for example, the accuracy and precision of GHG conversion factors, or estimation methodologies used by management.

The selection by management of a different but acceptable measurement method, input data, or model assumptions, or a different point value within the range of reasonable values produced by the model, may have resulted in materially different disclosures being reported. Management asserts that the disclosures in the GRI Content Index included within the accompanying Sustainability Report of Vornado Realty Trust as of and for the year ended December 31, 2023 are presented in accordance with the GRI Sustainability Reporting Standards.

GRI Content Index	Response
Statement of Use	Vornado Realty Trust has reported the information cited in this GRI content index for the period January 2023 - December 2023 with reference to the GRI Standards.
GRI 1 used	GRI 1: Foundation 2021

GRI 2: General Disclosures

Disclosure	Description	Response
The organization and its reporting practices		
2-1	Organizational details	Vornado Realty Trust
		Fully-integrated REIT and conducts its business through, and substantially all of its interests in properties are held by, the Operating Partnership, a Delaware limited partnership. Accordingly, Vornado's cash flow and ability to pay dividends to its shareholders are dependent upon the cash flow of the Operating Partnership and the ability of its direct and indirect subsidiaries to first satisfy their obligations to creditors. Vornado is the sole general partner of and owned approximately 91% of the common limited partnership interest in the Operating Partnership as of December 31, 2023.
		888 Seventh Avenue, New York, NY
		United States of America
2-2	Entities included in the organization's sustainability reporting	The entities included in this Sustainability 2023 report include Vornado Realty Trust (VNO); BMS; Alexander's, Inc. Vornado's Sustainability reporting includes all consolidated entities, and unconsolidated joint ventures with over 20% Vornado ownership, as of 12/31/2023. Buildings not included are those where 90% or more of the building's office or residential square footage is under development, as of 12/31/2023.
2-3	Reporting period, frequency, and contact point	January 1, 2023 - December 31, 2023, is for both the Sustainability 2023 Report and financial reporting. Annual April 9, 2024 Steven Borenstein, SVP & Corporation Counsel, <a href="mailto:sborenstein@vno.com">sborenstein@vno.com</a>
2-4	Restatements of information	No Restatements.
2-5	External assurance	Our Board is committed to sound governance practices designed to promote the long-term interests of shareholders and to strengthen Board and management accountability. The Board and the Corporate Sustainability Team, which includes the Lead Trustee of the Board, are the highest positions that seek external assurance for the organization's Sustainability report. The Audit Committee authorizes the external assurance engagement, is involved and contributes to the messaging of the report, and reviews the Sustainability Report before issuance. The Independent Accountants' Review Report can be found on pp. 116-117 of this report, available online at <a href="http://www.vno.com">www.vno.com</a> .



GRI 2: General Disclosures

Disclosure	Description	Response
Activities and workers		
2-6	Activities, value chain, and other business relationships	Our primary property types are office and retail with geographic locations in New York, Chicago, and San Francisco. Also see Tenant Engagement pp. 64-67.
		We currently own all or portions of: New York; 20.4 million square feet of Manhattan office in 30 properties; 2.4 million square feet of Manhattan street retail space in 50 properties; 1,662 units in 5 residential properties; multiple development sites, including 350 Park Avenue, Sunset Pier 94 Studios, and the Hotel Pennsylvania site; a 32.4% interest in Alexander's, Inc. ("Alexander's") (NYSE: ALX), which owns five properties in the greater New York metropolitan area, including 731 Lexington Avenue, the 1.1 million square foot Bloomberg, L.P. headquarters building, and The Alexander, a 312-unit apartment tower in Queens; signage throughout THE PENN DISTRICT and Times Square. Other real estate and investments: the 3.7 million square foot THE MART in Chicago; A 70% controlling interest in 555 California Street, a three-building office complex in San Francisco's financial district aggregating 1.8 million square feet; and other real estate and investments.
		30+ office properties in New York, Chicago, and San Francisco; 50+ retail properties in New York and surrounding regions and Annapolis, Maryland, 1,662 residential apartments in New York City, \$1.811 billion total revenues. Sustainability Governance pp. 10-11 of this report.
		Vornado engages BMS LLC as a supplier of janitorial supplies and equipment for our properties, Supply Chain pp. 85, and Occupational Health & Safety pp. 70-71.
		No significant changes to the organization's sector, the entire value chain, and other relevant business relationships.
2-7	Employees	In 2023, Vornado in conjunction with BMS employed 4,077 employees, 556 of which are employed by Vornado, and 3,521 of which are employed by BMS. Vornado employees are responsible for operations, management, development, cash flow and ownership of its real estate assets and fiduciary duty to its stakeholders. Vornado does not employ non-guaranteed hours employees. There are no significant variations in the number of employees during the reporting period or between reporting periods. Vornado uses full-time employee (FTE) methodology to track its employee counts and tracks all employees during the GRI reporting period. Human Capital Management Metrics pp. 100-101.
2-8	Workers who are not employees	The significant portion of Vornado's activities are performed by workers employed by Vornado. Vornado and BMS hired approximately 22 and 3 interns in 2023, respectively. Vornado considers BMS workers who are not employees and whose work is controlled by the organization, the number of workers is approximately 3,521 in 2023. There are not any significant fluctuations in the number of workers during or between work periods. The information included in this Sustainability report has been supplied and created by Vornado's & BMS's Human Resources departments, respectively. Vornado uses FTE methodology to track its worker counts for anyone who worked at any point during the year. Occupational Health & Safety pp. 70-71 and Human Capital Management Metrics pp. 100-101.

GRI 2: General Disclosures

Disclosure	Description	Response
Governance		
2-9	Governance structure and composition	Sustainability Governance pp. 10-11, Governance p. 84, and Board Planning p. 97 of this report.
2-10	Nomination and selection of the highest governance body	Our Board believes that the Board should be comprised of members who encompass a broad range of skills, expertise, industry knowledge, and diversity of opinion, experience, perspective, and contacts relevant to our business. Our Board is deeply involved in the business and strategy of our Company, and the great depth of experience and insight that our Board members bring to meetings continues to be invaluable. The Corporate Governance and Nominating Committee and the Board believe that considering a Board candidate involves various objective and subjective assessments, many of which are difficult to quantify or categorize. However, the Corporate Governance and Nominating Committee and the Board do consider various characteristics, competencies, and attributes when considering candidates for inclusion on our Board. Sustainability Governance, pp. 10-11, Governance p. 84, and Board Planning p. 97 of this report. See pp. 13-22 of 2023 Proxy issued April 7, 2023. <a href="https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=27">https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=27</a>
2-11	Chair of the highest governance body	Mr. Roth has been the Chairman of our Board of Trustees since May 1989 and Chairman of the Executive Committee of the Board since April 1980. From May 1989 until May 2009, Mr. Roth served as our Chief Executive Officer. Since April 15, 2013, Mr. Roth has again been serving in that position. Since 1968, he has been a general partner of Interstate Properties (an owner of shopping centers and investor in securities and partnerships, "Interstate") and he currently serves as its Managing General Partner. He is the Chairman of the Board of Directors and Chief Executive Officer of our affiliate, Alexander's, Inc. Since January 15, 2015, Mr. Roth has been a member of the Board of Trustees of Urban Edge Properties (a New York Stock Exchange-listed real estate investment trust that we spun-off and which holds the Company's former shopping center business, "Urban Edge"). Mr. Roth retired from the Urban Edge board effective as of its 2023 annual meeting. From July 18, 2017 until May 15, 2021, Mr. Roth was the Chairman of the Board of Trustees of JBG SMITH Properties (a New York Stock Exchange-listed real estate investment trust and the spun-off successor to our former Washington D.C. business, "JBG SMITH"). Each of these other Boards upon which Mr. Roth serves is either a current affiliate of the Company or a company spun-off from Vornado. Our Board believes the presence of Mr. Roth on each of these Boards is beneficial to the Company and/or the broadly overlapping shareholder base of the Company, Urban Edge, and Alexander's. Also, refer to GRI 2-15 regarding Conflicts of Interest. See p. 5 of 2023 Proxy issued April 7, 2023. <a href="https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=19">https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=19</a>



GRI 2: General Disclosures

Disclosure	Description	Response
Governance (continued)		
2-12	Role of the highest governance body in overseeing the management of impacts	While day-to-day risk management is primarily the responsibility of the Company's senior management team, the Board is responsible for the overall supervision of the Company's risk management activities. The Board's oversight of the material risks faced by our Company occurs at both the full Board level and at the Committee level. The Board's role in the Company's risk oversight process includes receiving reports from members of senior management on areas of material risk to the Company, including operational, financial, legal and regulatory, strategic, reputational, cybersecurity, sustainability, and climate change risks. The full Board (or the appropriate committee in the case of risks that are under the purview of a particular committee) receives these reports from the appropriate "risk owner" within our organization or in connection with other management prepared presentations of risk to enable the Board (or Committee, as applicable) to understand our risk identification, risk management, and risk mitigation strategies. By "risk owner," we mean that person or group of persons who is or are primarily responsible for overseeing a particular risk. As part of its charter, the Audit Committee discusses our guidelines and policies with respect to which our management assesses and manages the Company's exposure to risk and reports to the full Board its conclusions as a partial basis for further discussion by the full Board. This enables the Board and the applicable Committees to coordinate the risk oversight role, particularly with respect to risk interrelationships. In addition to the Board's review of risks applicable to the Company generally, the Board conducts regular strategic and personnel reviews. Sustainability Governance pp. 10-11, Governance pp. 84, and Board Planning pp. 97 of this report. See pp. 21-22 of 2023 Proxy Statement issued April 7, 2023. <a href="https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=32">https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=32</a>
2-13	Delegation of responsibility for managing impacts	Responsibilities of managing the organization's impacts on the economy are appointed to the Corporate Sustainability team, including the Lead Trustee, President & CFO, the Chief Administrative Officer, Corporation Counsel, SVP of Human Resources, and Chief Sustainability Officer. These executives meet on a regular basis for sustainability strategy implementation and report back to the Board on a quarterly frequency and to investors on an annual frequency. Sustainability Governance pp. 10-11 and Governance pp. 84 of this report.
2-14	Role of the highest governance body in sustainability reporting	Board of Trustees - Corporate Governance and Nominating Committee is the highest position in the governance structure. The Lead Trustee is part of the Corporate Sustainability Team, which is responsible for initiating, reviewing, and approving the reported information, including the organization's material topics. Sustainability Governance pp. 10-11 and Governance pp. 84 of this report. See p. 18 of 2023 Proxy Statement issued April 7, 2023. <a href="https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=33">https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=33</a>
2-15	Conflicts of Interest	Conflicts of interest should, wherever possible, be avoided. However, the Company recognizes that its corporate structure and business investments do not make it practicable or desirable to avoid all relationships that could give rise to conflicts of interest. Accordingly, conflicts of interest, potential conflicts of interest, or relationships which are identified as giving rise to potential conflicts of interest that are approved by, or at the direction of, the Board of Trustees or the Corporate Governance and Nominating Committee or that have been previously disclosed in the Trust's Annual Report on Form 10-K are permitted. Any material transaction or relationship that could reasonably be expected to give rise to a conflict of interest should be discussed with the appropriate Code of Ethics Contact Person if not previously approved by, or at the direction of, the Board of Trustees or the Corporate Governance and Nominating Committee or previously disclosed in Vornado Realty Trust's Annual Report on Form 10-K. See Vornado's website, <a href="https://www.vno.com/governance/conduct-and-ethics">https://www.vno.com/governance/conduct-and-ethics</a>

GRI 2: General Disclosures

Disclosure	Description	Response
Governance (continued)		
2-19	Remuneration Policies	See p. 29-71 of 2023 Proxy Statement issued April 7, 2023. See <a href="https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=43">https://materials.proxyvote.com/Approved/929042/20230320/NPS_532762/INDEX.HTML?page=43</a>
Strategy, policies and practices		
2-22	Statement on sustainable development	From Our Chairman, pp. 6 of this Report
2-23	Policy commitments	Policy commitments are approved at the board level and are implemented by the VNo Executive Team, VNO Corporate Sustainability Team and Sustainability Team. Policies are found on VNO's website and within this Sustainability report. Our Code of Business Conduct and Ethics promotes honest and ethical conduct, including fair dealing and the ethical handling of conflicts of interest; promotes full, fair, accurate, timely, and understandable disclosure; promotes compliance with applicable laws and governmental rules and regulations; ensures the protection of the Trust's legitimate business interests, including corporate opportunities, assets, and confidential information; and deters wrongdoing. Our expanded policy can be found on our Conduct and Ethics VNO Web page, found at <a href="https://www.vno.com/governance/conduct-and-ethics">https://www.vno.com/governance/conduct-and-ethics</a> . While Vornado has not formally adopted the Precautionary Principle, we apply a precautionary approach in our operational planning or when introducing new products to our buildings. GHG emissions and indoor air pollutants are among many of the environmental risks that we seek to avoid and mitigate. Our policies regarding Vornado's commitment to Human Rights and to conduct Due Diligence can be found in further detail in Vornado's Vendor Code of Conduct, Vendor Integrity Program, and Responsible Supply Chain Program policy documentation. Supply Chain, pp. 85 & Climate-Related Strategy & Analysis pp. 86-89. <a href="https://books.vno.com/books/qzso/#p=5">https://books.vno.com/books/qzso/#p=5</a> <a href="https://books.vno.com/books/rkrk/#p=1">https://books.vno.com/books/rkrk/#p=1</a>
2-24	Embedding policy commitments	Sustainability strategy implementation within respective areas of focus. Daily discussions and active collaboration on specific projects as well as ongoing operations and maintenance. Integration of Sustainability strategy across entire spectrum of business units and stakeholder groups. Frequent communication with respective heads of management. Our policies regarding Vornado's commitment to Human Rights can be found in further detail in Vornado's Vendor Code of Conduct, Vendor Integrity Program, and Responsible Supply Chain Program policy documentation. Also see <a href="https://www.vno.com/sustainability/overview">https://www.vno.com/sustainability/overview</a> for additional Vornado policies. Goals & Progress pp. 18-23, Environmental Results 2023 pp. 24-29, Certifications and Ratings pp. 36-38, Energy Efficiency Programs pp. 44-46, Energy Progress pp. 47-49, Sustainable Development pp. 50-55, Climate-Related Strategy & Analysis pp. 86-89, Path to Zero Waste pp. 58-59, Water Management pp. 60-61, Human Capital Management pp. 74-75, Health & Wellness p. 68, Tenant Engagement pp. 64-67, Occupational Health & Safety pp. 70-71, Community Development pp. 72-73, Vornado Volunteers pp. 78-79, Partnerships & Participation pp. 69, Vornado Honors pp. 80-81, Sustainability Governance pp. 10-11, Governance pp. 84, Risk Management pp. 92-93, Technology & Cybersecurity pp. 94-96, and Supply Chain pp. 85.
2-25	Processes to remediate negative impacts	Vornado offers a number of trainings through third-party service providers that educate employees on the appropriate steps to report grievances. Incidents are tracked by Human Resources and are followed up on. Human Capital Management pp. 74-75 and in the Employee Handbook.



GRI 2: General Disclosures

Disclosure	Description	Response
Strategy, policies, and practices		
2-27	Compliance with laws and regulations	No significant instances of noncompliance. We consider ‘significant instances of non-compliance with laws and regulation’ as those listed in Vornado Form 10-K for the fiscal year ended December 31, 2023, “Note 21: Commitments and Contingencies” on pp. 114-115.
2-28	Membership associations	Our Partnerships & Participation pp. 69 of this report.
Stakeholder Engagement		
2-29	Approach to stakeholder engagement	<p>The Corporate Stakeholder Engagement strategy is applied consistently across all operations. We have a robust and ongoing shareholder engagement program and demonstrated responsiveness to feedback.</p> <p>We review our Sustainability Materiality Assessment each year with our stakeholders in preparation of our overall Sustainability strategy and the annual Sustainability report, reconfirming and expanding our topics of materiality.</p> <p>Stakeholders were identified and selected through our materiality assessment &amp; stakeholder engagement efforts that were formed back in 2017, aligning stakeholders with key Sustainability topics of concern and an approach to act on and address these topics. We renew this process each year with our stakeholders, reconfirming and expanding our topics of materiality. This engagement was considered and incorporated into the 2023 report as appropriate.</p> <p>Tenant Engagement pp. 64-67 &amp; Materiality Assessment pp. 90-91.</p>
2-30	Collective bargaining agreements	83% of employees are covered by collective bargaining agreements. For employees not covered by collective bargaining agreements, the working conditions and terms of employment of these employees are not influenced or determined based on other collective bargaining agreements.

GRI 3: Material Topics

Disclosure	Description	Response
3-1	Process to determine material topics	<p>Our material topics are identified through a robust Governance structure and processes and annual risk assessment, including identification, prioritization, monitoring, and engagement discussions with stakeholders.</p> <p>Vornado conducts a risk workshop and market research effort as apart of its process to identify material topics, described in our EMS process and in our Risk Management section of this report. Our analysis includes, among other things:</p> <ul style="list-style-type: none"><li>• Evaluation of Sustainability frameworks and standards, ratings and rankings assessments, in addition to general and industry specific external research reports</li><li>• Interviewing members of the Executive Team, who have direct responsibility of executing all company strategy.</li><li>• Gathering feedback from stakeholders, including but not limited to - tenants, investors, regulators, utilities, community boards, industry-relevant trade organizations.</li></ul> <p>We evaluated a list of topics from the GRI framework and examined these issues in depth, including areas with actual and potential, negative and positive impact, as well as broader sustainability trends. Each issue’s relative importance was evaluated based on an assessment of feedback and was considered in determining material topics listed on GRI indicator 3-2. Sustainability Governance pp. 10-11, Risk Management pp. 92-93, and Materiality Assessment pp. 90-91 of this report. Pages 21-22 of the 2023 Proxy issued April 7, 2023.</p>



GRI 3: Material Topics

Disclosure	Description		Response
3-2	List of material topics	Board Engagement on Sustainability; Energy, Water, and Waste Management; Climate Change Risk and Mitigation; Human Capital Management; Regulation & Disclosure; Net Zero Transition and Scope 3 Emissions; Management Succession Plan; Executive Compensation; Health and Wellness; Sustainable Development and Embodied Carbon; Community Impact. Changes to material key topics include; (1) removing of Board Structure, tenure and refreshment and Working from Home Impact; (2) Changing Board Engagement on ESG to Board Engagement on Sustainability; Diversity, Equity & Inclusion now being included in Human Capital Management topic; Carbon Emission and Carbon Footprint Reporting now being included in Regulation & Disclosure topic; Local Communities now being included in the Community Impact topic. All topics are found on Materiality Assessment pp. 90-91.	
		Material Topics	Ref # (s)
		Energy, Water, and Waste Management	Goals & Progress pp. 18-23, Environmental Results 2023 pp. 24-29, Certifications and Ratings pp. 36-38, Energy Progress pp. 47-49, Path to Zero Waste pp. 58-59, Water pp. 60-61
		Climate Change Risk and Mitigation	Climate-Related Strategy & Analysis pp. 86-89, Supply Chain pp. 85
		Net Zero Transition and Scope 3 Emissions	Climate-Related Strategy & Analysis pp. 86-89, Supply Chain pp. 85
		Regulation and Disclosure	Sustainability Governance pp. 10-11, Goals & Progress pp. 18-23, Environmental Results 2023 pp. 24-29, Energy Efficiency Programs pp. 44-46, SASB IF-RE-450a.2 Discussion of Climate Change Adaptation pp. 124-125
		Board Engagement on Sustainability	Sustainability Governance pp. 10-11, Governance pp. 84, Materiality Assessment pp. 90-91, Risk Management pp. 92-93, Board Planning pp. 97
		Management Succession Plan	See pp. 14 of 2023 Proxy issued April 7, 2023.
		Executive Compensation	See pp. 29-71 of 2023 Proxy issued April 7, 2023.
		Health and Wellness	Health & Wellness pp. 68, Occupational Health & Safety pp. 70-71
		Human Capital Management	Human Capital Management pp. 74-75, Human Capital Management Metrics pp. 100-101, Vornado Honors pp. 80-81
		Sustainable Development and Embodied Carbon	Sustainable Development pp. 50-55, Climate-Related Strategy & Analysis pp. 86-89
		Community Impact	Tenant Engagement pp. 64-67, Community Development pp. 72-73, Vornado Volunteers pp. 78-79, Partnerships & Participation pp. 69

GRI 3: Material Topics

Disclosure	Description	Response
3-3	Management of material topics	<p>Our approach to management of materials topics is cyclical and begins with feedback from our stakeholders to inform our commitment and policies, implementation is established throughout the organization, results are assessed and communicated, and then management discusses each topic to determine forward strategy.</p> <p>While Vornado has not formally adopted the Precautionary Principle, we apply a precautionary approach in our operational planning or when introducing new products to our buildings. GHG emissions and indoor air pollutants are among many of the environmental risks that we seek to avoid and mitigate.</p> <p>All material topics are guided by standards set forth in Vornado's policies; see Governance pp. 84 of this report and visit <a href="https://www.vno.com/sustainability/overview">https://www.vno.com/sustainability/overview</a> and scroll to “Policies” section.</p> <p><b>Impact:</b></p> <p>“Globally, the building sector contributes more than one-third (approximately 40%) of energy consumption and GHG emissions” (<a href="https://www.iea.org/energy-system/buildings">https://www.iea.org/energy-system/buildings</a>). At Vornado, sustainability and resilience are important lenses through which we view all development projects at any scale. Our strategy focuses on sustainable development inclusive of carbon neutrality, operational efficiencies, human health, minimizing material resources, and climate change adaptation. We collaborate with our community partners, vendors, and our company’s stakeholders to support driving down our carbon footprint in the regions we operate. See Sustainability Governance pp. 10-11, Governance pp. 84, Materiality Assessment pp. 90-91, Risk Management pp. 92-93.</p> <p><b>Resilience and Adaptation:</b></p> <p>Our climate risk assessment informs the risk profiles of our properties and is a component of our Enterprise Risk Management (ERM) assessment during all stages of a building cycle. Understanding climate-related risks enables us to better assess potential acquisitions through the due diligence process, impacts within our (re)development efforts, and exposure of our operational assets. See Goals &amp; Progress pp. 18-23, Environmental Results pp. 24-29, Energy Efficiency Programs pp. 44-46, Energy Progress pp. 47-49, Sustainable Development and Embodied Carbon pp. 50-55, Energy Management System pp. 32-33, Water pp. 60-61, Climate-Related Strategy &amp; Analysis pp. 86-89 and Risk Management pp. 92-93, Technology and Cybersecurity pp. 94-96 of this report for more details.</p> <p><b>Societal Benefits of Business Activities:</b></p> <p>Vornado supports volunteerism and local community organizations through charitable contributions that enhance and serve the communities in which we live and work. Through employee engagement and social impact assessment, Vornado Volunteers identifies local community organizations focused on economically and socially disadvantaged populations, environmental restoration and protection, and health and wellness. See Health &amp; Wellness p. 68, Occupational Health &amp; Safety pp. 70-71, Community Development pp. 72-73, Vornado Volunteers pp. 78-79, Supply Chain pp. 85.</p> <p><b>Sustainable Stakeholder Solutions:</b></p> <p>We offer our tenants solutions to support minimizing environmental impacts associated with their supply chains. This includes, but is not limited to, introduction and support of EPA-backed ENERGY STAR programs, submetering, tenant fit-out solutions, renewable procurement, locations with access to public transportation, waste programming and resources, tenant surveys, green leasing, vendor purchasing policies, and standards. See Certifications &amp; Ratings pp. 36-38, Tenant Engagement pp. 64-67 and Partnerships and Participation pp. 69, Technology and Cybersecurity pp. 94-96 of this report for more details.</p> <p>Vornado further describes its impacts, impacts from its business relationships, actions taken to manage topics and related impacts, tracking effectiveness of actions taken, and how engagement with stakeholders has informed actions taken on the Annual Report Form 10-K issued February 12, 2024, pp. 12-25, the separate TCFD report found at <a href="https://www.vno.com/vornado-tcf-report/2022">https://www.vno.com/vornado-tcf-report/2022</a>, and on Materiality Assessment pp. 90-91.</p>



GRI 200-400: Topic-Specific Disclosures

GRI Topics	Disclosure	Description	Cross-Reference or Answer
Economic			Response
GRI 201: Economic Performance 2016	201-2	Financial implications and other risks and opportunities due to climate change	Vornado has begun to assess the financial implications and the other risks and opportunities due to climate change and intends to report this in the future. Vornado's approach is stated in Climate-Related Strategy & Analysis pp. 86-89 of this report, Tenant Engagement pp. 64-67 and SASB Disclosure on Climate Change Adaptation, pp. 124-125 of this report, and in the separate TCFD report found on pages 8-12 at <a href="https://www.vno.com/vornado-tcf-d-report/2022">https://www.vno.com/vornado-tcf-d-report/2022</a>
Environmental			
GRI 302: Energy 2016	302-1	Energy consumption within the organization	Energy Consumption (MWh) p. 29 of this report. We utilized the Thermal Energy Conversion factors from ENERGY STAR Portfolio Manager Technical Reference Guide published by EPA. Our energy is converted to GJ using generic conversion factors. Our total energy reported within the organization is 36,947 GJ of chilled water, 584,672 GJ of district steam, 1,113,462 GJ of electricity, and 592,672 GJ of fuels. The total energy within the organization is 2,327,753 GJ. The majority of Vornado's heating consumption is from district steam sources, which are reported on p. 29. Vornado does not sell electricity, heating, cooling, or steam. All fuel consumption reported is non-renewable.
	302-2	Energy consumption outside of the organization	Energy Consumption (MWh) pp. 29 of this report. We utilized the Thermal Energy Conversion factors from ENERGY STAR Portfolio Manager Technical Reference Guide published by EPA. Total energy outside the organization is 485,133 GJ.
	302-3	Building energy intensity	Intensity Measures pp. 26 of this report. Our denominator is the square footage as outlined in the boundaries found in the endnotes of this index. Building energy intensity reported includes all energy reported in 302-1 & 302-2 reported amounts. We utilized the latest available emission factors for each energy type and Global Warming Potential factors from the Sixth Assessment Report (SAR) published by Intergovernmental Panel on Climate Change and EPA ENERGY STAR Portfolio Manager GHG Technical Reference to calculate our GHG inventory. No significant recalculations occurred. Consolidation approach as defined in the reporting boundary endnotes in this index. Biogenic emissions of CO2 that occur in the life cycle of biomass other than from combustion or biodegradation are not applicable.
GRI 303: Water 2018	303-1	Interactions with water as a shared resource	Water Withdrawal pp. 27 of this report. All water listed is municipal water supply. No other sources of consumed water are of material quantities. Water converted from source unit of measure to cubic meters. Occupational Health & Safety pp. 70-71; Water pp. 60-61 of this report.
	303-3	Water withdrawal	Water Withdrawal pp. 27, SASB Disclosure on Water pp. 60-61 of this report. All water listed is municipal water supply converted from source unit of measure to cubic meters or 2,180.10 megaliters. No other sources of consumed water are of material quantities. Water listed is municipal and is converted fresh water. Our baseline water stress is 305.60 megaliters. Data regarding third-party water sources for water stress areas is not available.

GRI 200-400: Topic-Specific Disclosures

GRI Topics	Disclosure	Description	Cross-Reference or Answer
Environmental			Response
GRI 305: Emissions 2016	305-1	Scope 1 GHG emissions	Greenhouse gas (GHG) emissions inventory pp. 25 of this report. Gases included are CO2, CH4, and N2O. We utilized the latest available emission factors for each energy type and Global Warming Potential factors from the Sixth Assessment Report (SAR) published by Intergovernmental Panel on Climate Change and EPA ENERGY STAR Portfolio Manager GHG Technical Reference to calculate our GHG inventory. No significant recalculations occurred. Consolidation approach as defined in the reporting boundary endnotes in this index. All GHG emission Scopes have base years of 2019, which is aligned with our SBTi commitment, as well as our Vision 2030 Carbon Neutrality plan. Biogenic emissions of CO2 that occur in the life cycle of biomass other than from combustion or biodegradation are not applicable.
	305-2	Scope 2 GHG emissions	Greenhouse gas (GHG) emissions inventory pp. 25 of this report. Gases included are CO2, CH4, and N2O. We utilized the latest available emission factors for each energy type and Global Warming Potential factors from the Sixth Assessment Report (SAR) published by Intergovernmental Panel on Climate Change and the eGRID 2022 to calculate our GHG inventory. Market-based Scope 2 emissions are calculated per the GHG Protocol's data hierarchy, applying purchased and retired Renewable Energy Certificates (RECs), then applying 2023 Green-e residual mix emissions rates (based on 2022 eGRID data) to the remaining MWh not covered by RECs. No significant recalculations occurred. Consolidation approach as defined in the reporting boundary endnotes in this index. All GHG emission Scopes have base years of 2019, which is aligned with our SBTi commitment, as well as our Vision 2030 Carbon Neutrality plan.
	305-3	Scope 3 GHG emissions	Greenhouse gas (GHG) emissions inventory, pp. 25 of this report. Gases included are CO2, CH4, and N2O. We utilized the latest available emission factors for each energy type and Global Warming Potential factors from the Sixth Assessment Report (SAR) published by Intergovernmental Panel on Climate Change, EPA ENERGY STAR Portfolio Manager GHG Technical Reference guide, and the eGRID 2022 to calculate our GHG inventory. No significant recalculations occurred. Consolidation approach as defined in the reporting boundary endnotes in this index. All GHG emission Scopes have base years of 2019, which is aligned with our Vision 2030 Carbon Neutrality plan. Biogenic emissions of CO2 that occur in the life cycle of biomass other than from combustion or biodegradation are not applicable.
	305-4	GHG emissions intensity	Intensity Measures pp. 26 and SBTi/GHG Emissions pp. 49 of this report. Our numerator includes Scope 1, 2, & 3 emissions, and our denominator is the square footage as outlined in the boundaries found in the endnotes of this index.



GRI 200-400: Topic-Specific Disclosures

GRI Topics	Disclosure	Description	Cross-Reference or Answer
Environmental			Response
GRI 306: Effluents and Waste 2020	306-1	Waste generation and significant waste-related impacts	Reported amounts represent waste impact within the organization, its activities and its tenants activities. Waste disposal method has been directly confirmed by the organization through annual on-site visits to the off-site facilities. Information is provided by waste disposal contractor on a monthly basis. Path to Zero Waste pp. 58-59 Tenant Engagement pp. 64-67 Occupational Health & Safety pp. 70-71
	306-2	Waste by type and disposal method	Waste disposal method and waste management practices have been directly confirmed by the organization through annual on-site visits to the off-site facilities. Information is provided by waste disposal contractor on a monthly basis. The only diversion methods applicable to our operations are donations, recycling, and composting. We track C&D waste and amounts fluctuate significantly, therefore, we report it separately. C&D for FY23 was 5,584 metric tons, of which 5,100 tons were recycled and 484 tons were landfilled. All C&D waste was nonhazardous. In 2023, we generated 12,207 metric tons of waste, 6,419 metric tons were diverted from disposal, and 5,788 metric tons were directed to disposal. No disposal of hazardous waste outside of diversion methods. Nonhazardous Waste 2023 pp. 27; Path to Zero Waste pp. 58-59, Supply Chain pp. 85 of this report.
	306-3	Waste generated	
	306-4	Waste diverted from disposal	
	306-5	Waste directed to disposal	
Social			Response
GRI 401: Employment 2016	401-1	New employee hires and employee turnover	Human Capital Management Metrics pp. 100-101 of this report.
	401-2	Full-time benefits not provided to temporary/ part-time employees	These benefits are provided to employees across all property subsectors of operation, including New York, NY; Chicago, IL; San Francisco, CA; and other regions Vornado operates in. Benefits listed are available to all full-time employees, and certain benefits are extended to part-time and temporary employees. Human Capital Management pp. 74-75: <ul style="list-style-type: none"><li>• Medical and prescription plan at low employee cost</li><li>• Dental plan at no employee cost</li><li>• Tax deferred 401(k) plan</li><li>• Flexible spending accounts for medical and dependent care</li><li>• Life insurance at two times an employee's annual compensation and at no employee cost</li><li>• Paid time off for vacations, holidays, and personal days</li><li>• Employee Assistance Program</li><li>• Tuition reimbursement and professional reimbursement development plan</li></ul>
GRI 404: Training and Education 2016	404-1	Average hours of training per year per employee	Occupational Health & Safety pp. 70-71 of this report. Every employee undergoes mandatory compliance training; however, training hours are not currently tracked to report on average hours of training per employee reported by gender and by employee category (level), respectively.

GRI 200-400: Topic-Specific Disclosures

GRI Topics	Disclosure	Description	Cross-Reference or Answer
Social			Response
GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	Human Capital Management Metrics pp. 100-101, Board Planning pp. 97 of this report. As of December 31, 2023, our Board consisted of 30% women, 0% under age 30, 0% between ages 30 and 50, and 100% over 50 years old, and was composed of 30% minorities.
GRI 413: Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs.	Our locations of operations are defined in GRI 2-6, and include New York; Chicago; San Francisco; and Annapolis, Maryland. We have implemented local community engagement, impact assessments or development programs across 96% of our total operations. We calculate this percentage by identifying regional locations that participate in community events, sum each region's total and apply as the numerator, and divide by our total portfolio's square footage as of year end December 31, 2023. Occupational Health & Safety pp. 70-71 and Vornado Volunteers pp. 78-79 of this report.
GRI 416: Customer Health and Safety 2016	416-1	Assessment of the health and safety impacts of product and service categories	Occupational Health & Safety pp. 70-71 of this report. We consider our properties and maintenance of the buildings to be our services provided to customers. The products purchased to maintain and clean the properties are purchased by Building Maintenance Service (BMS) in NY, NJ, IL, and Metro Services in CA. The responsible purchasing agents, BMS & Metro Services, reviews monthly supply reports from all vendors and identifies areas of improvement to address health and safety across products' life cycle. Therefore, 100% of the products purchased by our janitorial service providers are evaluated monthly for health and safety impacts. 75% of the annual purchasing adheres to third-party certifications for janitorial supplies, while the remaining 25% is evaluated for product replacement and improvement when feasible. The applicable third-party certifications are as follows: ECOLOGO, Green Seal, EPA Safer Choice Standard, USDA Certified Biobased, EPA's Design for Environment, and EPA's Comprehensive Procurement Guidelines.

\*Reporting boundaries:  
Intensities: 2023 intensities were calculated by dividing the energy consumption, water consumption, and GHG emissions from the properties owned by Vornado at December 31, 2023 by the total square footage of that same list of properties.  
Energy and Water: All consolidated entities, and unconsolidated joint ventures with over 20% Vornado ownership, as of 12/31/2023. Buildings not included are those where 90% or more of the building's office or residential square footage is under development, as of 12/31/2023. Q4 2023 energy and water data was estimated at properties where actual consumption data was not available in time for the publication of this report. Energy and water were estimated by applying the same month consumption from prior year. Approximately 5% of total energy consumption and 5% of total water consumption was estimated. Four properties have full year estimations for energy and three properties have full year estimations for water. The estimation consumption for these properties account for an additional 3% of total energy consumption and 2% of total water consumption.  
Waste: Approximately 80% of all in-service square footage as of 12/31/2023, not listed as under development, with more than 20% VNO ownership. Waste generation in 2022 and 2023 is represented by actual data from waste haulers. Excluded from waste data are properties where waste hauling is not directly managed by Vornado, such as high street retail and residential properties. Construction & Demolition waste is excluded from the reporting boundary as it is considered extraordinary waste, which is in line with industry standards. C&D for FY23 was 5,584 metric tons, of which 5,100 tons were recycled and 484 tons were landfilled. All C&D waste was non-hazardous.





Independent Accountant’s Report  
Board of Trustees  
Vornado Realty Trust

Deloitte & Touche LLP  
30 Rockefeller Plaza 41<sup>st</sup> Floor  
New York, NY10012  
USA  
  
Tel: +1 212 492 4000  
Fax:+1 212 489 1687  
www.deloitte.com

**WE HAVE REVIEWED MANAGEMENT** of Vornado Realty Trust’s (the “Company”) assertion that the disclosures in the Global Reporting Initiative (GRI) Content Index included within the accompanying Sustainability Report of Vornado Realty Trust as of and for the year ended December 31, 2023 (the “Sustainability Report”) are presented in accordance with the Global Reporting Initiative Sustainability Reporting Standards (the “GRI Standards”). The Company’s management is responsible for its assertion. Our responsibility is to express a conclusion on the disclosures in the GRI Content Index based on our review.

Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. Those standards require that we plan and perform the review to obtain limited assurance about whether any material modifications should be made to the disclosures in the GRI Content Index in order for it to be presented in accordance with the criteria. The procedures performed in a review vary in nature and timing from, and are substantially less in extent than, an examination, the objective of which is to obtain reasonable assurance about whether the disclosures in the GRI Content Index are presented in accordance with the criteria, in

all material respects, in order to express an opinion. Accordingly, we do not express such an opinion. Because of the limited nature of the engagement, the level of assurance obtained in a review is substantially lower than the assurance that would have been obtained had an examination been performed. We believe that the review evidence obtained is sufficient and appropriate to provide a reasonable basis for our conclusion.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements related to the engagement.

The procedures we performed were based on our professional judgment. In performing our review, we performed analytical procedures, inquiries, and other procedures as we considered necessary in the circumstances. For a selection of the disclosures in the GRI Content Index, we performed tests of mathematical accuracy of computations, compared the disclosures to underlying records, or observed the data collection process.

The preparation of the disclosures in the GRI Content Index included within the accompanying Sustainability Report requires management to interpret the criteria, make determinations as to the

relevancy of information to be included, and make estimates and assumptions that affect reported information. Measurement of certain disclosures may include estimates and assumptions that are subject to substantial inherent measurement uncertainty, including, for example, the accuracy and precision of GHG conversion factors, or estimation methodologies used by management. Obtaining sufficient, appropriate review evidence to support our conclusion does not reduce the inherent uncertainty in the disclosures. The selection by management of a different but acceptable measurement method, input data, or model assumptions, or a different point value within the range of reasonable values produced by the model, may have resulted in materially different disclosures being reported.

Our review was limited to the disclosures in the GRI Content Index as of and for the year ended December 31, 2023. All other information presented within the Sustainability Report, including information relating to forward looking statements, targets, goals, progress against goals, linked information, and denoted by an asterisk (\*) of the Sustainability Report was not

subject to our review and, accordingly, we do not express a conclusion or any form of assurance on such information.

Based on our review, we are not aware of any material modifications that should be made to the disclosures in the GRI Content Index in order for it to be presented in accordance with the GRI Standards.

*Deloitte & Touche LLP*  
  
APRIL 9, 2024



# Sustainability Accounting Standards Board (SASB) Index

**MANAGEMENT OF VORNADO** Realty Trust is responsible for the completeness, accuracy, and validity of the metrics in the SASB Index included within the accompanying Sustainability Report of Vornado Realty Trust as of and for the year ended December 31, 2023. Management is responsible for the collection, quantification, and presentation of the metrics and for the selection of the criteria, which management believes provide an objective basis for measuring and reporting on the metrics. Measurement of certain metrics may include estimates and assumptions that are subject to substantial inherent measurement uncertainty, including, for example, the accuracy and precision of conversion factors or estimation methodologies used by management. The selection by management of a different but acceptable measurement method, input data, or model assumptions, or a different point value within the range of reasonable values produced by the model, may have resulted in materially different metrics being reported. Management asserts that the metrics in the SASB Index included within the accompanying

Sustainability Report of Vornado Realty Trust as of and for the year ended December 31, 2023 are presented in accordance with the Sustainability Accounting Standards Board (SASB) Real Estate Sustainability Accounting Standard.

Number of assets includes the number of distinct building assets. In the SASB disclosures, each asset is counted as a single asset, even in cases where portions of an asset are classified into separate subsectors that are aligned with the FTSE NAREIT Classification Structure. The SASB disclosure instead categorizes assets into the four categories of “New York,” “THE MART,” “555 California,” and “Other,” which aligns with the entity’s financial reporting. All disclosures are representative of the Whole building approach defined on page 121.

Activity Metrics

Code	Activity Metric	Total	New York	THE MART	555 California	Other	Unit of Measure
IF-RE-000.A	Number of assets, by property subsector	75	62	3	3	7	Number
IF-RE-000.B <sup>1</sup>	Leasable floor area, by property subsector	33,604,000	26,465,000	3,688,000	1,819,000	1,632,000	Square Feet
IF-RE-000.C <sup>2</sup>	Percentage of indirectly managed assets, by property subsector	0.00%	0.00%	0.00%	0.00%	0.00%	Percentage (%) by Floor Area (SF)
IF-RE-000.D <sup>3</sup>	Average occupancy rate, by property subsector	86.49%	86.92%	79.13%	94.70%	86.94%	Percentage (%) by Floor Area (SF)

<sup>1</sup> Leasable floor area is disclosed separately into the four categories of “New York,” “THE MART,” “555 California,” and “Other,” which aligns with the entity’s financial reporting.

<sup>2</sup> The definition of “indirectly managed assets” is solely based on the landlord/tenant relationship and is aligned with the 2024 GRESB Real Estate Assessment Reference Guide: “In the past, GRESB used to classify assets as Managed or Indirectly Managed,” based on, “Where a single tenant has the sole authority to introduce and implement operating and/or environmental policies and measures, the tenant should be assumed to have operational control, the asset should be considered to be an Indirectly Managed Asset.” In 2020, this concept was replaced by “Landlord Controlled” and “Tenant Controlled” areas, where the same notion of operational control applies to differentiate one from the other. However, while the rationale remains unchanged compared to previous years, if both the landlord and tenant have the authority to introduce and implement any or all of the policies mentioned above, the area should be reported as landlord controlled. Percentage of indirectly managed assets shall be disclosed separately into the four categories of “New York,” “THE MART,” “555 California,” and “Other,” which aligns with the entity’s financial reporting.

<sup>3</sup> Average occupancy rate is an average of the reported occupancy for each of the four quarters in the reporting period, and is disclosed separately for each portion of the entity’s portfolio into the four categories of “New York,” “THE MART,” “555 California,” and “Other,” which aligns with the entity’s financial reporting.



Energy Management

Code	Activity Metric	Total	New York	THE MART	555 California	Other	Unit of Measure
IF-RE-130a.1	Energy consumption data coverage as a percentage of floor area, by property subsector.	100%	100%	100%	100%	100%	Percentage (%) by floor area (SF)
IF-RE-130a.2 <sup>1</sup>	Total energy consumed by portfolio area with data coverage, by property subsector.	2,812,886	2,278,997	210,813	158,282	164,794	Gigajoules (GJ)
IF-RE-130a.2	Percentage of total energy that is grid electricity, by property subsector.	52.35%	51.66%	46.30%	53.87%	68.18%	Percentage (%)
IF-RE-130a.2	Percentage of total energy that is renewable, by property subsector.	36.99%	37.64%	46.16%	53.87%	0.00%	Percentage (%)
IF-RE-130a.3 <sup>2</sup>	Like-for-like change in energy consumption of portfolio area with data coverage, by property subsector.	-5.29%	-5.79%	-8.71%	8.43%	-5.44%	Percentage (%)
IF-RE-130a.4	Percentage of eligible portfolio that has obtained an energy rating, by property subsector.	99.94%	100.00%	99.48%	100.00%	100.00%	Percentage (%) by floor area (SF)
IF-RE-130a.4	Percentage of eligible portfolio that is certified to ENERGY STAR, by property subsector.	19.71%	23.97%	0%	0%	17.03%	Percentage (%) by floor area (SF)
IF-RE-130a.5	Description of how building energy management considerations are integrated into property investment analysis and operational strategy.			See pages 24, 30, 32-33, 36, 44-46, 50-51, 55.			

<sup>1</sup> 5.3 Whole Building is defined as “Energy used by tenants and Base Building services to lettable/leasable and common spaces. This should include all energy supplied to the building for the operation of the building and the tenant space.”

<sup>2</sup> While considering our like-for-like boundary for SASB reporting, we include properties that are in-service for the entire current and prior year, consistent with our financial statement approach to like-for-like. We omit energy from buildings that are out of service or under development during any part of the current or prior year, as well as any building with ownership less than 20% interest. Percentage changes with applying normalization adjustments are 1.66% at New York, -4.68% at THE MART, 18.46% at 555 California, 3.42% at Other, or 2.08% for our total portfolio. See page 125 for normalization note.

Water Management

Code	Activity Metric	Total		New York		THE MART		555 California		Other		Unit of Measure
IF-RE-140a.1	Water withdrawal data coverage as a percentage of total floor area, by property subsector.	100%		100%		100%		100%		100%		Percentage (%) by floor area (SF)
IF-RE-140a.1	Percentage of floor area in regions with High or Extremely High Baseline Water Stress, each by property subsector.	15.07%		5.20%		100.00%		0.00%		0.00%		Percentage (%) by floor area (SF)
IF-RE-140a.2 <sup>1</sup>	Total water withdrawn, (1) by portfolio area with data coverage and (2) percentage in regions with High or Extremely High Baseline Water Stress, each by property subsector.	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	Thousand Cubic Meters (m³); Percentage (%)
		2,180.10	14.02%	1,925.87	12.28%	69.07	100%	50.55	0%	134.61	0%	
IF-RE-140a.3 <sup>2,3</sup>	Like-for-like change in water withdrawn for portfolio area with data coverage, by property subsector.	0.48%		-0.36%		12.62%		10.72%		3.49%		Percentage (%)
IF-RE-140a.4	Discussion of water management risks and description of risks and practices to mitigate those risks.					See pages 60-61.						

<sup>1</sup> 5.1 Base Building is defined as “Energy consumed in supplying central building services to lettable/leasable areas and common areas.”

5.2 Tenant Space is defined as “Lettable floor area (both vacant and let/leased areas) that is or can be occupied by tenants.”

5.3 Whole Building is defined as “Energy used by tenants and Base Building services to lettable/leasable and common spaces. This should include all energy supplied to the building for the operation of the building and the tenant space.”

<sup>2</sup> No divergences between the scope of assets and/or floor area used in financial reporting and its like-for-like change in water withdrawn.

<sup>3</sup> While considering our like-for-like boundary for SASB reporting, we include properties that are in-service for the entire current and prior year, consistent with our financial statement approach to like-for-like. We omit energy from buildings that are out of service or under development during any part of the current or prior year, as well as any building with ownership less than 20% interest. Percentage changes with applying normalization adjustments are 6.25% at New York, 16.97% at THE MART, 30.38% at 555 California, 7.54% at Other, or 7.13% for our total portfolio. See page 125 for normalization note.



Management of Tenant Sustainability Impacts

Code	Activity Metric	Total		New York		THE MART		555 California		Other		Unit of Measure
IF-RE-410a.1	(1) Percentage of new leases that contain a cost recovery clause for resource efficiency-related capital improvements and (2) associated leased floor area, by property subsector.	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	Percentage (%) by floor area (SF), '000s of SF
		48.84%	701	40.11%	416	70.86%	240	81.80%	45	0.00%	-	
IF-RE-410a.2	Percentage of tenants that are separately metered or submetered for grid electricity consumption, by property subsector.	96.14%		97.64%		100%		98.79%		60.19%		Percentage (%) by floor area (SF)
IF-RE-410a.2	Percentage of tenants that are separately metered or submetered for water withdrawals, by property subsector.	17.48%		18.60%		3.62%		0.00%		50.12%		Percentage (%) by floor area (SF)
IF-RE-410a.3	Description of approach to measuring, incentivizing, and improving sustainability impacts of tenants.											

At Vornado, tenants consume the majority of the electricity consumed in our properties, as is evidenced by the submetered or separately metered electricity we record throughout our portfolio. Because so much of our energy consumption is under tenant control, it is essential to engage with them as a partner in reducing our carbon footprint. There is clear value to be realized in communicating to our tenants their energy and water consumption, when known, and to encourage their participation in best practices in resource conservation.

In 2023, we memorialized our commitment to green initiatives through leasing by submitting for the Green Lease Leaders initiative developed by Institute for Market Transformation (IMT) with support from the U.S. Department of Energy. Our standard lease agreement includes several components that encourage tenant energy conservation. Across our office portfolio, we require submetered or separately metered electricity consumption for all tenants over 5,000 square feet and promote submeters in smaller spaces. We also require submetered or separately metered water consumption for all tenants whose predicted use is expected to exceed normal business practice. The submetered arrangement enables Vornado to share energy and water consumption with our tenants monthly through the generation of the submeter bill. Tenants are billed transparently based on their actual and exclusive consumption as recorded on the submeter. Included on the submeter bill are Vornado’s energy reduction targets and links to Vornado’s corporate sustainability page, where our broader strategy on energy and water management is found. Elsewhere in the lease, we include a clause to recover capital costs that reduce operating expenses – whether utility costs or another cost reduction benefit – and we may amortize that recovery over the useful life of the project. Because we have been applying this practice for several years and now have an extensive coverage of this clause across our entire leased portfolio, we have chosen to also report on the percentage of total leases containing this cost recovery clause, as opposed to new leases only. In 2023, leases containing a cost recovery clause for energy efficiency improvements are 59.67% of our New York leases, 64.35% of THE MART leases, 87.25% of our California leases, and 1.37% of our Other leases, or 58.84% of our company’s total leases in place.

Where there is an economic or environmental benefit, our company will prioritize sustainability requirements in a tenant fit-out. Our revised tenant fit-out guidelines include enhanced requirements for energy efficient lighting and controls and HVAC equipment and water efficient plumbing fixtures. These high-performance design requirements are also included in our rules and regulations which are also referenced in the lease. We believe that our lease fosters a sustainably designed tenant space, and an ongoing environment that encourages the tenant to actively manage and measure their own carbon footprint.

Beyond the lease, we distinguish ourselves with one-on-one and group, in-person, and virtual engagement with our tenants

on sustainability. In 2023, we hosted four in-person sustainability roundtables in all our major regions of operations, and other in-person and virtual town halls concentrated on waste diversion and recycling. During these roundtables we discussed broader corporate ESG trends and regulatory updates, in addition to best practices. We collect information from our tenants that contribute to mandatory energy rating schemes, such as the ENERGY STAR Portfolio Manager profiles we submit for compliance with local laws in New York, New Jersey, San Francisco, and Chicago. We encourage tenants to consider ENERGY STAR Tenant Space recognition, and leverage ENERGY STAR Treasure Hunt programs to identify low- and no-cost measures to reduce consumption. We meet with tenants on-site to survey opportunities to save energy and water. We train our tenants on recycling programs. We host energy reduction competitions with tenants to promote awareness and foster their participation. Our tenants have also expressed support for renewable energy procurement, which we completed on their behalf in New York, San Francisco, and Chicago properties where tenants are submetered and Vornado has purchased Renewable Energy Certificates.

Vornado is committed to providing a comfortable, efficient, and technologically advanced work environment for each of its tenants, constantly striving to add value for its tenants through responsive service and programs. To that end, Vornado developed an app (LIVE. WORK. DO.) for all our tenants that allows building access, announces building events and information, provides benefits, and promotions to tenants. The Sustainability section of the app and tenant portal provide guidance to all our tenants about our sustainability initiatives in each building. The Sustainability section has been incorporated into each building’s section of the app and explains to the user our goals, our progress toward our ESG goals, and links to more information, as well as detailed guidance on how to become more involved in Vornado’s sustainability programming, including ENERGY STAR. We provide contact information, updated information on ENERGY STAR scores, organics collection, energy-saving tips, and upcoming events like Climate Week for participation and engagement. Our app usage continues to increase with the return-to-work of tenants and the ability to enter buildings using the functionality provided. This in turn has increased engagement with our tenants who now know where to look for information on events, initiatives, and contacts. We also publicize our events, challenges, and initiatives through the Captivate elevator screens in each building.

We hold ourselves accountable and measure the success of our engagement. Success is measured in the observed reduction of energy from submetered tenant spaces, the integration of organics throughout our portfolio, the waste diversion rate, and the square footage of space that our team reaches through our engagement program.



Climate Change Adaptation

Code	Activity Metric	Total	New York	THE MART	555 California	Other	Unit of Measure
IF-RE-450a.1	Area of properties located in 100-year flood zones, by property subsector.	863,000	173,000	0	0	690,000	Square Feet
IF-RE-450a.2	Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks.						

We identify and assess our exposure to climate change risk based on the 1.5°C and business-as-usual scenarios discussed in the October 2018 Special Report by the Intergovernmental Panel on Climate Change (IPCC). We find these scenarios to be relevant to our properties for two reasons. The first is that they provide potential future states on the physical risks each scenario presents between the present time and the year 2100. The second is that they provide a shorter-term view of transitional risks related to climate-related policy change that our properties could be subject to. Each of our principal markets of New York, Chicago, and San Francisco have existing or pending legislation that would limit carbon emissions to align with a 1.5°C scenario. We consider the costs for compliance with such legislation to be a financial impact attributable to the transition to a lower-carbon environment. The risks and opportunities for Vornado do not differ substantially across subsectors and regions, and our approach described below takes all risks and opportunities in each subsector and region into consideration.

Our buildings are located in regions that have had recent history of physical risks, such as extreme weather events, including but not limited to hurricanes and superstorms, nor'easters and ice storms, tornadoes, wildfires, temperature extremes, and heavy precipitation events. Under the business-as-usual scenario, there may be an increase in the frequency and severity of these events between now and 2100. Such events may impact our buildings individually, depending on a building's specific use, design, and location characteristics, or regionally, depending on the magnitude of the event. We are also aware that while less than 5% of our property square footage is in areas designated as flood zones by FEMA, our coastal locations are susceptible to sea level rise (SLR). Various global warming scenarios could bring about differing amounts of SLR between now and the year 2100. Financial impacts under various warming scenarios include, but are not limited to: increases in capital

and operating costs, increases in insurance premiums, increases in energy costs, and increases in overall utility costs.

Our properties are located in urban areas, which means the vitality of our properties is reliant on sound transportation and utility infrastructure. If that infrastructure is compromised in any way by an extreme weather event, such a compromise could have an adverse impact on our local economies and populations, as well as on our tenants' ability to do business in our buildings. This risk is not unique to Vornado but is endemic to our regions.

Our strategies for mitigating physical risks require a combination of adaptive and preventative measures with a proactive reduction of carbon emissions. Adaptive and preventative measures are executed at both the property level and regional level. We adapt our properties to be resilient against the impact of climate change, with details of our resilience measures found in the Resilience and Adaptation section of this report. We train our operators in disaster risk management and emergency operating procedures. At the regional level, our cities and utilities adapt by creating programs that improve resilience against climate-related impacts. Examples of such programs include New York City's AdaptNYC plan and Consolidated Edison's Storm Hardening Protection Plan in New York; Resilient Chicago and Commonwealth Edison's Resilient Electric Grid system in Chicago; and Resilient SF and PG&E's Company Emergency Response Plan in San Francisco.

We have disclosed our Scope 3 carbon emissions that are attributed to certain fuel and energy-related activities that are not included in Scope 1 or 2. These emissions are from energy that is delivered directly from the utilities to our tenants and consumed by our tenants. We plan to expand our inventory of Scope 3 emissions to include additional categories relevant to our business, in preparation for a net zero goal.

All carbon emission reduction strategies, whether property-specific or regional, present different risks and opportunities. Risks

include unsuccessful investment in new technologies; costs to transition to lower emissions technology; achievement of regional utilities' decarbonization; increased pricing on GHG emissions; reputational loss; and uncertainty in market signals such as utility costs or carbon taxes. Financial impacts of such risks could include increased capital and operating costs, increased or unexpected shifts in energy costs, and decreased asset value. Opportunities, on the other hand, include reduction of energy and resource consumption; use of public-sector incentives, such as utility rebates; diversification of energy resources, including renewables; adaptation of new technologies; and access to new capital. Financial impacts of such opportunities include reduction of energy and/or operating costs; favorable ROI analysis; increased value of fixed assets; reduced exposure to fossil fuel price increases; reduction of utility costs for our tenants; various benefits to workforce management and planning; lower cost of capital; and ability to take advantage of incentive, rebate, and tax incentive programs. Additional opportunities also include the reduction or elimination of burden from emerging carbon pricing or carbon tax mechanisms, as well as the reduction or avoidance of carbon-emissions-related penalties.

All three of our regions also have emissions-reporting obligations, which require us to publicly disclose our properties' carbon emissions via ENERGY STAR Portfolio Manager. We consider this requirement as an opportunity to measure the carbon emissions from our properties and manage the reduction of those emissions on an ongoing basis. These programs combine strategies of absolute energy reduction, through efficiency mandates, as well as fossil fuel intensity reduction

of utility-delivered energy. We discuss the intent and requirements of these programs with our property managers and engineers, as well as our tenants. They provide an important framework to the GHG reduction goals we set with our properties.

In 2019, New York City passed the Climate Mobilization Act (CMA), which contained several local laws to transition New York City to reduce GHG emissions 40 percent by the year 2030 and 80 percent by the year 2050, below 2005 levels. Included in the CMA was Local Law 97, which calculates carbon intensity for buildings on a per square foot basis and assigns limits to intensity beginning in 2024, with reporting in 2025. The law further assigns penalties of \$268 per ton of carbon calculated in exceedance of the limits. We are planning energy efficiency strategies to avoid penalties at our NYC properties and consider the cost for energy efficiency to be part of our transition costs to a low-carbon environment. We also consider penalty avoidance in the value stack of energy efficiency projects, and the penalty amount of \$268 per ton of carbon to be considered when making capital allocation decisions.

Vornado Realty Trust has signed on as a supporter of the framework recommended by The Financial Stability Board's Task Force on Climate-Related Financial Disclosures (TCFD). We believe this framework will guide the real estate industry toward well-informed disclosure of climate change risks and opportunities. As our internal and external discussions on climate risk and disclosure evolve, we plan to provide expanded public disclosure consistent with regulatory requirements.

<sup>1</sup>Any information relating to forward-looking statements, goals and progress against goals, was not subject to Deloitte & Touche LLP's examination and, accordingly, Deloitte & Touche LLP does not express a conclusion or any form of assurance on such information.

Normalization Note:

2022 and 2023 like-for-like energy consumption data has been normalized to adjust for fluctuations in weather and occupancy, while water consumption data has been normalized to adjust for fluctuations in occupancy only. Weather normalization uses inputs of total degree days (TDD), a fixed portion of energy consumption, known as a Base Load, and a variable portion of energy consumption, known as a Seasonal Load. Occupancy is normalized based on the following methodology:

1) An Occupancy Normalization Adjustment was calculated as most of Vornado's large commercial office buildings have ingested full-year physical occupancy counts in both 2022 and 2023. Therefore, we are using the portfolio's average monthly physical occupancy percentage changes on an annual basis year over year to normalize occupancy and applying that methodology to the buildings that do not have occupancy sensors. For buildings with sensors, their building-specific occupancy percentage change will be applied. For buildings that management knows did not have aligned occupancy changes, a note will be added and the occupancy normalization calculation will not be applied.

2) Weather Normalized Energy's Seasonal Load is subject to Occupancy Normalization Adjustment based on field research that demonstrates that a third of the seasonal load is occupancy dependent.





Independent Accountant's Report  
Board of Trustees  
Vornado Realty Trust

Deloitte & Touche LLP  
30 Rockefeller Plaza 41st Floor  
New York, NY10012  
USA  
  
Tel: +1 212 492 4000  
Fax:+1 212 489 1687  
www.deloitte.com

**WE HAVE EXAMINED MANAGEMENT** of Vornado Realty Trust’s (the “Company”) assertion that the metrics in the Sustainability Accounting Standards Board (SASB) Index included within the accompanying Sustainability Report of Vornado Realty Trust as of and for the year ended December 31, 2023 (the “Sustainability Report”) are presented in accordance with the Sustainability Accounting Standards Board Real Estate Sustainability Accounting Standard (the “SASB Standard”). The Company’s management is responsible for its assertion. Our responsibility is to express an opinion on the metrics in the SASB Index based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. Those standards require that we plan and perform the examination to obtain reasonable assurance about whether the metrics in the SASB Index are presented in accordance with the criteria, in all material respects. An examination involves performing procedures to obtain evidence about the metrics in the SASB Index. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment

of the risks of material misstatement of the metrics in the SASB Index, whether due to fraud or error. We believe that the evidence we obtained is sufficient and appropriate to provide a reasonable basis for our opinion.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements related to the engagement.

The preparation of the metrics in the SASB Index included within the accompanying Sustainability Report requires management to interpret the criteria, make determinations as to the relevancy of information to be included, and make estimates and assumptions that affect reported information. Measurement of certain metrics may include estimates and assumptions that are subject to substantial inherent measurement uncertainty, including, for example, the accuracy and precision of conversion factors or estimation methodologies used by management. Obtaining sufficient, appropriate evidence to support our opinion does not reduce the inherent uncertainty in the metrics. The selection by management of a different but acceptable measurement method, input data, or model assumptions, or a different point value within the range of reasonable values produced by the model, may

have resulted in materially different metrics being reported.

Our examination was limited to the metrics in the SASB Index as of and for the year ended December 31, 2023. All other information presented within the Sustainability Report, including information relating to forward looking statements, goals, progress against goals, linked information, and denoted by an asterisk (\*) of the Sustainability Report was not subject to our examination and, accordingly, we do not express an opinion or any form of assurance on such information.

In our opinion, the metrics in the SASB Index are presented in accordance with the SASB Standard in all material respects.

*Deloitte & Touche LLP*

APRIL 9, 2024



# UN Sustainable Development Goals\*

**VORNADO SUPPORTS THE UNITED NATIONS** Sustainable Development Goals (UNSDGs) as a global framework to achieve a more sustainable future for the planet and improve quality of life for all. As a corporate citizen, we uphold and contribute to each of the 17 goals through the environmentally and socially responsible manner in which we run our business and our properties. Below is a selection of metrics and programs where Vornado responds directly to targets identified through the UNSDG 2030 Agenda for Sustainable Development. We will expand upon these disclosures when new metrics and programs develop within the recommended SDG framework.

UN Goal Target		UN Goal Indicator	VNO Response
<div>3</div> <div>GOOD HEALTH AND WELL-BEING</div> <div></div>	►3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.	►3.5.1 Coverage of treatment interventions (pharmacological, psychosocial, and rehabilitation and aftercare services) for substance abuse disorders	►Vornado's Employee Assistance Program (EAP) and other wellness programs, referenced in the "Human Capital Management" section of this report. Our EAP is available to all Vornado employees, which represents our coverage.
	►3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	►3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn, and child health; infectious diseases; non-communicable diseases; and service capacity and access, among the general and most disadvantaged population)	►Vornado offers all employees universal health coverage through our employee benefits program. Health care services include medical, dental, health and wellness, telemedicine services, seasonal flu shots, and preventative screenings. More information can be found in the "Human Capital Management" section of this report.
	►3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	►3.a.1 Age-standardized prevalence of current tobacco use among persons aged 15 years and older	►To protect the health of the occupants, employees, and visitors to our building, Vornado transitioned all properties to tobacco-free and smoke-free environments in 2020. While the use of tobacco products and all smoking devices including electronic cigarettes and vaporizers had already been prohibited for all interior spaces, this policy now extends to all exterior property under Vornado's control.
	►3.d Strengthen the capacity for all countries, for early warning, risk reduction and management of national and global health risks	►3.d.1 International Health regulations (IHR) capacity and health emergency preparedness	►Considered throughout Vornado's business activity, starting with our materiality and risk assessments, development and deployment through our programs and practices described in the Health & Wellness and BMS & Clean Cleaning sections of this report.

UN Goal Target		UN Goal Indicator	VNO Response
<div>5</div> <div>GENDER EQUALITY</div> <div></div>	►5.1 End all forms of discrimination against all women and girls everywhere	►5.1.1 Whether or not legal frameworks are in place to promote, enforce, and monitor equality and non-discrimination on the basis of sex	►Vornado Realty Trust is an equal opportunity employer, and strictly prohibits discrimination of all forms on the basis of race, ethnicity, religion, color, national origin, gender, gender identity, sexual preference, age, status as a protected veteran, or status as a qualified individual with a disability.
	►5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	►5.5.2 Proportion of women in managerial positions	►38% of Vornado's managerial positions are female. More information can be found in the Social Results section of this report.
<div>6</div> <div>CLEAN WATER AND SANITATION</div> <div></div>	►6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	►6.4.1 Change in water-use efficiency over time	►Vornado reduced water consumption 32% in 2023 from 2019 levels. This reduction was driven by water efficiency measures and tenants continuing hybrid work.
<div>7</div> <div>AFFORDABLE AND CLEAN ENERGY</div> <div></div>	►7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	►7.2.1 Renewable energy share in the total final energy consumption	►In 2023, Vornado consumed 37% of energy from renewable resources. We plan to continue to increase our electricity supply from renewable resources when and where feasible.
	►7.3 By 2030, double the global rate of improvement in energy efficiency	►7.3.1 Energy intensity measured in terms of primary energy and GDP	►We have measured our energy intensity per square foot. In 2023 our energy intensity was 23.25 kWh / SF.
<div>9</div> <div>INDUSTRY, INNOVATION AND INFRASTRUCTURE</div> <div></div>	►9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	►9.4.1 CO2 emissions per unit of value added	►We have measured our GHG emissions per square foot. Our 2023 GHG emissions intensity was .0070 MTCO2e / SF.
<div>11</div> <div>SUSTAINABLE CITIES AND COMMUNITIES</div> <div></div>	►11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	►11.2.1 Proportion of population that has convenient access to public transportation, by sex, age, and persons with disabilities	►We measure our access to public transportation by the Transit Scores assigned to our properties, as determined by the agency that assigns Walk Score. In 2023, all of our office properties received a Transit Score of 100, indicating that 100% of our population has convenient access to public transportation.
<div>12</div> <div>RESPONSIBLE CONSUMPTION AND PRODUCTION</div> <div></div>	►12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	►12.5.1 National recycling rate, tons of material collected	►In 2023, Vornado diverted 65% of our waste from the landfill. Our data represents waste collected from about 80% of our total in-service square footage.

\*This disclosure was not subject to Deloitte & Touche LLP's review or examination and, accordingly, Deloitte & Touche LLP does not express a conclusion, opinion, or any form of assurance on such information.



# Glossary

**Carbon Intensity**  
MTCO<sub>2</sub>e PSF is used as the metric to measure against our carbon neutrality goal.

**Carbon Offsets**  
Indirect projects that avoid or reduce greenhouse gas emissions that are used to compensate for direct greenhouse gas emissions elsewhere. Offsets are measured in CO<sub>2</sub> equivalents.

**Control Approach**  
A company accounts for 100% of the GHG emissions from operations over which it has control. It does not account for GHG emissions from operations in which it owns an interest, but has no control. Control can be defined in either financial or operational terms. When using the control approach to consolidate GHG emissions, companies shall choose between either the operational control or financial control criteria.

**Embodied Carbon**  
Can be thought of as the “footprint” of a material or a product. It is the total amount of greenhouse gas (GHG) emissions released during the sourcing, manufacturing, transportation, use, and end-of-life for a product or a material and is represented as kg carbon dioxide equivalent or kgCO<sub>2</sub>e.

**Energy Intensity**  
Energy intensity (MWH/SF) against our energy efficiency goal.

**Energy Management System (EMS/EnMS)**  
A framework that helps an organization achieve its environmental goals, including energy and carbon data, through consistent review, evaluation, and improvement of its environmental performance.

**Equity Share Approach**  
The equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation. A company accounts for GHG emissions from operations according to its share of equity in the operation.

**Financial Control Approach**  
The ability to direct the financial and operating policies with a view to gaining economic benefits from its activities.

**Full-time employee (FTE)**  
Employee whose working hours per week, month, or year are defined according to national law or practice regarding working time.

**Green Bonds**  
A green bond is a type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental projects. These bonds are typically asset-linked and backed by the issuing entity's balance sheet, so they usually carry the same credit rating as their issuers’ other debt obligations.

**Green Seal**  
The Green Seal Standard for Commercial and Institutional Cleaning Services, GS-42, establishes environmental requirements for cleaning service providers of commercial, public, and institutional buildings, including in-house and external cleaning services.

**Location-Based**  
A method that reflects the average emissions intensity of grids on which energy consumption occurs.

**Market-Based**  
A method that reflects emissions from electricity that companies have purposefully chosen (or their lack of choice).

**Operational Control Approach**  
Under the operational control approach, a company accounts for 100% of emissions from operations over which it or one of its subsidiaries has operational control.

**Organic**  
Material derived from plant or animal (once alive) sources that can be decomposed by microorganisms.

**Physical Risk**  
Physical risks resulting from climate change can be event driven (acute) or longer-term shifts (chronic) in climate patterns. Physical risks may have financial implications for organizations, such as direct damage to assets and indirect impacts from supply chain disruption. Organizations’ financial performance may also be affected by

changes in water availability, sourcing, and quality; food security; and extreme temperature changes affecting organizations’ premises, operations, supply chain, transport needs, and employee safety.

**Renewable Energy Certificates (REC)**  
A market-based instrument that represents the property rights to the environmental, social, and other non-power attributes of renewable electricity generation. RECs are issued when one megawatt-hour (MWh) of electricity is generated and delivered to the electricity grid from a renewable energy resource.

**Revolving Credit Facility**  
A type of committed credit facility that allows a borrower to borrow on an ongoing basis while repaying the balance in regular payments. Each repayment of the loan, minus interest and fees, replenishes the amount available to the borrower.

**Science Based Target Initiative (SBTi)**  
A partnership between the Carbon Disclosure Project (CDP), the United Nations Global Compact, World Resources Institute (WRI), and the Worldwide Fund for Nature (WWF). The SBTi call to action is one of the We Mean Business Coalition commitments. SBTi drives ambitious climate action in the private sector by enabling organizations to set science-based

emissions reduction targets. Targets are considered science-based if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement: limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C.

**Tenant Space**  
Lettable floor area (both vacant and let/leased areas) that is or can be occupied by tenants.

**Transitional Risk**  
Transitioning to a lower-carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organizations.

**TRUE (Total Resource Use and Efficiency)**  
An Assessor-based certification program that rates how well facilities perform in minimizing their non-hazardous, solid wastes and maximizing their efficiency in the use of resources.

**Waste Audit**  
Measurement and identification of waste generated by a site during a 24-hour period. Data gained supplies a baseline understanding of waste and recycling at the site, and clarifies changes required to further waste diversion.

**Waste Disposal**  
Landfilling, incineration without energy recovery or other equivalent operation which is not recovery, including preparing of waste for disposal, even where the operation has as a secondary consequence the reclamation of substances or energy.

**Waste Diversion**  
Diverting material from landfill or incineration by recycling or reuse.

**Water Withdrawal**  
The removal of water from its source for any purpose.

**World Resource Institute’s Greenhouse Gas Protocol A Corporate Accounting and Reporting Standard: Revised Edition (WRI & GHG)**  
The GHG Protocol Corporate Accounting and Reporting Standard provides requirements and guidance for companies and other organizations preparing a corporate-level GHG emissions inventory. The standard covers the accounting and reporting of seven greenhouse gases covered by the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PCFs), sulfur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>).