



**VORNADO**  
REALTY TRUST

SUSTAINABILITY 2012

ENERGY STAR Partner of the Year 2013 -  
LED screen at Penn Plaza



ENERGY STAR Partner of the Year 2013 -  
LED screen at Times Square

VORNADO  
REALTY TRUST

PROUD PARTNER



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## Sustainability at Vornado Realty Trust

2012 marked another year of progress and success in Vornado's energy efficiency and sustainability programs. By integrating our Corporate Sustainability Policy into our business operations, we have continued to strengthen our buildings' infrastructure, operations, tenant engagement and overall marketability through our commitment to environmental stewardship.

Highlights of our work in 2012 included the LEED certification of 30 buildings in our DC portfolio through the U.S. Green Buildings Council's (USGBC) LEED Volume Program for Existing Buildings, successful implementation of energy efficiency capital work throughout our portfolio, and our ongoing work with local and national policy makers and institutions to design energy efficiency and sustainability policies and goals.

Our efforts in 2012 were recognized through several awards and recognitions, including:

- 2013 ENERGY STAR Partner of the Year
- Over 30 million SF LEED certified buildings
- Over 25 million square feet (SF) of EPA-designated Energy Star buildings
- NAREIT Leader in the Light Award (third year running)
- Newsweek "Greenest Companies" Listing (1st among "Real Estate" firms)



## ENERGY STAR Partner of the Year

Vornado is proud to announce that we were named by the U.S. EPA as **2013 Partner of the Year**. As an ENERGY STAR Corporate Partner, Vornado is committed to optimizing our energy efficiency and energy management efforts, and educating our tenants about ENERGY STAR programs and how they can reduce their energy consumption.

Benchmarking energy usage is the keystone to any effective energy efficiency and management program. Vornado uses the ENERGY STAR Portfolio Manager Program to benchmark and monitor the efficiency of all buildings. The ENERGY STAR program scores the energy performance of buildings on a 1-100 scale. Facilities that achieve a score of 75 or higher are eligible to earn the ENERGY STAR designation, indicating that they are among the top 25% of facilities in the country for energy performance. We are proud that over 25 million SF of buildings in our office portfolio have been awarded the prestigious ENERGY STAR designation.



Vornado team accepting Energy Star Partner of the Year Award from the EPA

## LEED

Since the late 1990s, LEED (Leadership in Energy and Environmental Design) has become the market-leading green certification for buildings in the U.S. and Vornado has become a leader in LEED certification of our office buildings.

In 2012, Vornado completed the largest and most comprehensive portfolio-scale LEED certification effort in the U.S. office sector. Vornado also became the first company to be accepted into and complete USGBC's LEED Volume Program for Existing Buildings, which reflects our corporate commitment to sustainability and our ability to execute on that commitment. Through this program, 30 buildings in our Washington DC portfolio earned LEED certification, representing over 10 million SF of commercial office space. This was achieved by developing a portfolio-wide sustainability strategy and implementation program, and creating comprehensive education and quality control programs to support those efforts.

The achievements in our Washington DC portfolio built upon the LEED certifications earned across our portfolio, bringing our national LEED certified footprint to over 30 million SF.

The Washington division's new headquarters space is also targeting LEED Gold certification under the LEED for Commercial Interiors (LEED CI).

To learn more about LEED, visit [www.usgbc.org](http://www.usgbc.org).



Universal South and Universal North achieved LEED Gold as part of Washington DC's LEED volume project

*Aerial of Skyline Place where seven buildings received LEED certification through Washington DC's LEED volume project*



## Energy Efficiency, Management and Onsite Generation

Our goal is simple—to reduce our energy consumption to only what is required in our buildings while providing the services expected by our tenants. Since establishing a dedicated Energy Efficiency Capex fund in 2011, we have strategically invested in building retrofits to improve the operating efficiency of our building stock. We have identified and implemented energy saving opportunities across our portfolios based on recommendations from audits and retro-commissioning reports, our engineering teams, and the data collected from our energy management systems. These projects call for marginal investment and qualify for available rebates and incentives, while offering short term paybacks and significant reductions in energy consumption.

In 2012, these projects totaled roughly \$5 million, had an average 3 year payback, with an anticipated annual energy reduction of 11.5 million kilowatt hours.

Vornado is a leader in energy management strategies and technology, and important highlights of our work include our Tenant Service Center (TSC) in Washington DC, our “smart-metering” program in New York through our Energy Information Portal (EIP™), our LED lighting retrofit programs, and On-site generation projects.

### Tenant Service Center

Vornado's Tenant Service Center (TSC) in Washington DC is one of the largest and most sophisticated energy management and building system control centers in the United States. The TSC not only monitors energy use in Vornado's owned and managed properties, but also integrates energy procurement strategies with time-of-day energy management to reduce energy costs by decreasing both energy use and peak demand. The TSC also manages a portfolio-scale demand response program that has the capacity to reduce portfolio-wide energy demand by over 3 megawatts.



Tenant service center

## 2012 Upgrades to the EIP

In 2009, Vornado launched the trademarked Energy Information Portal (EIP™) in our New York portfolio as a tool to provide tenants with real time monitoring of their energy consumption. Collecting pulse output readings from its 3,000 submeters across the portfolio, the EIP displays consumption to tenants and building operators in graph and table format, enabling them to see the success of their energy reduction activity – and the associated cost savings – on a real-time basis.

Vornado's focus in 2011 and 2012 was to make the EIP a valuable tool for our building operators, managers and portfolio-level staff to evaluate building operations and new efficiency projects. Working with our software developer and metering company, Vornado launched a second generation EIP that is faster and more user-friendly for both tenants and building operators. New features include a single-click view of the past 24 months of submeter billing history for tenants, and the ability for building operators to create their own custom “meter groups” that can measure and verify energy savings tied to specific projects.

### LED Retrofit Projects

Energy efficiency starts at home, and Vornado is proud to showcase our LED lighting retrofit in our corporate headquarters at 888 Seventh Avenue in New York that resulted in a 30% decrease in our baseline energy consumption (implemented in February 2012). Because we are able to monitor and verify these savings quickly using our Energy Information Portal, we were able to deploy similar technology throughout our portfolio and to share this success with our tenants in 2012.

At the Mart building in Chicago, the building keeps a stock of efficient and ENERGY STAR labeled LED lighting from which tenants can directly procure. Our Chief Engineer works closely with Mart tenants to encourage their conversion of light fixtures to LED products, and facilitates whatever paperwork is necessary to gain utility rebates that will fund the projects. The Mart has established a goal with the local Chicago utility, ComEd, for a 1 million kilowatt hour annual reduction from these lighting retrofits.

### Onsite Generation

While we work to reduce the energy consumption and carbon footprint of our buildings, Vornado also continues to investigate opportunities for back-up power and onsite generation as a strategy to improve power reliability in our buildings.

Our 6.2 megawatt Cogeneration project at One Penn Plaza in New York, which commenced operation in 2010, continues to provide up to 60% of the building's electricity and up to 30% of the building's steam requirement, making it one of the largest existing Cogen projects to be integrated into an existing New York City office building.

Our 900 kilowatt solar project at Bergen Town Center in New Jersey generates enough electricity to supply common area needs at the property. In 2012, the project produced nearly 1 million kilowatt hours of onsite, carbon-free power for the building.

Since 2011, Vornado has installed and commissioned ten electric vehicle charging stations across the greater DC Metro area, including Arlington County, Fairfax County and downtown Washington, DC, where the introduction of electric vehicle charging stations help to support the emerging EV market. In 2012, we leased 2 electric cars for use by our employees (particularly our leasing team) to help reduce our carbon footprint and lower our transportation costs.



Cogeneration Plant at One Penn Plaza

We continue to investigate additional opportunities in our portfolio, and in 2013 will be working with one of our largest tenants to investigate the feasibility of an onsite fuel cell project.



Cogeneration Plant at One Penn Plaza



Solar panel installation at Bergen Town Center consisting of over 4000 panels

## Green Cleaning

Green cleaning standards combine cleaning best practices with the use of low environmental impact products to ensure a high degree of sustainability with a focus on the health of occupants and indoor air quality. New innovation, standards, environmental expectations and technology advances have all contributed to evolving expectations regarding green cleaning practices. Vornado's subsidiary, Building Maintenance Services (BMS) LLC, cleans and maintains our buildings using a LEED-Standard green cleaning program throughout our portfolio by purchasing only products and equipment that meet industry standards such as GreenSeal, EcoLogo, EPA DfE, CRI or ISSA's Cleaning Industry Management Standard (CIMS) & CIMS-GB.

## Recycling, Reclamation & Reuse

Recycling, reclamation and reuse programs are essential components of a sustainable built environment. By preventing the waste of potentially useful materials and reducing the consumption of raw materials, recycling, reclamation and reuse projects help to reduce systemic energy usage and reduce the need for conventional waste disposal.

Vornado is committed to supporting the recycling of materials and diversion of waste away from landfills, wherever possible. This includes everyday waste produced in a building (trash, paper waste, food waste) as well as construction waste and debris. Our goal is to maximize and optimize our diversion ratio of waste, and ensure that such materials can be diverted away from landfill to separation and recycling facilities.

In 2012, highlights of these programs included:

- Over 20,000 tons of recycled waste portfolio wide
- Reclamation and reuse of office furniture, file cabinets, chairs and glass partitions for over 30 offices and marketing suites in 7 buildings
- E-waste drives across the portfolio in recognition of Earth day and America Recycles Day
- Launch of non-profit partnership for tenants to donate unwanted furniture
- Launch of a battery recycling program

## Education

Training is a key component in our sustainability success. Vornado supports Continuing Education for its staff that focuses on energy efficiency and other sustainable property management and operations. These classes are taken from a wide variety of available industry curricula, including BOMA, Local 94 (New York Engineers' Union,) GBCI / USGBC, Urban Green Council, the Association for Energy Engineers (AEE), local universities and colleges.

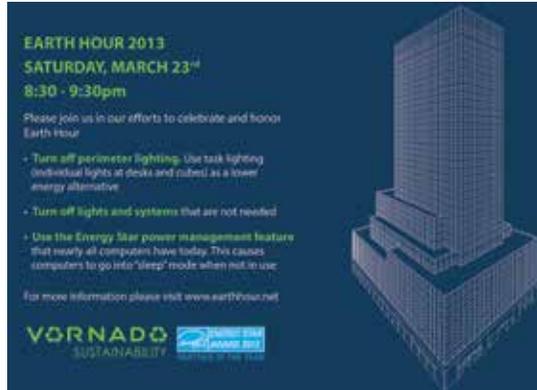
In Washington, our team hosts an annual "Green Fair," a full day workshop for all engineering staff. In addition to bringing in valuable education sessions from outside parties, the day provides engineers with an opportunity to cross-share knowledge and techniques on facilities management.

## Communications and Outreach

In addition to our efficiency work, what sets Vornado's sustainability efforts apart is our award-winning and comprehensive outreach, marketing and communications platform. While our work demonstrates our commitment to "walk the walk", our communications platform allows us to engage with and educate a wider audience, in particular our investors, tenants, and brokers. This strategy includes integration of our sustainability work on our website and in our leasing materials and the development of tenant newsletters, building sustainability fact sheets and tenant outreach events.



Tenant sustainability meeting



Tenant outreach flyer

## Strategic Partnerships and Corporate Involvement

Our sustainability team is actively involved with the following industry groups to help guide and develop new guidelines related to energy and sustainability issues:

- The Real Estate Roundtable Sustainability Policy Action Committee (SPAC)
- NAREIT Leader in the Light Working Forum
- Founding group of the USGBC/ICSC/RILA Retail Sustainability Committee
- U.S. federal government (GSA) Green Building Advisory Committee
- New York: Mayor's Office of Long Term Planning (NYC) Advisory Committee; REBNY Sustainability Committee; NYC Building Resiliency Task Force
- Washington DC: Arlington County Community Energy Advisory Group

## Disclosure

Vornado discloses its sustainability performance and carbon emissions data through the Global Real Estate Sustainability Benchmark (GRESB) Survey and NAREIT's Leader in the Light program. For more information on GRESB, please visit <http://gresb.com/survey/>.



888 Seventh Avenue case study



[VNO.COM/SUSTAINABILITY](https://www.vno.com/sustainability)