

Shifting the office-cleaning routine from night to day at 11 Stanwix wasn't as simple as it sounds.

Cleaning routes and schedules for tending to the offices throughout the building's 23 floors had to be reconfigured without disrupting the business of its tenants. Cleaning staff needed training on how to interact with those tenants, whom they rarely encountered before. Quieter vacuums had to be purchased.

But the plan allowed the Downtown office tower to be shut down after hours. That lowered heating, cooling and overall energy demand. Energy costs fell 5.5 percent, saving more than \$100,000 a year. And the environmental footprint of Pittsburgh's buildings got a bit smaller, edging the city closer to meeting an ambitious challenge to cut it in half.

Pittsburgh was among the first cities to take up the international Architecture 2030 Challenge to dramatically reduce energy consumption and greenhouse gas emissions, and promote sustainable design and practices in the built environment. Downtown was the initial focus in 2012. The city's Oakland neighborhood was added two years later with support from The Heinz Endowments, making the Pittsburgh 2030 District the largest among more than a dozen participating cities.

"The first step toward a sustainable economy is getting your buildings to use less energy and water," said Pittsburgh 2030 District Director Anna Siefken, vice president of strategic engagement at the nonprofit Green Building Alliance. "What's the use of trying to have solar run a building if the building is like a sieve? Whatever we can do in the built environment to drive use-of-less will help address the big issues we have, such as air and water quality."

The Pittsburgh 2030 District is a public-private partnership of building owners and managers; community stakeholders, including local government, advocacy and neighborhood groups; and resource partners, such as utilities, planning organizations and the Urban Redevelopment Authority.

To reach the 2030 goal of cutting aggregate energy and water use and transportation emissions by 50 percent, participants are collecting, analyzing and sharing performance data, and collaborating around finding practical ways to use less.

Some 438 buildings and over 68 million square feet of Downtown and Oakland real estate are represented in the collaborative. In Downtown, 163 buildings have signed on, representing 62 percent of the Downtown square footage. In Oakland, 274

buildings representing 84 percent of the neighborhood's square footage are involved.

The Green Building Alliance shares assessments of the energy and water use of each building with the owners, and establishes baselines and targets as a first step toward plotting reduction strategies. Building managers and others involved gather monthly to share their experiences, expertise, problems and ideas for solving them.

One idea presented through the collaboration was reconfiguring elevators in ways that save energy. The process included positioning cars at floors where the volume of riders is high to reduce the number of round trips from the ground floor, and keeping only enough cars active to meet demand while letting others sleep until needed.

Cost saving is the chief incentive for property owners and a factor that encourages them to take additional steps to reduce energy and water use, Ms. Siefken said. First projects are often straightforward and offer a quick return on investment, such as converting lighting from incandescent to LED, and installing low-flush toilets and inexpensive aerators on faucets.

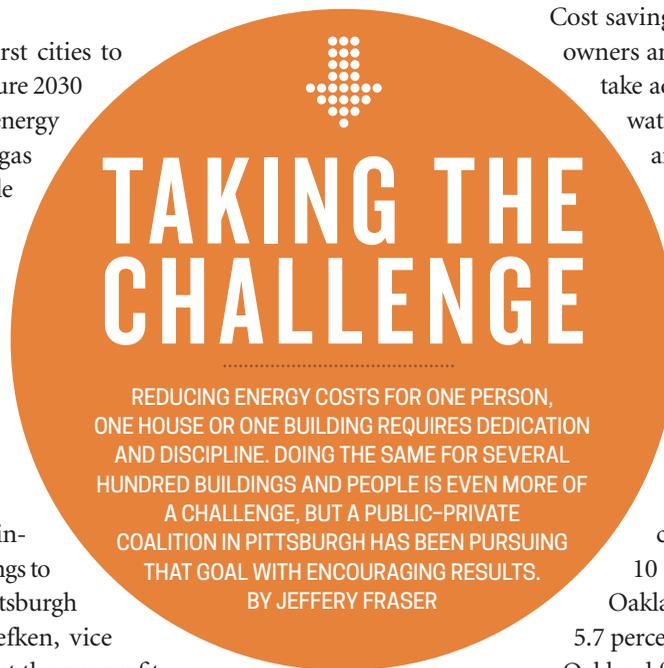
By last year, energy use among Downtown Pittsburgh buildings had dropped 20 percent below the national median baseline that had been adjusted for Pittsburgh's climate and location—well below the 10 percent reduction goal for 2015. In Oakland, energy consumption decreased 5.7 percent below baseline.

Oakland faces steep challenges due to its portfolio of buildings. Unlike Downtown, where nearly half of the properties are office buildings, university-rich Oakland is crowded with heavier consumers of energy, such as medical facilities with strict climate control protocols and laboratories.

"Not every conversation is going to be an easy one," Ms. Siefken said. "But people are taking inventory who had never taken inventory before. They have different considerations than they had before becoming part of this, and they're making different choices."

Lessons learned in the 2030 District also could inform other sustainable building initiatives, such as Sustainable Pittsburgh's Green Workplace Challenge, which in four years has led to an estimated \$8.9 million in energy savings across southwestern Pennsylvania.

"Many retrofits and modifications need not cost an arm and a leg," said Court Gould, Sustainable Pittsburgh's executive director. "What is being demonstrated throughout the 2030 District is illustrative of what can be done throughout our region." **h**



THE PITTSBURGH 2030 DISTRICT

The district, which encompasses the city's Downtown and Oakland neighborhoods, has steadily added buildings and partners since the collaborative was formed in 2012. It also has continued to make progress toward the 2030 goal of cutting aggregate energy and water use and transportation emissions by 50 percent. The energy and transportation emission reductions exceeded the 2015 target of 10 percent below baseline.

84

PROPERTY PARTNERS

68.2
MILLION
SQUARE FEET

44

438

PROPERTIES
COMMITTED TO THE
CHALLENGE

COMMUNITY
AND RESOURCE
PARTNERS

BASELINE RESULTS

The Pittsburgh district's baselines were calculated using information from different sources. The energy baseline was created by taking the Commercial Building Energy Consumption Survey's national median baseline and adjusting it for Pittsburgh's climate and location. The Pittsburgh Water and Sewer Authority was consulted to develop a water baseline using historic water consumption from 2009 to 2012. Currently, the transportation emissions baseline applies only to Downtown but will be expanded to include Oakland. It was created using a regional travel demand model provided by the Southwestern Pennsylvania Commission, a regional planning agency.



TOTAL ENERGY
REDUCTION

12.5%
BELOW
BASELINE

reduced by
868,546,301 kBtu



TOTAL WATER
REDUCTION

9.1%
BELOW
BASELINE

reduced by
79,716,989 gallons



TOTAL TRANSPORTATION
EMISSIONS REDUCTION

24.2%
BELOW
BASELINE

reduced by
1,399,529 kilograms of CO₂