COMMODORE CORNELIUS VANDERBILT, THE FOUNDER OF VANDERBILT
VANDERBILT UNIVERSITY

A LONG-TERM VISION

Andrea George, Director of the Sustainability and Environmental Management Office at Vanderbilt University, talks to Sustainable Business Magazine about current initiatives, projects, and their long-term sustainability goals. ▶


AERIAL VIEW OF THE COMMONS
VANDERBILT UNIVERSITY


KIRKLAND HALL – VANDERBILT'S ORIGINAL BUILDING WHICH IS NOW THE CHANCELLOR'S OFFICE. ORIGINALLY CONSTRUCTED IN 1874.
ROBERT WHEATON/VANDERBILT UNIVERSITY

Vanderbilt University, located in Nashville, Tennessee, was founded in 1873. As an academic medical research university, Vanderbilt covers over 300 acres and has more than 11000 students and over 25000 staff and faculty members. Andrea George, Director of the Sustainability and Environmental Management Office at Vanderbilt University, explains that the energy needed to successfully run such a large university requires a substantial level of expenditure and an equally significant focus on sustainability. "Here at Vanderbilt we use an environmental management system to operate sustainably. This essentially means we manage our environmental impact as you would any other business function. We track and trend over 1600 key environmental performance indicators including energy use, greenhouse gas emissions, and even employee commuter miles driven. By doing this we can identify areas of opportunity for improvement."

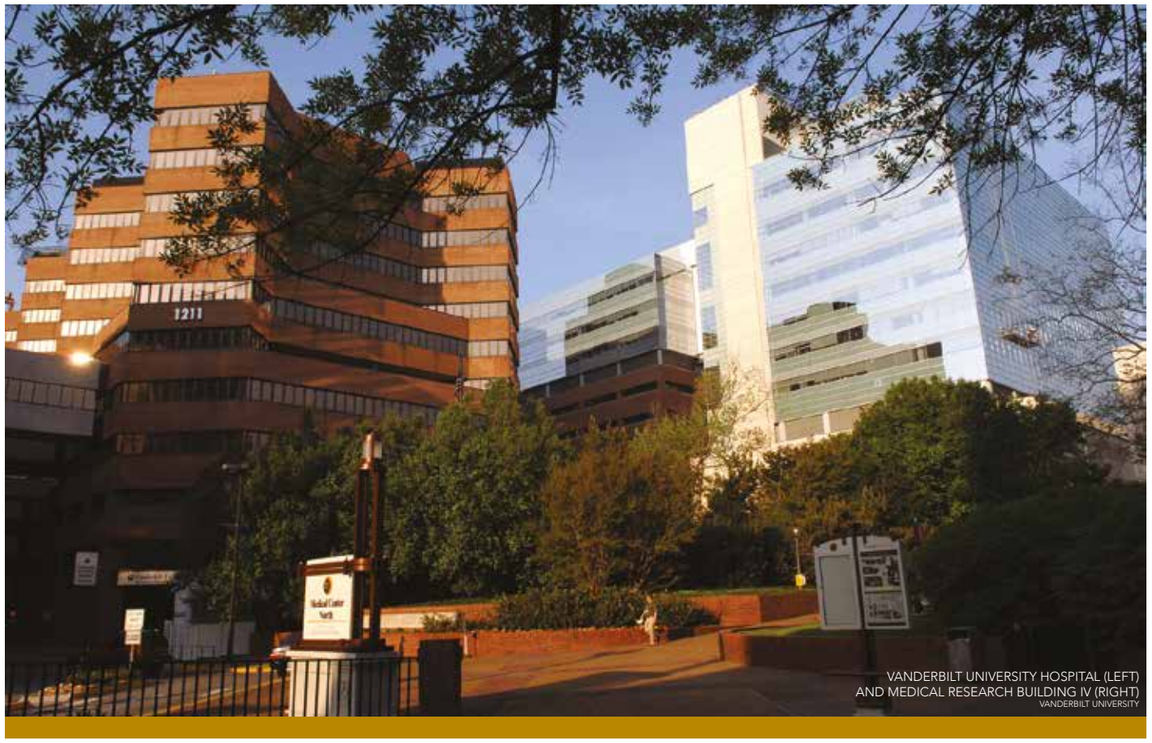

DR ANDREA GEORGE, DIRECTOR OF THE SUSTAINABILITY AND ENVIRONMENTAL MANAGEMENT OFFICE AT VANDERBILT UNIVERSITY
VANDERBILT UNIVERSITY

BUILDING SUSTAINABLY

Maintaining and improving the sustainability performance of campus buildings and facilities can be a challenge for historic uni- ▶

VANDERBILT UNIVERSITY'S HOSPITAL BUILDINGS
VANDERBILT UNIVERSITY

"WE TRACK AND TREND OVER 1600 KEY ENVIRONMENTAL PERFORMANCE INDICATORS INCLUDING ENERGY USE, GREENHOUSE GAS EMISSIONS, AND EVEN EMPLOYEE COMMUTER MILES DRIVEN."

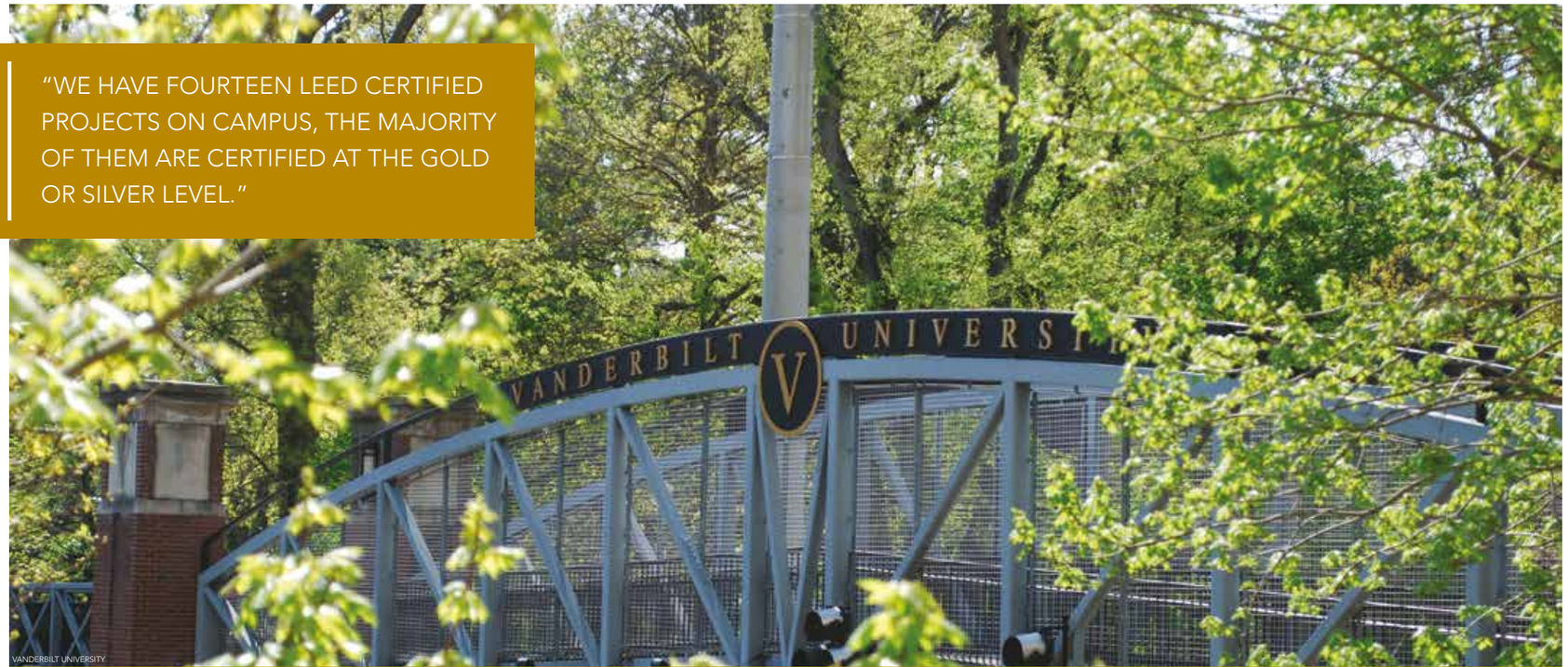


VANDERBILT UNIVERSITY HOSPITAL (LEFT) AND MEDICAL RESEARCH BUILDING IV (RIGHT)
VANDERBILT UNIVERSITY

versities such as Vanderbilt. The campus at Vanderbilt University includes buildings that range from over 100 years old, as well as the brand new, 400,000 square foot College Halls at Kissam residential complex that is opening Fall 2014. "Our primary struggle, from a sustainability standpoint, is trying to green these existing buildings," explains Dr George. "It's crucial to reducing our energy use as we have far more existing buildings than new buildings." In 2008, recognizing the importance of upgrading the existing buildings, Dr. George and her colleagues in Vanderbilt's Plant Operations and Plant Services departments set to work on planning and carrying out required retrofits. Those retrofits have resulted in a 27% reduction in greenhouse gas emissions per gross square foot. "We're already doing well but the really good news is that the university administration truly recognizes how important ▶

VANDERBILT UNIVERSITY

REUSED SANDSTONE PAVERS IN LEED GOLD COMMONS CENTER
VANDERBILT UNIVERSITY



VANDERBILT UNIVERSITY

"WE HAVE FOURTEEN LEED CERTIFIED PROJECTS ON CAMPUS, THE MAJORITY OF THEM ARE CERTIFIED AT THE GOLD OR SILVER LEVEL."

the energy efficiency of these buildings is." The unfortunate reality is that high energy related expenditure is to be expected at a medical university such as Vanderbilt. A large amount of expenditure is associated with the use of Vanderbilt University's hospital buildings which include over 70 operating rooms as part of their extensive medical facilities. Due to recent upgrades and retrofits many of these medical facilities are now being fully automated. This enables Vanderbilt to reduce their emissions and energy expenditure by turning off parts of buildings when they are not in use. In the unlikely event of a mass casualty where the buildings would need to be at maximum occupancy, the recent automations mean that the buildings can be brought online, to full capacity, in moments.

In conjunction with retrofits and upgrades that are taking place on the Vanderbilt campus, the university also engages with the U.S. Green Building Council and its LEED certification program. Dr George explains that Vanderbilt's engagement with the LEED initiative has engrained sustainability into the working practices of university staff. "Most of the Vanderbilt University architects who oversee our building projects are LEED accredited. Inherent in that accreditation is that they always seek creative ways in which to build in a green and sustainable manner whether we are seeking LEED certification or not. On top of that we have fourteen LEED certified projects on campus, the majority of them are certified at the gold or silver level."

100% NATURAL GAS

In order to meet campus energy demands, Vanderbilt University has a dual fuel co-generation power plant that runs on


COMMONS EXTERIOR
VANDERBILT UNIVERSITY

both coal and natural gas. A year ago the university decided to renovate the power plant, an ambitious project aimed at making it run entirely on natural gas. This renovation comes with many engineering, technical, and practical challenges. The power plant at Vanderbilt is located in the center of the campus and is therefore surrounded by academic buildings, residential buildings, and a student center. The large-scale renovation will obviously have to take this into account as it proceeds, however Dr George points to the overwhelmingly positive environmental and financial benefits that the project will provide. "In terms of cost, time, and space, the challenges of this conversion are substantial, however this is the right time for Vanderbilt to move away from coal. It is an almost $29 million dollar project to convert but when we looked at our projections for plant maintenance and fuel costs, while taking into account the potential for additional emissions regulations by the government, we found that if we convert to 100% natural gas we will ▶


REUSED LIBRARY CHAIRS IN LEED GOLD COMMONS CENTER
VANDERBILT UNIVERSITY

VANDERBILT COMMODORES' MASCOT, MR. C., CELEBRATING EARTH DAY 2014 WITH SUSTAINVU
VANDERBILT UNIVERSITY

"WE FOUND THAT IF WE CONVERT TO 100% NATURAL GAS WE WILL REALIZE A SAVING OF OVER $3 MILLION DOLLARS ANNUALLY ON FUEL COSTS ALONE."

VANDERBILT POWER PLANT BEFORE
ROBERT WHEATON/VANDERBILT UNIVERSITY

VANDERBILT POWER PLANT AFTER
ROBERT WHEATON/VANDERBILT UNIVERSITY

realize a saving of over $3 million dollars annually on fuel costs alone." As well as being financial beneficial, the conversion to 100% natural gas will provide Vanderbilt with the ability to reduce greenhouse gas emissions and virtually eliminate the production of a number of hazardous air pollutants and waste products. Dr George emphasizes that Vanderbilt always used the highest quality low emission coal available, however the opportunity to convert to 100% natural gas was too good to turn down. "This conversion, both in terms of environmental impact and in cost, is the largest investment and improvement we could make on our campus at one time regarding our environmental footprint."

A SUSTAINABLE UNIVERSITY

The commitment to sustainability that Vanderbilt University has shown through its efforts to upgrade operations and facilities is testament to the environmental awareness of the institution and its staff. The forward thinking mentality of people such as Andrea George is reflected in the engagement the Sustainability Office has with student groups such as SPEAR (Students Promoting Environmental Awareness and Responsibility) and in initiatives such as the Dump the Pump drive, which encourages staff and faculty members to car pool or use public transport. Dr George emphasizes that Vanderbilt University is taking a pro-active approach to environmental issues by continually striving striving toward continuous sustainable improvement. "We're not looking to implement flavor of the month policies. Here at Vanderbilt, we're looking to implement change for the long-term." □

WATERFREE URINALS AND DUAL FLUSH TOILETS IN COMMONS CENTER RESTROOMS.
VANDERBILT UNIVERSITY

RECYCLED GLASS USED IN TERRAZZO FLOORS IN COMMONS RESIDENCE HALLS
VANDERBILT UNIVERSITY

VANDERBILT STUDENTS PLANTING THE ON-CAMPUS COMMUNITY GARDEN
VANDERBILT UNIVERSITY