University Perspective
In 2007, JHU committed to reduce its greenhouse gas emissions (GHGs) by 51% by 2025. Data was baseline at 2008. This includes emissions derived from electricity, natural gas, heating oil, and gasoline and diesel fuels consumed by university owned properties and vehicles. In addition to carbon dioxide: methane (CH4), nitrogen dioxide (N2O), and refrigerants are measured and normalized based on their global warming potentials as metric tons of carbon dioxide equivalent (MTCO2e). Grid purchased energy, electricity and natural gas, uses the local PJM emissions factors. PJM is the interconnection manager and wholesale energy market for the Northeast and North-central USA.

Raising the Profile.
The presence of "Hopkins Eco-Smart," the umbrella of environmental sustainability efforts at Johns Hopkins University, is growing. More and more, sustainability is ingrained into processes and initiatives across the University. For the first time, the Idea Lab included a sustainability challenge alongside community and diversity. Not only is the emblematic Acorn appearing more frequently at JHU, it's a visible seed of change in the community. In October, Johns Hopkins was a sponsor for the annual Association for the Advancement of Sustainability in Higher Education (AASHE) conference that was held in Baltimore. From workshops, panel presentations, keynotes, tabling, tours and social outings, JHU connected and empowered sustainability officers from peer institutions across the country.

Total Energy:
JHU is growing. This is seen in the building footprint, up 11% since FY08, and the total energy consumption, measured in MMBTU, up 4%. Total energy consumption is on a downward trend, dropping 3% since FY15.

Energy Density:
Given this considerable growth - by nearly 1.3M square feet - energy use per square foot tells an important story, normalizing energy consumption with growth. This highlights that JHU’s buildings are becoming more efficient, though still above the average EUI for colleges, 131 kBtu/sq ft.

Greenhouse Gas Emissions:
Even with increasing energy use, GHG emissions have been steadily decreasing, down 6.4% from FY15 and 35% from the FY08 baseline. While showing progress, when comparing effects attributed to internal efforts as opposed to grid improvements, this uncovers a need for a more robust analysis and implementation plan.

Social Cost of Emissions:
The social cost of emissions is the estimated economic cost of damages caused by climate change, such as decreased agricultural productivity, diminished human health, and property damage. Early estimates from the EPA show expected costs at $40/MTCO2e, in 2016 dollars, which is the figure we used. However, more recent studies, such as by Stanford, value carbon much higher. Stanford calculated $220/MTCO2e. This values our FY16 carbon footprint at $62,685,480.
School of Medicine

by the numbers:

**Total Energy Consumption**
The School of Medicine had a quick start at reducing its energy use. Total energy dropped from the FY08 baseline of 1,000,929 MMBTU by 17% in FY09. However, faced with years of growth, it peaked energy use at 1,064,225 MMBTU in FY11. It has since dropped 5% the past two years, and is now back down 3% below the FY08 baseline, at 972,544 MMBTU in FY16. This is 8.6% below the FY11 high.

**Energy Density**
In FY16, SoM consumed 363 kBTU/sq ft, improved from 380 kBTU/sq ft in FY08 and 384 in FY15. For comparison purposes, ENERGYSTAR and the International Institute for Sustainable Laboratories provide benchmarking data for annual energy density. The U.S. national median for colleges and universities is 130.7 kBTU/sq ft and biological and chemical laboratory facilities are typically about 375 kBTU/sq ft.

**Greenhouse Gas Emissions**
SoM’s emissions have dropped by 34% since FY08, from 128,887 MT-CO2e to 84,994 MT-CO2e, and by 6% from FY15. This is equivalent to the carbon captured by 41,549 acres of forest, an area just smaller than Washington, DC.

**Waste Diversion**
In FY16, SoM achieved a 48% diversion rate, a slight reduction from 52% in FY15. By comparison, the average diversion rate for the entire university was 43%.

**Domestic Water Consumption**
The school’s domestic water consumption was approximately 117,655,800 gallons in FY16, which was more than one-third of the university’s total consumption. Consumption is largely driven by the volume of lab space. This was a 6% reduction from FY15 consumption.

**Collaborative Change**
The Facilities Management Department at the School of Medicine, alongside Reduction in Motion and ASI Waste, received the Sustainability Partnership Game Changer Award from the National Waste and Recycling Association. This award recognizes partnerships that include municipal and county governments, regulatory agencies, community organizations and private industry that have successfully partnered to implement game-changing initiatives, policies or programs that advance sustainability in their community.

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**Economic Cost of SoM’s FY16 Carbon Footprint**
Using Stanford’s economic costs for emissions, this would be $18.7M

210 pounds of Styrofoam recycled since FY08 through collection events each semester

$3.4M economic cost of SoM’s FY16 carbon footprint