The University of Texas at Austin

Greenhouse Gas Inventory 2019 Update

The Office of Sustainability conducted the first UT Austin Greenhouse Gas (GHG) Inventory in 2009 using methods described in The Climate Registry (TCR), General Reporting Protocol for Scope 1 and 2 and follows best practices for Scope 3. The Office of Sustainability uses the SIMAP platform and collaborated with various on-campus and off-campus entities in data and methodology review.

Greenhouse Gas emissions are measured in metric tons (MT) and estimated for several different gases then normalized by their impact on the atmosphere relative to the impact of carbon dioxide; the resulting unit is metric tons of CO^2 equivalents, MTeCO2. Based on established international protocols, there are three scopes of GHG emissions:

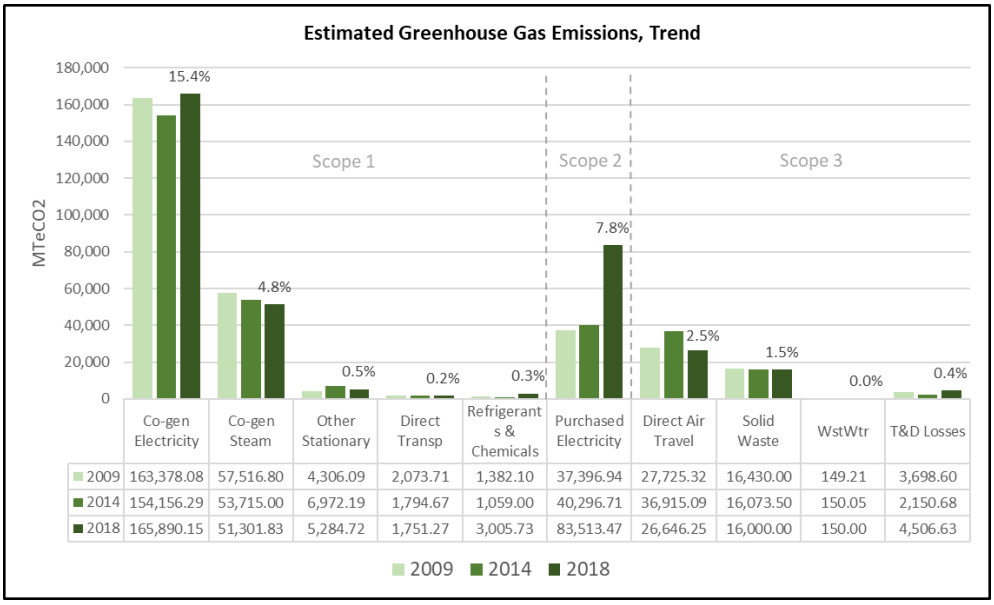
Scope I – Direct emissions that originate from equipment and facilities owned or operated by the university.

Scope II – Indirect emissions from electricity purchased by the university from Austin Energy.

Scope III – Other major indirect emissions resulting from university activities but that occur from sources controlled by another company or entity. While typically optional for reporting, Scope III emissions clarify an organization's entire carbon footprint.

Summary

For this 2019 update, we pursued a more comprehensive analysis of supply chain emissions (within Scope 3) which accounts for the substantial increase in total estimated emissions. The Office estimates the university carbon footprint is an estimated 1,076,486 metric tons of carbon dioxide equivalent (MTeCO2) greenhouse gas emissions for fiscal year 2017-18 (up from 612,000 MTeCO2 in FY 2013-14).*



	Co-gen Electricity	Co-gen Steam	Other Stationary	Direct Transp	Refrigerants & Chemicals	Purchased Electricity	Direct Air Travel	Solid Waste	WstWtr	T&D Losses
2009	163,378.08	57,516.80	4,306.09	2,073.71	1,382.10	37,396.94	27,725.32	16,430.00	149.21	3,698.60
2014	154,156.29	53,715.00	6,972.19	1,794.67	1,059.00	40,296.71	36,915.09	16,073.50	150.05	2,150.68
2018	165,890.15	51,301.83	5,284.72	1,751.27	3,005.73	83,513.47	26,646.25	16,000.00	150.00	4,506.63

Scope 1 emissions are most in our control. UT Austin produced 227,000 MTeCO2* in 2018, up only 10,000 MTeCO2 from 2014. Our Scope 1 emissions are primarily from the on-campus Carl C. Eckhardt Combined Heating and Power Complex through combustion of natural gas to generate electricity, steam and chilled water. Due to improvements in recent decades, the plant has an average efficiency of 85%, and is recognized as one of the largest and most efficient, reliable, and integrated micro-grids in the world. The amount of purchased electricity, in Scope 2, has nearly doubled in recent years due to rapid expansion on both the main campus and at the Pickle Research Campus (PRC).

From 2009 to 2018, the UT Austin campus grew over 4,500 people and almost 5,000,000 square feet. In 2016 and 2017, several new facilities came on-line including the Dell Medical School, a new Engineering Education and Research Building, and the expansion of the Texas Advanced Computing Center (TACC) at PRC. Scope 1 and 2 emissions equate to 4.3 MTeCO2 per campus user (students, staff and faculty).*

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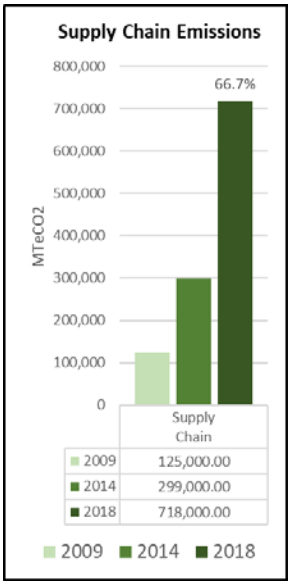


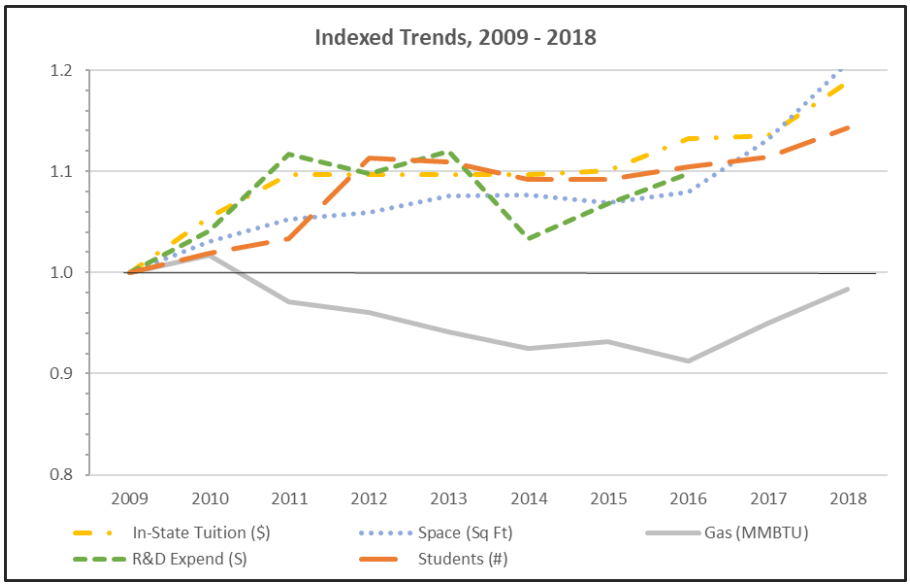
Scope 3

The categories of Scope 3 emissions include air travel, waste/recycling, commuting, and wastewater treatment, but by far the largest category is supply chain – the goods and services we purchase. The total supply chain emissions based on FY 2016 data is estimated over 718,000 MTeCO2, or 66% of our total overall campus footprint.

Institutions are given broad latitude in calculating supply chain and purchasing activity emissions, with some institutions only calculating the footprint of purchased office paper. The UT Austin annual operating budget is over $3 billion across 23 economic activity categories, so a much broader, more comprehensive approach has been applied in this update. While this approach dramatically increases our overall estimate of our carbon footprint, the Office of Sustainability believes this is a more honest representation of our overall carbon impact.

Policy Alignment

The [UT System sustainability policy] states institutions will pursue the goal of reducing greenhouse gas emissions while maintaining enrollment accessibility for every eligible student, enhancing research, promoting community service, and operating campus facilities more efficiently. While our combustion of natural gas has recently trended up, we had a long period of successfully reducing emissions relative to these other areas.



Next Questions

Any estimate of GHG emissions leads to questions about how to reduce emissions, such as:

- How can the university reduce reliance on natural gas while continuing to meet the growing energy and reliability needs of a major research campus?
- How can the university responsibly and reasonably deal with emissions produced through our supply chain? Where are the opportunities to change purchasing policy to reduce emissions?
- How can the university effectively engage our students, staff, faculty and alumni about both institutional and individual behavior change?
- What are the pros and cons for the university in setting emissions reductions targets and goals?

* Datapoints corrected from “October 2019” version.