University Perspective

In 2007, JHU committed to reduce its greenhouse gas emissions (GHG) by 51% by 2025. This includes emissions derived from electricity, natural gas, distillate oil, and gasoline 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. While Johns Hopkins University continues to grow in size, the rate at which energy consumption increases is at a much slower pace as a result of energy conservation measures that have been implemented.

Act on Climate.

President Daniels joined 317 other university Presidents for the White House’s Act on Climate Initiative in advance of the Paris Climate negotiations in 2015. In doing so, President Daniels reaffirmed the university’s own commitment to reduce its GHG emissions.

Total Energy:

University energy consumption is tracked in MMBTU, which combines kWh of electricity, therms of natural gas, and the energy content of liquid fuels for transportation and buildings. Since FY08, total energy consumption has increased by 4.6%.

Building Footprint:

As the university often has less ability to implement conservation measures in leased spaces, only properties owned by Hopkins are tracked. In FY15, university-owned buildings increased by almost 25,000 square feet. Since FY08, the university has grown by 9.3%.

Greenhouse Gas Reduction:

In FY15, the university emitted 304,490 metric tons CO2-equivalent (MTCO2e), a 30% reduction since FY08. Much of the change is attributed to the regional electric grid, which has been consuming proportionally more natural gas and renewable sources, while reducing its reliance on coal.

Energy Density:

New construction and vacating of existing buildings can drastically affect the university’s total energy consumption, and therefore make it difficult to see the benefits of energy conservation measures. An energy density calculation—energy per gross square foot—is a useful metric that normalizes energy use with the size of facilities. In FY15, university-owned properties averaged 203 kBtu/sq ft, almost a 5% reduction since FY08. This reduction in energy, and ultimately GHGs, can be attributed to a number of initiatives including lighting retrofits and the implementation of high performance building guidelines for new construction and major renovations.
Total Energy Consumption
Without proper maintenance and improvements, buildings will become less efficient over time. H&D has been able to maintain a relatively consistent level of energy consumption over the last several years, with weather being a major driver of year-to-year fluctuations. In FY08, H&D consumed 126,649 MMBTU, compared with 116,039 MMBTU in FY15.

Energy Sources
In FY15, approximately 46% of H&D’s energy was derived from electricity, with the remaining 36% from natural gas and 18% from chilled water and steam. Electricity has fallen slightly in almost every year since FY08, reaching 15,684,000 kWh in FY15. In the past year, natural gas rose to 41,800 MMBTU, and chilled water and steam fell to 6,950 MMBTU and 11,500 k-lbs, respectively.

Energy Density
H&D’s building area has remained the same since FY08, and with little change in its energy demand, its energy density has remained consistent as well. In FY15, it consumed 111 kBTU/sq ft. For comparison purposes, ENERGYSTAR provides benchmarking data for energy density.

Greenhouse Gas Emissions
Excluding the AMR’s, as those GHG emissions are included in Homewood’s main campus footprint, H&D’s emissions were 19,016 MTCO2e in FY08 and 12,370 MTCO2e in FY15, a 35% reduction. This is equivalent to taking 1,400 passenger vehicles off the road or saving 15,450 barrels of oil each year.

Since 2013, the Department of Housing and Office of Residential Life, in partnership with Homewood Recycling and the Office of Sustainability, have hosted the “Spring Cleaning with a Meaning” move-out recycling program. Through the initiative, students are able to donate unwanted items as they pack up for the summer, helping to reduce waste, encourage reuse, and support our community. Over the span of nearly two weeks, students can divert apparel, housewares, and small appliances. In 2015, the program expanded to also collect toiletries and nonperishable food items, which were donated to Project PLASE, a local transitional housing non-profit. The number of donors to Goodwill increased to 332 in 2015, from 189 the previous year, and over 30 boxes worth of food and toiletries were gathered for our local homeless.

Total Energy Consumption
Energy Sources
Energy Density
Greenhouse Gas Emissions
Student move-out: