

UNIVERSITY OF LOUISVILLE



UofL's new Earn-A-Bike Program offers a \$400 bike shop voucher to anyone willing to give up their right to a parking permit for at least two years.

GREENHOUSE GAS EMISSIONS INVENTORY 2006 - 2013



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ACKNOWLEDGEMENTS

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American College & University Presidents' Climate Commitment

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University of Louisville Greenhouse Gas Emissions Inventory Fiscal Years 2006 – 2013

EXECUTIVE SUMMARY

Our efforts to implement our [Climate Action Plan](#) are clearly paying off. This report documents the clear progress the University of Louisville (UofL) is making in reducing our greenhouse gas (GHG) emissions, even as we continue to grow in terms of physical size, campus population, and budgetary expenditures.

From 2006 to 2013, we estimate that emissions have dropped over 22% from 246,929 to 191,823 metric tons.

While this reduction is worthy of note and should be celebrated, it still does not represent a steep enough decline to achieve our goal of climate neutrality by 2050. We must continue to innovate and strive for even greater reductions in years to come.

You will find herein a summary of the estimated GHGs for which UofL was responsible during the fiscal years 2006 through 2013. This is the second inventory update since our baseline GHG inventory, submitted in 2009. It supports the findings of UofL's [January 2013 Climate Action Plan Progress Report](#).

This inventory provides an estimate of greenhouse gas emissions resulting from the activities of some 29,266 students, faculty and staff and the operation of some 8,081,064 square feet of buildings on all three of the university's campuses, including the Belknap, Health Science and Shelby campuses.

This inventory represents UofL's on-going effort to track GHG emissions for the purpose of developing and refining strategies to reduce our emissions. ***Due to variations in methodologies, scales and contextual settings, this report is not intended to be used for comparison to other higher education institutions nor for any regulatory requirements.***

BACKGROUND

On August 1st, 2008, University of Louisville President, James R. Ramsey, took the bold step of signing the American College & University Presidents' Climate Commitment. This pledge expresses UofL's long-term commitment to sustainability and a move toward climate neutrality. The University remains true to this commitment, having determined a baseline inventory of greenhouse gas emissions in 2009 and having developed a comprehensive [Climate Action Plan](#) in 2010. This Plan acts as a living document for UofL and serves as roadmap to achieve net climate neutrality by 2050, with interim goals for emissions reduction along the way.

The enclosed findings are estimates only, based on an admittedly imperfect system of data gathering. This reporting represents a significant step forward in the comprehensiveness and accuracy of data gathering for carbon accounting as the University continues to strive to improve data collection methods and to more accurately track emissions.

Newly captured data reflected in this report include: more accurate estimates of commuter trip distances; research building square footage; summer school student populations; electricity generated by on-campus solar systems; our first green power certificate; and emissions from refrigerants, synthetic fertilizer applications, and study abroad travel.

METHODOLOGY

GHG emissions are typically broken down into three categories and defined as scope 1 (on-campus sources), scope 2 (off-campus sources), and scope 3 (indirect sources). All three categories are included in this report.

The data summarized herein includes utilities data for some 120 buildings on all three campuses which are owned by the University, comprising approximately 8,081,064 gross square feet of building space on 660 acres of land. The data encompasses all the University's academic, health science, medical, dental, athletic, dormitories, research, and office buildings and grounds.

Several buildings which are associated with the University but not owned or operated by UofL are not included in this report. Examples of these include fraternity and sorority houses, residence halls operated by third parties, the University Hospital, and off-campus leased space.

The report also tracks emissions from some of the behaviors of our total campus population of 29,266 students, faculty and staff. Particular improvements were made this year in the commuter data as a result of our first follow-up UofL transportation survey in the spring of 2013, providing us with encouraging trend data from our baseline survey conducted in the spring of 2010.

The University's emissions were estimated using the Clean Air-Cool Planet® Campus Carbon Calculator v6.9 software and based upon collected facility data.

Emissions not reported because levels were considered to be *de minimus* include nitrous oxides used in the medical and research facilities, perfluorocarbons used in eye surgeries and MRIs, and sulfur hexafluorides used in ultrasound imaging.

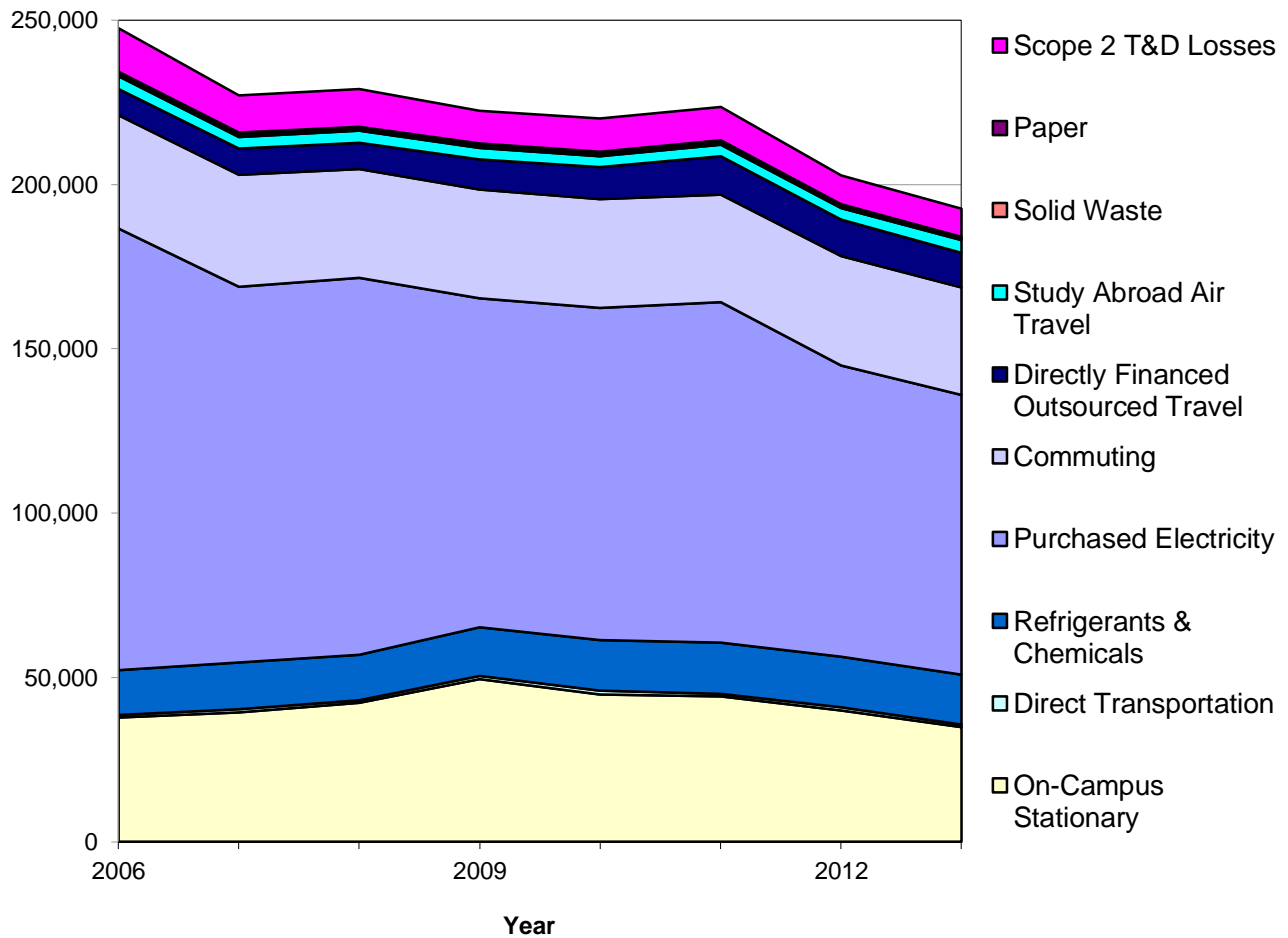
FINDINGS & RECOMMENDATIONS

For fiscal years 2006 through 2013, our revised estimates suggest that the University of Louisville produced annual average net emissions of 223,962 metric tons of carbon dioxide equivalent (MT CO₂e) from all sources. However, net emissions appear to have begun the downward trajectory that we seek, both in absolute terms and relative to growth in the size of the University.

From 2006 to 2013, we estimate that emissions have dropped over 22% from 246,929 to 191,823 metric tons.

While this reduction is worthy of note and should be celebrated, it still does not represent a steep enough decline to achieve our goal of climate neutrality by 2050. We must continue to innovate and strive for even greater reductions in years to come.

**UofL Carbon Emissions 2006 - 2013
(Metric Tons of Carbon Dioxide Equivalent, eCO₂)**



Trends

Comparing the most recent available data (FY2013) with our FY2008 baseline, the University's carbon footprint can be attributed to the emissions produced from the following primary sources:

Rank	Source	2008	2013
1	Purchased electricity generated almost exclusively from coal		
	Excluding scope 2 transmission & distribution losses	50.1%	44.3%
	Including scope 2 transmission & distribution losses	55.1%	48.7%
2	On-campus stationary sources (heating/cooking)	18.5%	18.1%
3	Commuting to campus by students, faculty & staff	14.5%	17.0%
4	Refrigerants	6.0%	7.8%
5	Directly-financed air travel	3.5%	5.4%
6	Study abroad air travel	1.5%	2.0%
7	Fleet vehicles	0.4%	0.4%

Sources noted with percentages in **red** show a trend of becoming increasingly prominent (and thus deserving of additional attention for mitigation), while those in **green** have a trend of decreasing prominence over the years.

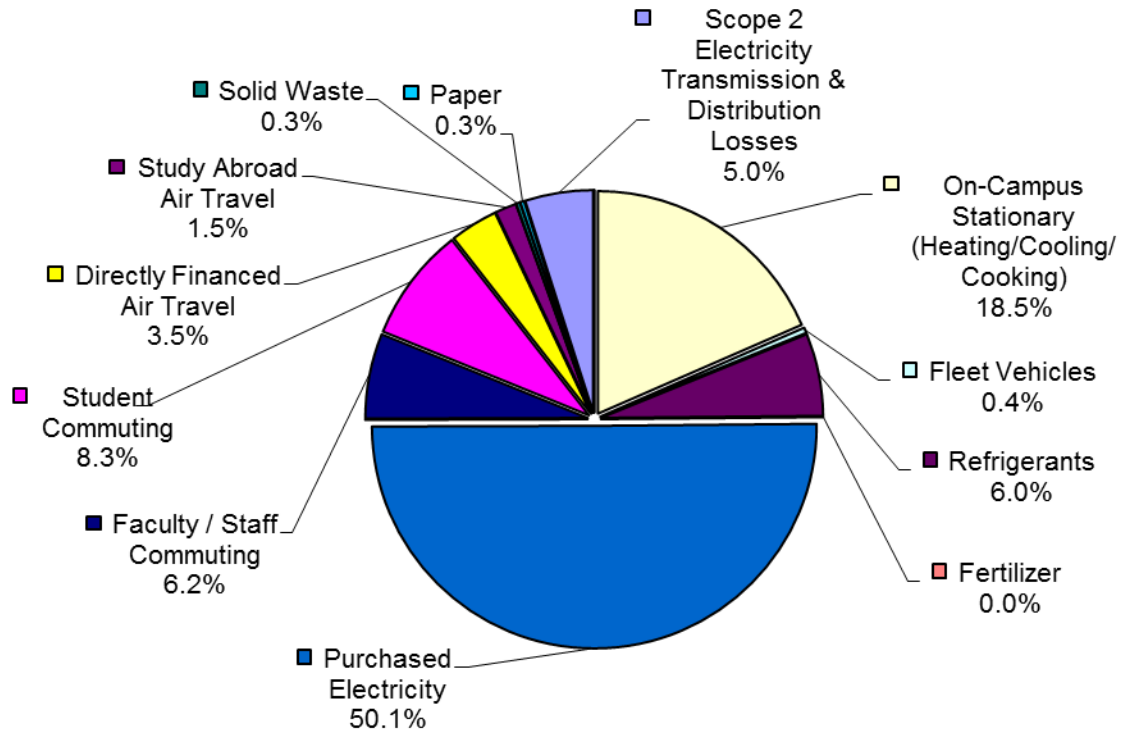
In other words, UofL has made disproportionately good progress in reducing electricity and on-campus stationary fuel consumption (for heating/cooling/cooking) compared to progress reducing emissions from refrigerants and transportation sources.

The Sustainability Council has aggressively expanded the diversity and scope of [transportation initiatives](#) at UofL in recent years, and our work has gained national recognition. In addition to offering students and employees free access to the entire Louisville transit system, UofL now also offers Louisville's first [car-share system](#), [bike-share](#) program, [ride-sharing through Zimride](#), and our [Earn-A-Bike program](#) through which anyone willing to give up their right to a UofL parking permit for at least two years can earn a \$400 bike shop voucher.

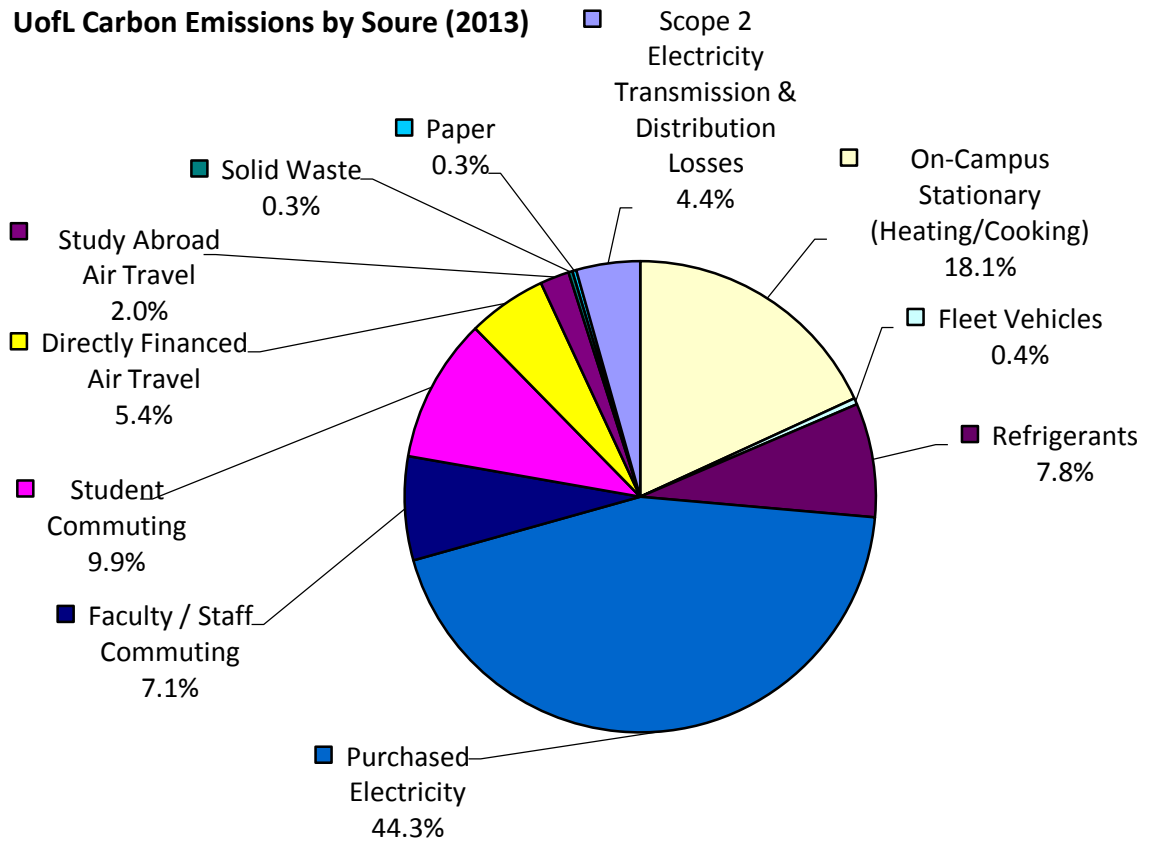
We are currently establishing our first [Vanpools](#) to campus through [Ticket To Ride](#), and we are working with [Miller Trailways](#) to set up a new Campus Connector service with direct daily departures to Frankfort and Lexington from UofL's Belknap campus on coaches equipped with Wi-Fi and at-seat plug ins. We are also working with the [Appalachian Carbon Partnership \(MACED\)](#) to be a pilot school in a new university-focused online portal that will offer opportunities for faculty, staff, and students to offset carbon emissions by protecting small landholder forests in Appalachia.

We've documented a change in commuter mode-share from 2010 to 2013 as a result of all this work, but there is much more to be done to reduce the vehicle miles traveled to campus.

UofL Carbon Emissions by Source (2008)

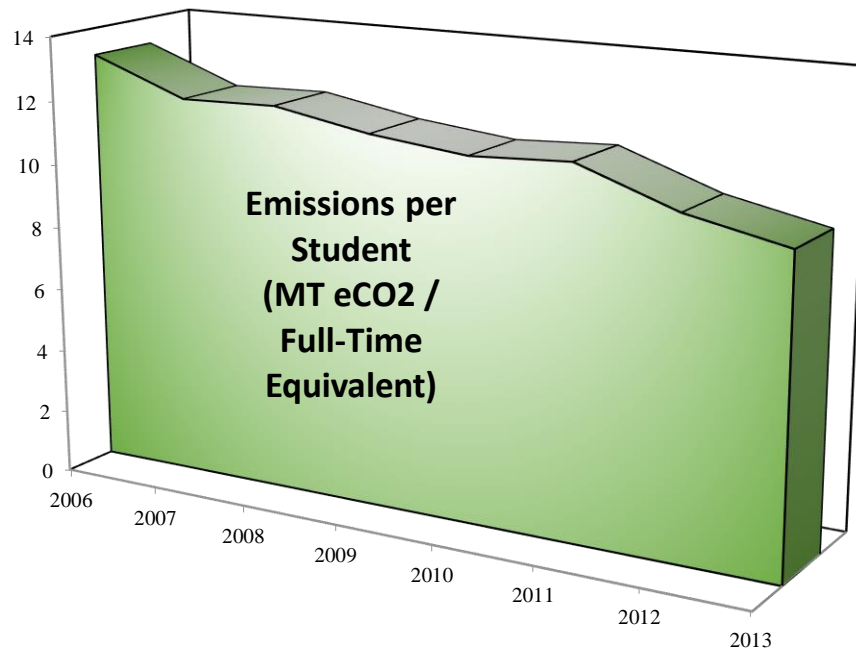


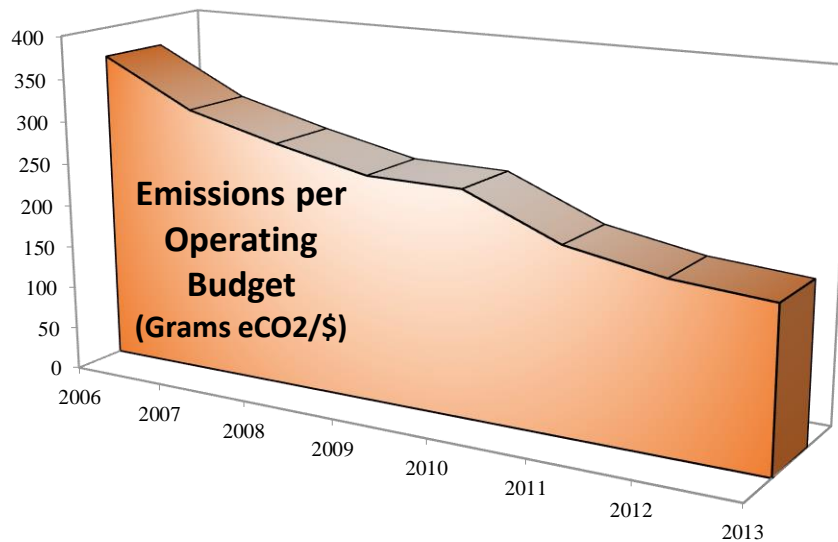
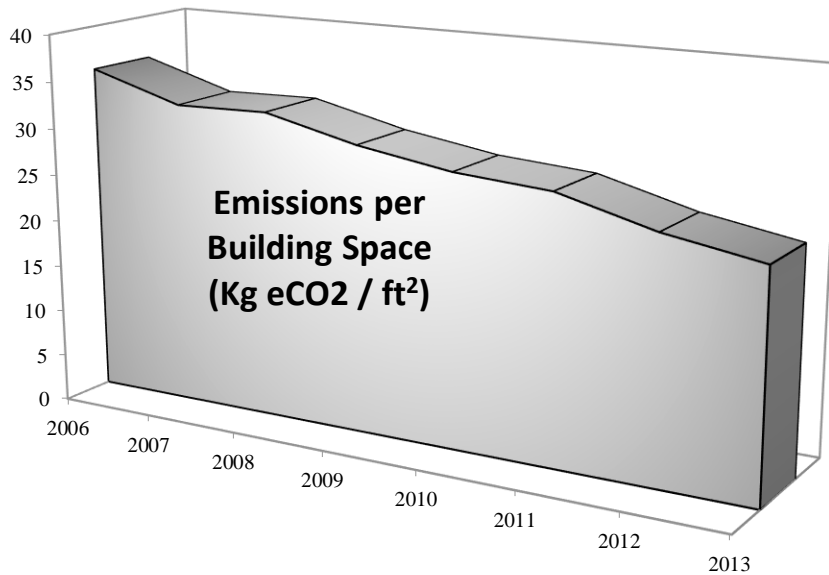
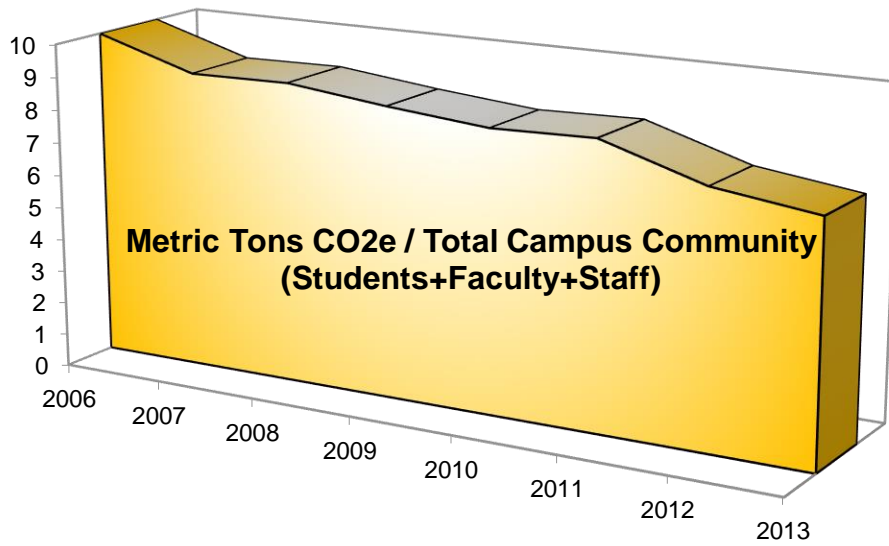
UofL Carbon Emissions by Source (2013)



Though the University's population, budget and land holdings have grown over this period, the net GHG emissions have not grown in proportion, and, in fact, have begun to fall. This indicates that UofL's efforts to reduce its environmental impact are trending in the right direction, even as we grow.

Fiscal Year	Net Emissions	Per Student	Per Capita (Students + Faculty + Staff)	Per Sq. Ft. of Building Space	Per Annual Operating Budget	Per Number of Heating Degree Days	Per Number of Cooling Degree Days
	MT CO ₂ e	MT CO ₂ e / FTE Student	MT CO ₂ e / Person	kg CO ₂ e / ft ²	g CO ₂ e/ \$	MT CO ₂ e / HDD	MT CO ₂ e / CDD
2006	246,929	13.2	10.0	35.4	366.0	58.6	184.8
2007	226,532	12.0	9.1	32.5	312.7	51.9	176.4
2008	228,356	12.1	9.1	32.7	285.4	52.4	195.9
2009	221,731	11.6	8.8	30.4	261.8	47.6	217.8
2010	219,376	11.3	8.5	28.8	260.8	46.1	141.4
2011	222,917	11.4	8.6	28.1	214.4	48.1	171.9
2012	201,891	10.3	7.6	25.5	194.7	54.6	163.7
2013	191,823	9.7	7.2	23.8	186.5	43.9	155.5
Average	219,944	11	9	30	260	50	176





These trends all reflect the fact that the University has been committed to greater energy conservation and has invested considerably in improving building efficiency through a [performance contract with Siemens](#). This \$46.2 million project, involving 88 buildings (6.2 million square feet) on all three UofL campuses is projected to directly save the university \$4.4 million every year and to reduce our annual carbon dioxide emissions alone by over 46,000 tons (the equivalent of removing 7,690 cars from the road). With these improvements, UofL expects to reduce its utility bill by about \$12,086 per day.

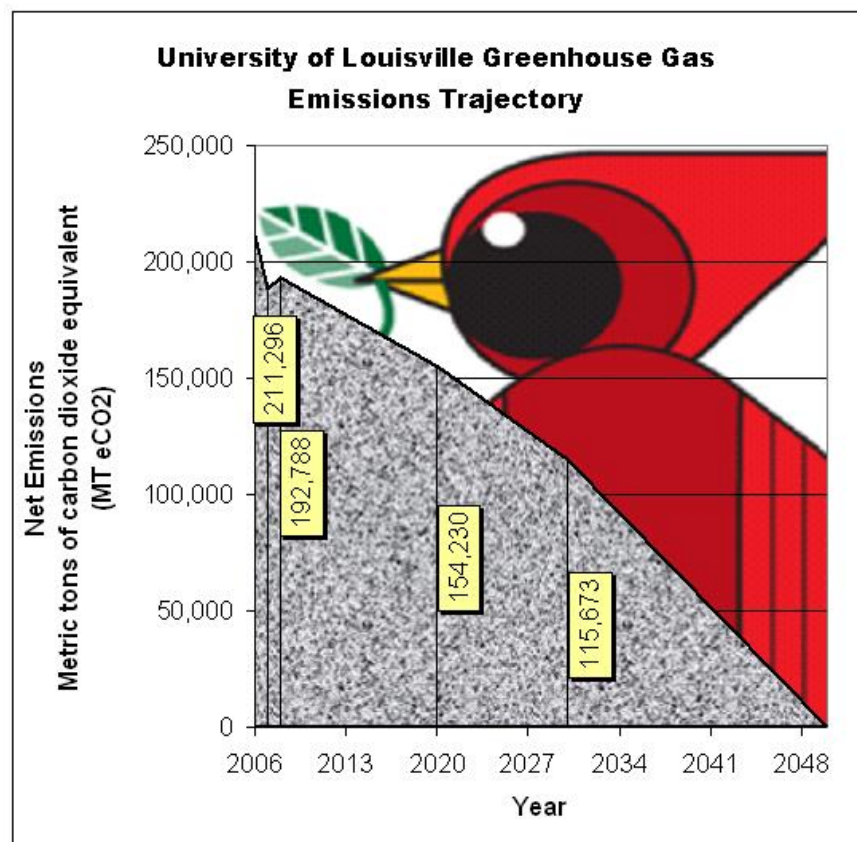
As can be seen in this report, these efforts have already produced documented results. In FY 2011-12, for instance, Belknap Campus reduced fuel use 48%, electricity use 27%, and water use 31%. Efficiency-minded campus users helped us exceed our engineers' expectations. They had predicted fuel use to decline nearly 40% and electricity use to drop at least 20% annually. This represents a large step for UofL in emissions reduction, but it is only the first of many laid out in our [Climate Action Plan](#).

UofL's goal is to achieve climate neutrality by 2050. We are well on our way, but we need to step up our efforts and accelerate progress to achieve that goal. Current rates of reduction will not get us there by 2050.

Our plan for making progress toward climate neutrality is dynamic and multifaceted. We recognize that sustainability demands progress on multiple fronts and that lasting change cannot be achieved without coordinated, university-wide efforts. As such, we will be taking a variety of steps to lead UofL down a path toward climate neutrality.

UofL's [Climate Action Plan](#) addresses current and future initiatives in the following areas:

- Green purchasing
- Energy conservation and efficiency
- Renewable energy



- Carbon sequestration
- Master planning
- Green building design
- Composting and horticultural practices
- Behavior change: Green Team pilot program
- Behavior change: university-wide
- Recycling
- Transportation
- Food
- Carbon offsets

DATA LIMITATIONS

It must be stressed that these findings are *estimates* of GHG emissions, not actual measurements. The accuracy of these estimates is limited by the quality and extent of the data gathered. Actual emissions are likely to vary from the calculated estimates.

Limitations to the data used in this survey include:

- Emissions for leased off-campus spaces and private residence hall spaces not owned by UofL were not included.
- Wastewater volume is not measured, nor is freshwater input as the water utility does not provide the University with annualized gallon data.
- The Athletics department's transportation fuel usage, fertilizer applications and emissions resulting from Athletic events (other than utilities usage) were not incorporated into this report due to its separate budget and accounting system.
- Air miles booked on behalf of the University but not using the University's contracted travel agent could not be directly accounted for, but were estimated based on the fact that roughly half of all air miles are booked through the agent.
- Fugitive emissions from laboratory animals used in medical research could not be accounted for.
- In calculating our carbon footprint, the University used rough, upper-bound estimates to designate as *de minimus* (or materially insignificant) small emissions sources that collectively comprised less than 5% of the University's total GHG emissions. Some emissions considered *de minimus* for this report include nitrous oxides used in the medical and research facilities, perfluorocarbons used in eye surgeries and MRIs, and sulfur hexafluorides used in ultrasound imaging.

BACKGROUND

Though many individuals on campus had been pursuing various environmental projects for years, the University of Louisville made a formal, institutional commitment to sustainability in 2008. On August 1st, 2008, President James R. Ramsey took the bold step of signing the American College & University Presidents' Climate Commitment.

As a further indication of the University's commitment to climate neutrality and a broader social and environmental responsibility, Provost Shirley Willingham established the university-wide Sustainability Council that same year. Comprised of representatives from a broad spectrum of University departments along with administrators and students, the Council aims to do the following:

- Oversee the work of three committees on sustainability initiatives (Operations; Education & Research; and Administration, Finance & Outreach);
- Develop and review policies to recommend for implementation to the President and Provost;
- Set metrics and provide oversight to measure progress using the categories in the Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment and Rating System (STARS) and in other areas deemed important to the University;
- Serve as a clearinghouse of information and organizational hub for University activities related to sustainable practices;
- Encourage faculty, staff and students to become involved in sustainability efforts at all levels; and to
- Publicize sustainability initiatives internally and externally in order to create momentum for substantial change.

One year later, the University further solidified its commitment to sustainability by creating a new full-time professional and administrative staff position devoted exclusively to the effort. UofL hired its first-ever Assistant to the Provost for Sustainability Initiatives in August 2009.

UofL's environmental progress has a rich, collaborative history. In 1992, the University of Louisville established the Kentucky Institute for the Environment and Sustainable Development (KIESD), with the mission "to provide multidisciplinary research and applied scholarship, teaching and educational outreach, and public service on issues of the environment, its protection, and sustainable development at the local, state, national and international levels."

KIESD has achieved these goals through the work of a variety of centers focused on different aspects of sustainability, including:

- The Center for Environmental Education
- The Center for Environmental Engineering
- The Center for Environmental and Occupational Health Sciences
- The Environmental Cardiology Center (Public Health)

- The Center for Environmental Policy and Management
- The Environmental Finance Center (EPA Region IV)
- The Center for Environmental Science
- The Center for Land Use and Environmental Responsibility
- The Center for Sustainable Urban Neighborhoods
- The Kentucky Pollution Prevention Center

In August 2004, the University teamed with the biggest public institutions in town to manage environmental resources better through the [Partnership for a Green City](#). As the first of its kind in the country, the partnership represents a collaborative effort to improve environmental education, health, and management by combining the resources of Louisville's four largest public entities: the University of Louisville, the Jefferson County Public Schools, Louisville Metro Government, and now Jefferson Community & Technical College.

Through the coordination of efforts and cooperation, the partnership has been able to realize real results that will have long-term impact on the health, education, and well-being of our citizens while also improving and institutionalizing environmental practices within the organizations themselves.

In December 2006, the partnership formed a Climate Change Committee that commissioned a Climate Action Plan. Part of the plan was to develop an inventory of the community's GHG emissions based on 2006 data. This initial effort, in which the University participated, laid the groundwork for the University to develop its own Climate Action Plan.

Today at UofL, the purchasing department and food vendors is using more locally-sourced, recycled, and renewable materials. Faculty members from many disciplines are offering classes that focus on various aspects of the sustainability puzzle. Our researchers are conducting investigations to help further develop renewable forms of energy and are developing pilot devices that will let our technology operate more efficiently and save our land and waterways.

The University is doing a lot, but can, and will, do more. One of the goals of the strategic plan for 2020 is to be "creative and responsible stewards" of resources. For the University, part of that stewardship means making a commitment to sustainability and efficiency; and to tracking our progress through STARS. As a Charter Participant in STARS, UofL was the first school in the region -- and the 10th in the nation -- to achieve a STARS rating and we continue to have the highest STARS rating in Kentucky, a [Silver rating \(58.29 points\)](#) on February 6, 2013.

INSTITUTIONAL DATA

Founded by decree of city council on April 3rd, 1837, with roots stretching back to 1798, the University of Louisville is today a premier metropolitan research university with two campuses in downtown Louisville and one on the urban fringe. UofL is a state supported institution located in Kentucky's largest metropolitan area. It was a municipally supported public institution for many decades prior to joining the statewide university system in 1970.

The University has three campuses. The 287-acre Belknap Campus is three miles from downtown Louisville and houses seven of the University's 11 colleges and schools. The Health Sciences Center is situated in downtown Louisville's medical complex and houses the University's health related programs and the University of Louisville Hospital. The 243-acre Shelby Campus is located in eastern Jefferson County.

Under the leadership of its seventeenth president, James R. Ramsey, the University of Louisville has become known especially for teaching, research, and service to its community and the advancement of educational opportunity for all citizens thereof. With a total enrollment of 22,529, and a growing number of full-time and residential students, UofL's academic programs continue to attract students from every state and from countries all over the world.

A Growing University

Fiscal Year	Employees			Students			Total Campus Population	Operating Budget
	Faculty	Staff	Total	Full Time	Part Time	Total		
2006	2,074	3,875	5,949	15,804	6,037	21,841	27,790	\$6.76 m
2007	2,130	4,008	6,138	16,061	5,628	21,689	27,827	\$7.27 m
2008	2,124	4,050	6,174	16,027	5,734	21,761	27,935	\$8.02 m
2009	2,125	3,961	6,086	16,377	5,654	22,031	28,117	\$8.49 m
2010	2,188	4,087	6,275	16,818	5,472	22,290	28,565	\$8.44 m
2011	2,309	4,103	6,412	16,924	5,325	22,249	28,661	\$1.043 b
2012	2,316	4,585	6,901	16,963	5,330	22,293	29,194	\$1.041 b
2013	2,381	4,356	6,737	17,198	5,331	22,529	29,266	\$1.033 b

Now employing 6,737 people and operating with a budget of \$1.032 billion, UofL is a major economic force in the community, lending even greater import to its policies with respect to environmental stewardship.

The University owns and maintains a fleet of roughly 200 road vehicles in addition to a number of pieces of heavy machinery used for grounds maintenance (backhoes, tractors, etc.). Physical Plant is responsible for maintaining the majority of these, as well as over 115 buildings (8,081,064 gross square feet) and 660 acres of land on all three campuses. Physical Plant also operates and maintains a central steam and chilled water plant on the Belknap campus and a 13,800-volt distribution system at the Health Sciences Center and Belknap campuses.

METHODOLOGY

The university's Assistant to the Provost for Sustainability Initiatives served as the primary contact, author, and data compiler and analyst for this report. The data was gathered from across the university by collaborators with the university-wide Sustainability Council, in conjunction with the following units:

- Office of Institutional Research
- Office of the Vice President of Business Affairs,
- Department of Physical Plant Operations
- Department of Environmental Health and Safety,
- University Planning, Design and Construction.
- Office of the Vice President for Finance – Budget
- Office of Study Abroad and International Travel
- Contract Administration & Procurement Services
- Parking Administration
- Office of the Controller

Faculty and graduate students in the Department of Urban & Public Affairs took a lead role in developing the commuter survey and analyzing the data. Data was gathered primarily throughout the fall of 2013. Strategies for gathering the necessary data had been developed four years prior for UofL's baseline emissions inventory.

GHG emissions are typically broken down into three categories and defined as scope 1 (on-campus sources), scope 2 (off-campus sources), and scope 3 (indirect sources). All three categories are included in this report.

Scope 1 emissions refer to those occurring from sources owned or controlled by the University. These consist of direct operations on campus that produce greenhouse gases, such as on-site fuel consumed (i.e. natural gas burned for heat and fuel consumed by campus fleet vehicles).

Scope 2 emissions refer to those produced off-site by the electric utility as part of the generation process. The University purchases electricity from Louisville Gas & Electric, which has coal-powered generating stations located on the Ohio River.

Scope 3 refers to other indirect emissions generated off-site by commuter travel, business travel and waste transported to landfills. These emissions, although not produced directly on campus, are a result or consequence of university activities.

Estimated emissions were calculated using the **Clean Air-Cool Planet® Campus Carbon Calculator v6.9** software utilizing annual facility data. The calculator was used for university data collection, storage and conversion into a common greenhouse gas emission unit, metric tons of carbon dioxide equivalent (MT CO₂e). In the conversion process, the calculator uses scientifically-based factors for specific activities leading to GHG emissions (e.g., commuter miles traveled, tons of waste disposed, gallons of fuel burned, etc.). These conversion factors have been modified as more is learned about the global warming effects of various greenhouse gases.

The default emissions coefficients supplied in the Clean Air-Cool Planet® Campus Carbon Calculator were used in preparing this report. The version of the Carbon Calculator we employed uses a global warming potential (GWP) factor from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). GWP is the ratio of the degree of warming to the atmosphere that would result from the emission of one unit of a given GHG compared to one unit of carbon dioxide over a specified time period. This is used to convert emissions of other GHGs into units of carbon dioxide equivalents (CO₂e).

Fiscal Year	Heating Degree Days	Cooling Degree Days
2006	4222	1052
2007	4379	1340
2008	4370	1288
2009	4671	1169
2010	4773	1021
2011	4646	1556
2012	3712	1301
2013	4438	1645

In calculating our carbon footprint, the University used rough, upper-bound estimates to designate as *de minimus* (or materially insignificant) small emissions sources that collectively comprised less than 5% of the University’s total GHG emissions. Some emissions considered *de minimus* for this report include nitrous oxides used in the medical and research facilities, perfluorocarbons used in eye surgeries and MRIs, and sulfur hexafluorides used in ultrasound imaging. While emissions from these sources were excluded from this inventory, the University recognizes the very real contribution to global warming that these emissions make. It is the intention of the University to continue to seek ways to minimize all GHG emissions, whether they are closely tracked and reported or not.

Other limitations to the collected data include:

- Wastewater volume is not measured, nor is freshwater input as the water utility does not provide the University with annualized gallon data. In the future, gallons of water consumed by the University could be calculated based on average costs, but currently there is no central repository for the information and the University receives some 150 different water bills each month.
- The Athletics department has a separate budget from the University. Athletics was unable to report travel statistics so the associated emissions are not included here.

We were also unable to include an accounting of emissions resulting from Athletics events, other than utilities consumed (as these are paid out of general funds).

- The University recognizes that its true carbon footprint includes emissions from facilities that it does not own (such as private residence halls and leased off-campus space); however it is difficult for the University to track or control these emissions.
- Air miles booked on behalf of the University but not using the University's contracted travel agent could not be directly accounted for. Instead, the University estimated based on a historic average of 51% of University air trips booked through contract and prorated miles traveled for the additional 49%.
- While the University houses no farm animals, it is responsible for laboratory animals used in medical research. Fugitive emissions from these animals (e.g. releases of methane produced as part of normal digestive processes) could not be monitored.

FINDINGS & RECOMMENDATIONS

The following table summarizes the GHG emissions estimates produced by this survey for the University of Louisville:

Fiscal Year	Carbon Emissions (eCO2)											Offsets		NET
	On-Campus Stationary	Fleet Vehicles	Refrigerants	Fertilizer	Purchased Electricity	Commuting	Directly Financed Outsourced Air Travel	Study Abroad Air Travel	Solid Waste	Paper	Scope 2 T&D Losses	Sequestration due to composting & trees	Green Energy Certificates	Net Emissions
	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2	MT eCO2
2006	37,770	811	13,593	8	134,394	34,581	7,983	3,784	678	676	13,292	(640)	0	246,929
2007	39,457	895	14,279	8	114,230	34,058	7,957	3,663	721	607	11,297	(640)	0	226,532
2008	42,267	927	13,719	8	114,721	33,160	7,959	3,548	691	650	11,346	(640)	0	228,356
2009	49,471	1,009	14,777	8	100,079	33,052	9,308	3,373	822	574	9,898	(640)	0	221,731
2010	44,858	1,246	15,274	8	101,080	33,120	9,770	3,308	804	559	9,997	(648)	0	219,376
2011	44,220	876	15,485	8	103,536	32,892	11,689	3,383	748	579	10,240	(738)	0	222,917
2012	40,052	866	15,485	8	88,551	33,217	11,114	3,533	596	503	8,758	(667)	(124)	201,891
2013	34,936	829	15,053	8	85,211	32,751	10,436	3,845	539	515	8,427	(727)	0	191,823

The largest portion of the University’s carbon footprint (44.25%) can be attributed to scope 2 emissions produced from purchased electricity. Since the electricity available from the grid in Louisville is produced almost exclusively from the burning of coal, a vital part of our strategy for reducing our carbon footprint must be a reduction in the use of this purchased electricity. This will be achieved through a multi-pronged approach involving:

1. **Renewable Energy:** The University will seek to produce more of our own electricity on campus from renewable sources, with an initial goal of 20% renewable energy by 2020. The University is also conducting locally-relevant research on renewable energy technologies and sharing the findings with the utilities and industries to help speed the transition away from fossil fuels.
2. **Energy Conservation:** The ‘greenest’ energy is that which is not wasted. The University is taking a wide variety of steps toward reducing its overall and peak demand for electricity. UofL has implemented a wide variety of energy saving measures through a performance contract with Siemens Corp., including lighting upgrades, high efficiency motors, building envelope improvements, water conservation measures, and improved HVAC systems and temperature controls on all three UofL campuses. But there are more opportunities for conservation.
3. **Behavior Change:** A key component of the Climate Action Plan is to implement strategies for changing the campus culture and individual behaviors associated with energy use. This effort began in 2008, when UofL’s College of Arts & Sciences Green Team conducted energy audits in all 700 individual offices of the College and employees were provided with comparative data about their energy use. Now sustainability and energy conservation are woven into all new student

and new employee orientation programs at UofL. New members of our community are encouraged to sign a “Cards Go Green!” pledge to reduce their contribution to UofL’s environmental impact by selecting individual actions they will take to reduce consumption and waste. Weekly green tips in campus publications help reinforce this message regularly, and the Sustainability Council recently launched an [EcoReps](#) program designed to move faculty, staff & students beyond talk to action for a more sustainable UofL. We provide basic training & resources, service opportunities, and certification as a point-person & peer-to-peer advocate for sustainability.

The University has been able to offset its emissions by a small fraction (0.3%) through on-campus carbon sequestration. This is the result of the increased planting and preservation and of over 2500 trees on Belknap campus and at UofL's mostly forested 200-acre [Horner Conservation Property](#) (also referred to as the Moore Observatory). The University also composts organic wastes from grounds maintenance and began composting kitchen wastes from campus dining facilities in July 2010. We estimate that these practices sequester nearly as much carbon as is released due to the solid waste UofL sends to the landfill.

CONCLUSION

With this update to our greenhouse gas emissions inventory, the University of Louisville is proud to uphold its climate commitment and to continue tracking its emissions. While we recognize that these numbers are merely estimates and not a complete and precise accounting, we remain focused on the primary purpose of this effort – to continue developing and refining strategies to **reduce** our emissions, as laid out in our [Climate Action Plan](#). The University recognizes the need to further refine our techniques for gathering more and better data about our climate impact and we continue working on strategies to do so.

The University very much expects the trend in actual emissions to improve as it continues to make significant improvements in energy efficiency throughout the institution. With President Ramsey’s commitment to achieve climate neutrality and the day-to-day work of the Sustainability Council, the Assistant to the Provost for Sustainability Initiatives, and numerous individual staff, faculty, researchers and students across our campuses, the University of Louisville is bound for a brighter, greener future.

UofL’s mission is to teach the next generation and research solutions to our pressing problems. In striving for climate neutrality as an institution, the University of Louisville is leading by example and providing our students and employees vital lessons in stewardship and responsibility.

We invite you to learn more about our sustainability initiatives and get involved through our [UofL Sustainability website](http://louisville.edu/sustainability): <http://louisville.edu/sustainability>.