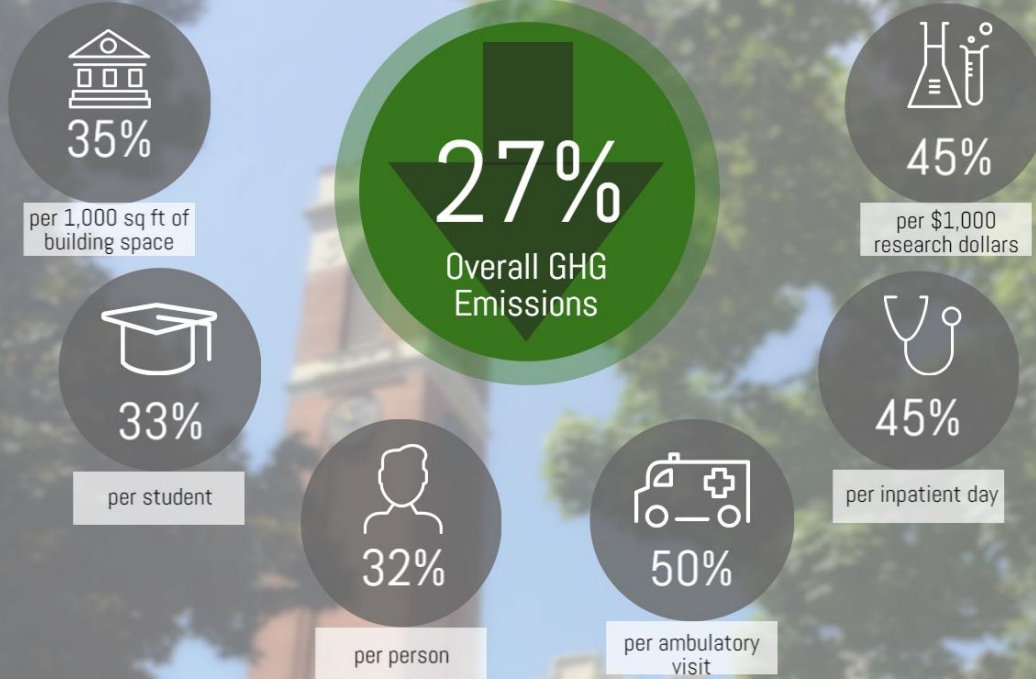
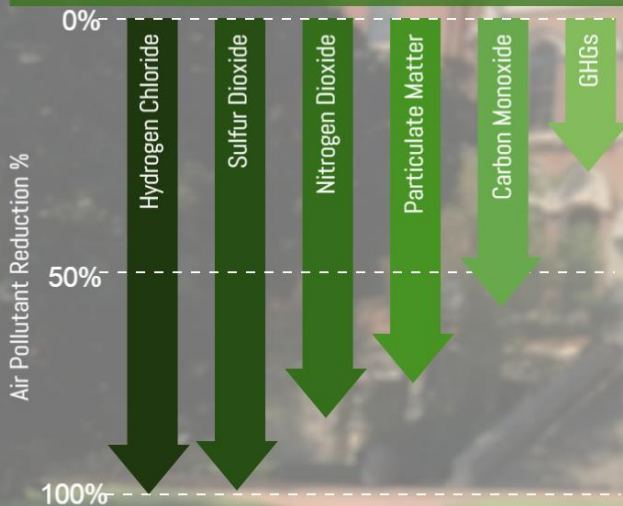


Between 2008 peak and 2015, Vanderbilt University's Greenhouse Gas emissions have decreased by:

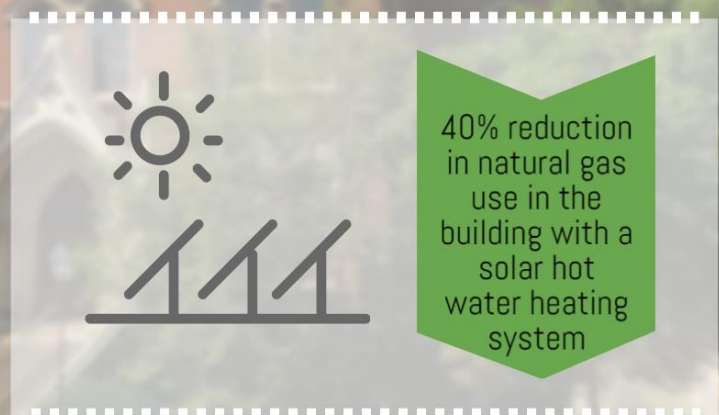


Vanderbilt's power plant was converted to use 100% natural gas at the end of 2014, making 2015 the first full year that Vanderbilt operated without burning coal!

Reduction in Air Pollutants from the Power Plant Conversion



Vanderbilt added two new solar installations to campus!



Vanderbilt University Inventory of Greenhouse Gas Emissions 2015

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This report is produced collaboratively by the VU Facilities organization and VU Division of Public Affairs.

Facilities

The VU Facilities organization includes the Sustainability and Environmental Management Office, Campus Planning and Construction, Plant Operations, and Real Estate all working collaboratively to build, maintain, manage and operate campus infrastructure in a sustainable and cost-efficient manner to support the overarching academic mission and goals of the university. The three organizations most involved in impacting VU's greenhouse gas emissions are as follows:

The Sustainability and Environmental Management Office (SEMO) supports the Vanderbilt University community and facilities by identifying, inspiring, innovating, and quantifying environmental management and sustainability initiatives that positively impact the campus community, surrounding community, and the environment.

Plant Operations provides facilities support for approximately 5.8 million square feet of academic, administrative and dormitory space to include routine maintenance and housekeeping services; grounds care for 330 acres that are a registered arboretum; turf care for athletic fields; and utilities for University Central and the Medical Center. The department has annual budget of approximately \$89M and employees 409 employees.

Campus Planning and Construction (CPC) supports the development of capital projects that meet the programmatic requirements of its customer base while visually expressing the quality to which Vanderbilt University aspires. Projects include academic, research, housing, athletics, administrative, site and major infrastructure with a focus on value, sustainability and quality of environments for users.

Vanderbilt University's award-winning **Division of Public Affairs** which includes **News and Communications** serves as the institution-wide hub for communications, marketing and public policy initiatives. Whether developing unique relationships with and communicating to Vanderbilt's vast array of external and internal constituencies, promoting government and community initiatives, creating a broader, deeper and more complete understanding of Vanderbilt, each and every activity of the division supports the University's academic missions of teaching, research, service and patient care.

Front page graphic created by Chelsea Hamilton.

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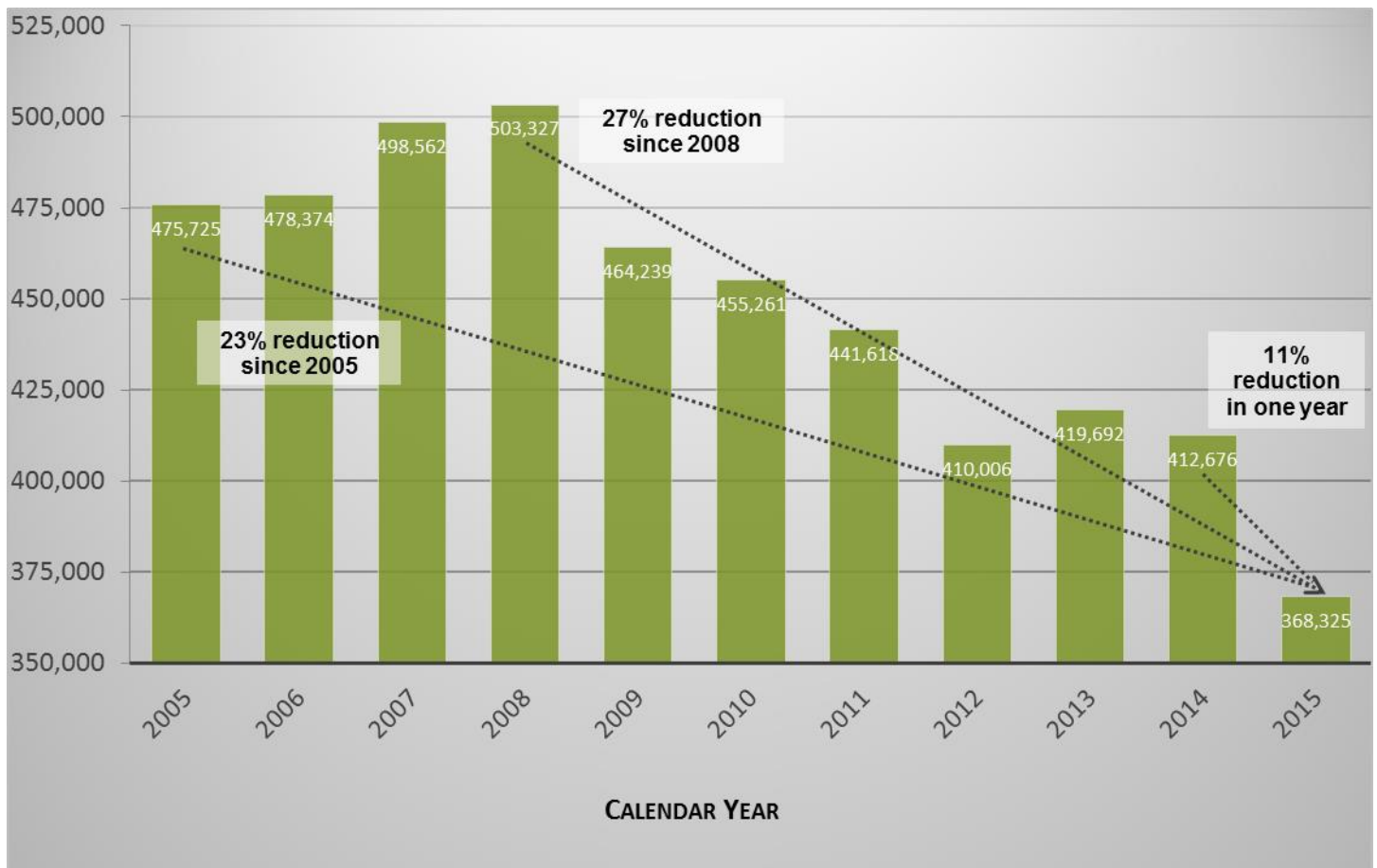
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EXECUTIVE SUMMARY

This Greenhouse Gas (GHG) emissions inventory is intended to portray Vanderbilt's current carbon footprint as accurately as possible and to provide trending information to show progress in GHG emissions reductions from 2005-2015. This GHG inventory was developed by Vanderbilt's Sustainability and Environmental Management Office (SEMO).

This report, a supplement to previous reports for 2005 to 2014¹, establishes Vanderbilt's GHG emissions for calendar year 2015 so that the Vanderbilt community can better understand its own unique impact on the environment and determine the most effective improvement strategies to implement in the future. Trending data for 2005 through 2015 is provided in Appendix B and discussed below.

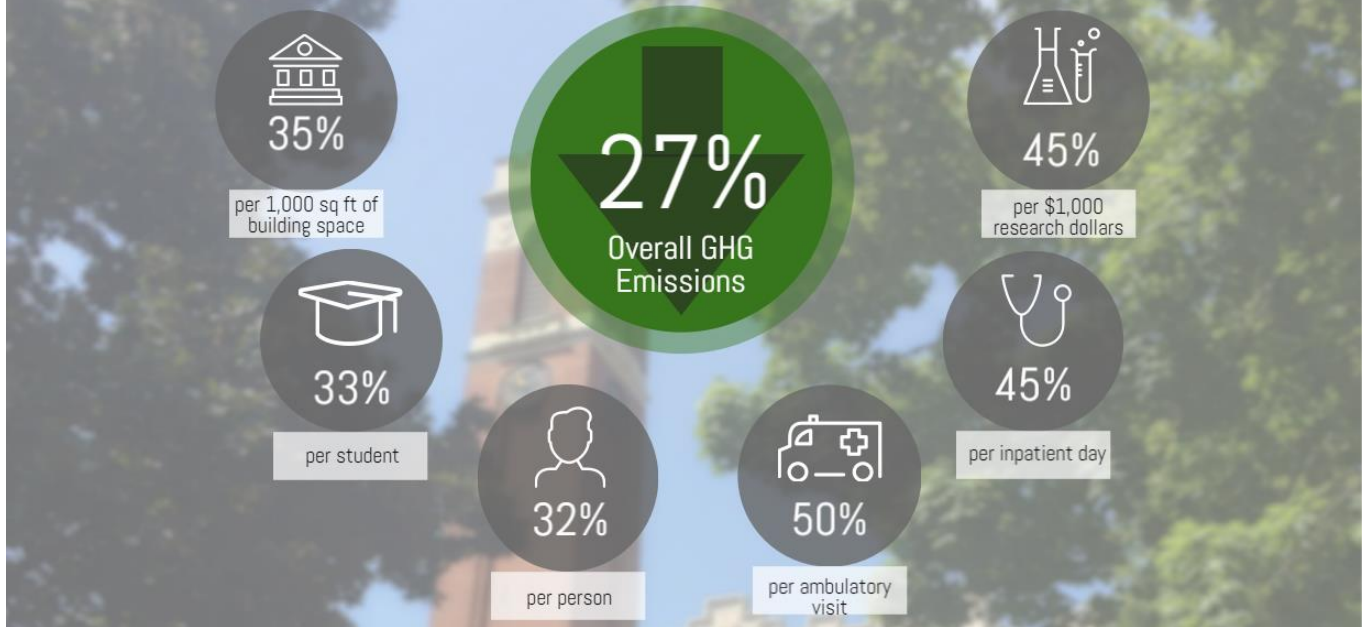
Findings



Total Vanderbilt GHG Emissions, Calendar Years 2005-2015.

¹ Vanderbilt University's Inventory of Greenhouse Gas Emissions 2005-2014 is available at www.vanderbilt.edu/sustainvu.

Between 2008 peak and 2015, Vanderbilt University's Greenhouse Gas emissions have decreased by:



Emission reductions in 2015:

- VU's total GHG emissions for calendar year 2015 were 368,325 Metric Tons of Carbon Dioxide Equivalent (MTCO₂E), down 27 percent from the 2008 peak, 23% since 2005, and 11% since last year².
- While VU achieved significant GHG reductions from the power plant, this was offset somewhat by small increases in the impacts of commuter travel, emergency generator fuel use, and anesthetic gas use in VUMC due to an increase in inpatient visits.
- Coal use at the Vanderbilt Power Plant was discontinued in November 2014. GHG emissions from the VU Power Plant dropped 26% from the coal-burning plant in 2013 to the post-conversion plant fueled by natural gas in 2015³.
- With the conversion of the power plant completed in 2015, fewer kilowatt-hours were purchased from Tennessee Valley Authority (TVA) as compared to the 2014 calendar year.
- The portion of Vanderbilt University's Scope 1 GHG emissions required to be reported to the Environmental Protection Agency (EPA) for calendar year 2015 was 116,401 MTCO₂E.
- GHG emissions from Academic and Research Areas have decreased by 29 percent and from Patient Care Areas have decreased by 24 percent since 2008⁴.
- Overall GHG emissions are down 27 percent from the all-time high reached in 2008, even though square footage has increased by 12 percent overall, or by almost two million square feet, since 2008⁵.

² Additional information about the University's total GHG emissions for 2005-2015 can be found in Table B.1 in the appendices.

³ Additional information about the University's total GHG emissions for 2005-2015 can be found in Table B.1 in the appendices.

⁴ Additional information about GHG emissions from Academic and Research Areas and Patient Care Areas can be found in Sections III and IV and Tables B.1, B.2 and B.3 in the appendices.

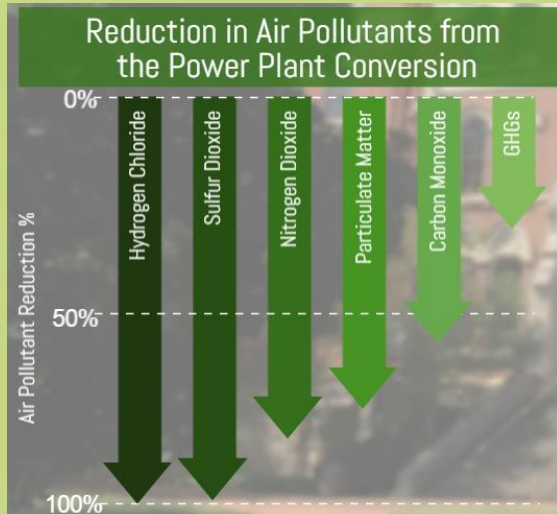
⁵ Additional information about the University's total GHG emissions for 2005-2015 and Gross Square Footage can be found in Table B.3 in the appendices.

Vanderbilt Power Plant Became Coal Free in 2015

2015 was the first year that Vanderbilt University's co-generation power plant was fueled entirely by natural gas although it was still in commissioning mode. The conversion of the power plant began in 2013 and reached a major milestone on November 19, 2014 when the plant burned its last piece of coal!

The conversion of the plant has increased its operational efficiency while also contributing to significant environmental benefits. Greenhouse gas emissions from the power plant have decreased 26% from the coal burning 2013 plant to the post-conversion plant fueled by natural gas in 2015. Emissions of air pollutants have been reduced significantly as well; hydrogen chloride by 100%, sulfur dioxide by 99%, nitrogen dioxide by 83%, particulates by 74%, and carbon monoxide by 56%. Further gains in emission reductions are expected in future years.

The switch to natural gas has eliminated the delivery of 2,300 trucks of coal each year, 15 million pounds of coal ash waste produced by the plant, and the burning of 105 million pounds of coal each year. Other benefits include a reduction of noise pollution, and elimination of associated fuel use and emissions from trucking coal to the power plant⁶.



Chancellor Zeppos at Coal Free Celebration, 2015

Future Plans

This inventory has provided campus stakeholders with a consistent means of comparing annual GHG emissions and sufficiently detailed information to make informed decisions to determine the reduction strategies for the past decade. Considerable progress has been made during this time.

Annual emissions inventories will continue to be conducted in the future to measure progress; however, the separation of VU and Vanderbilt University Medical Center (VUMC) into two legally separate entities necessitates a different approach and accounting of emissions. Thus, the annual emissions inventory will continue in the future but will significantly change structure and format and will continue to be made publicly available on the SustainVU [website](#)⁷.

⁶ More information regarding the VU Power Plant Conversion can be found at <http://www.vanderbilt.edu/sustainvu/2013/04/vu-power-plant-faq/>

⁷ www.vanderbilt.edu/sustainvu