

Impacts of the COVID-19 Shutdown on BU Energy Use

COVID-19: America hasn't used this little energy in 16 years



14 Apr 2020

Scott DiSavino
Reporter, Thomson Reuters

How Covid-19 Has Changed The Way Americans Use Energy



James Conca Contributor @
Energy

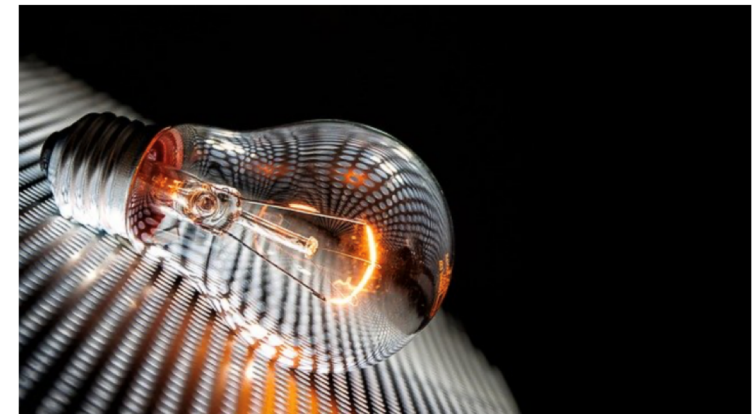
Follow

I write about nuclear, energy and the environment



COVID-19 is changing residential electricity demand

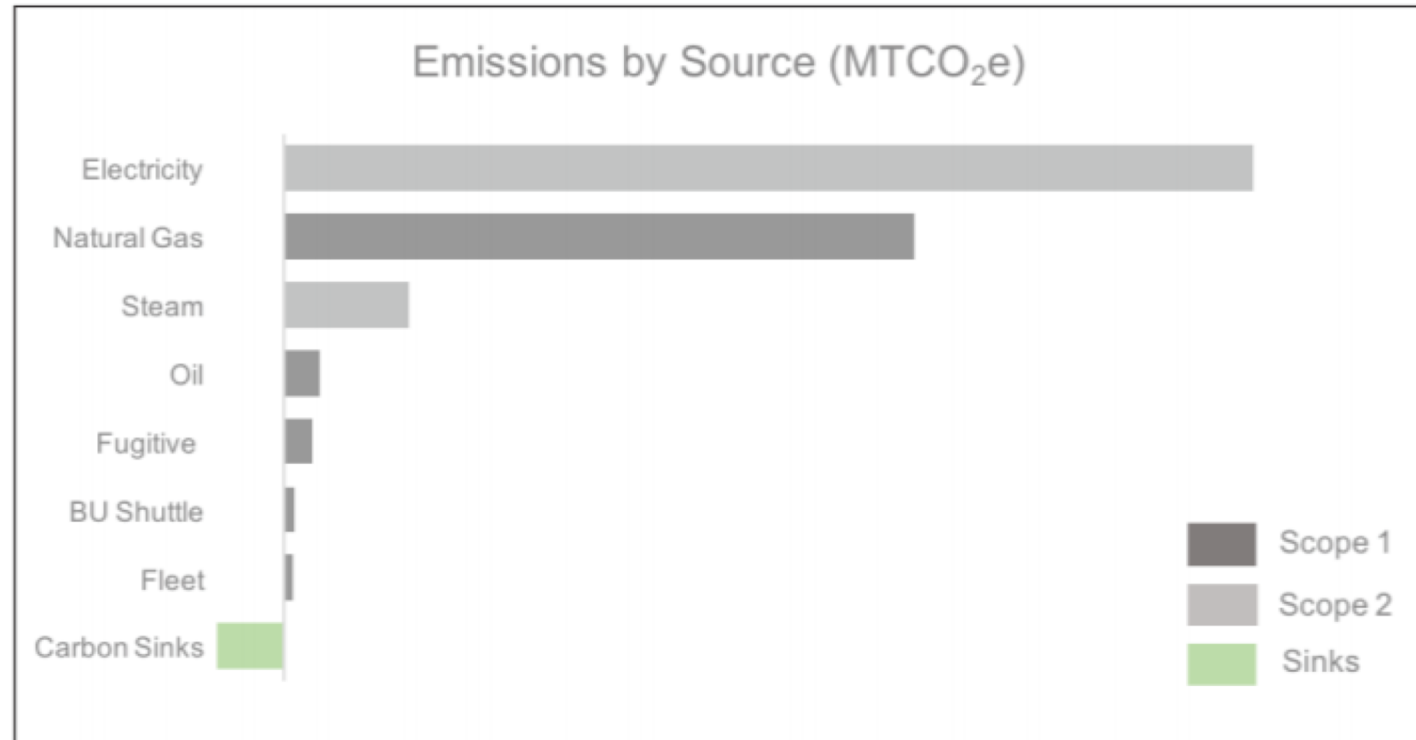
By **Scott Hinson** - 4.9.2020



BU energy use sources

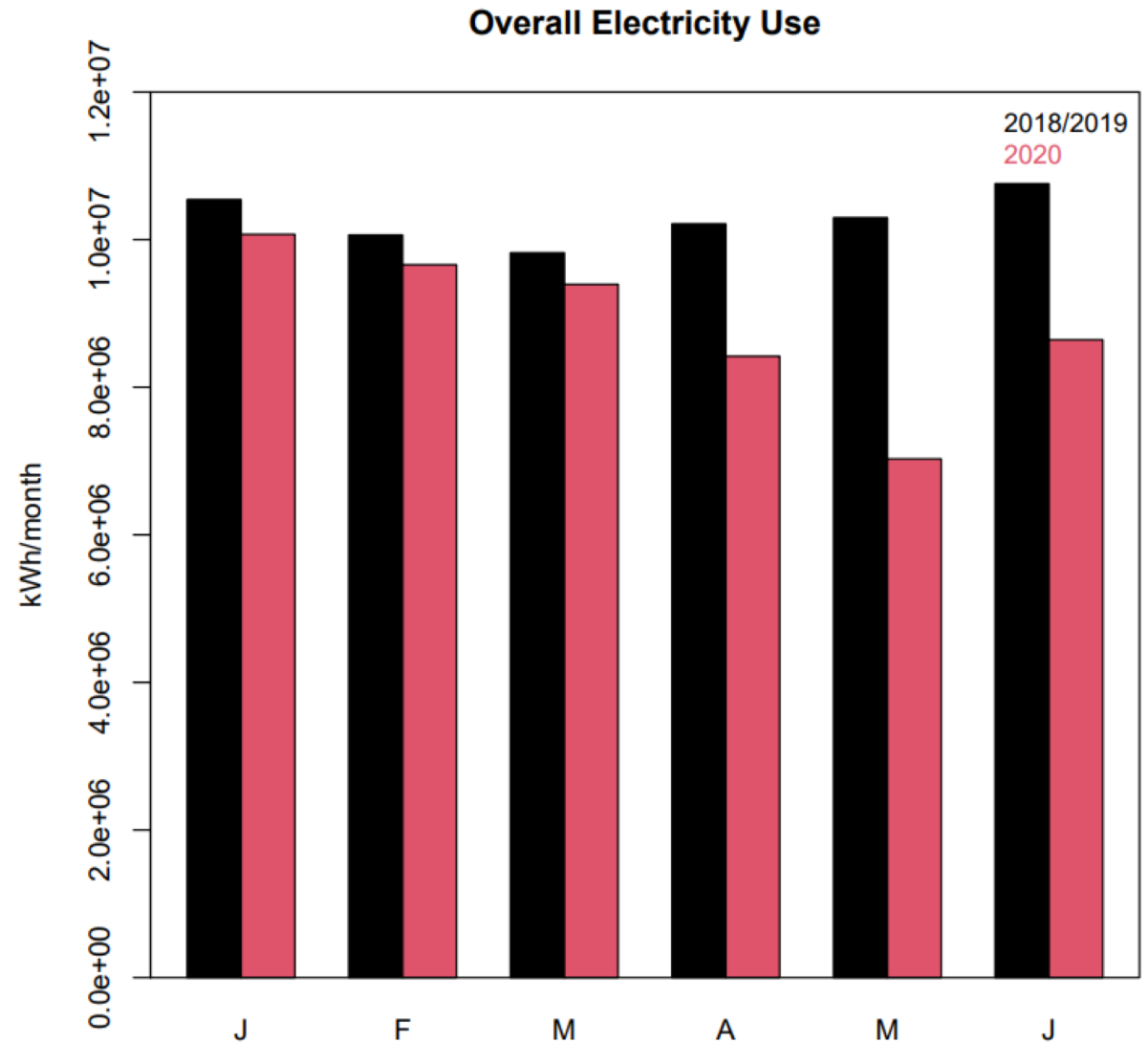
- **Problem:** emissions of greenhouse gases are causing climate change and a large portion of these emissions come from our energy usage
- **Goal:** establish ways to decrease energy use by determining how our behaviors affect electricity and gas use

■ **FIGURE 5: CURRENT BU EMISSIONS BY SOURCE**



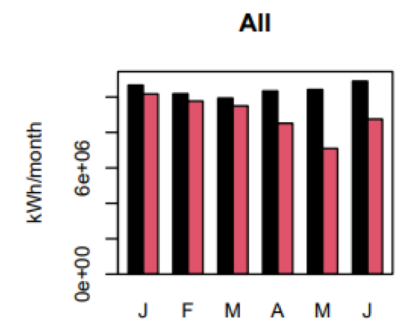
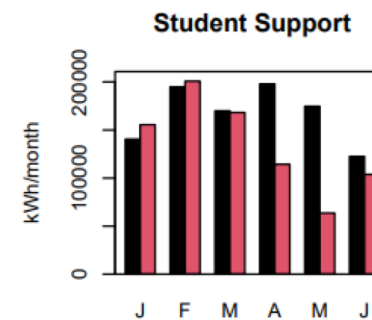
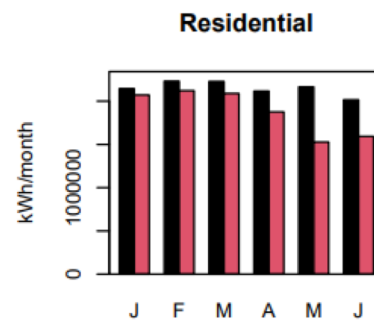
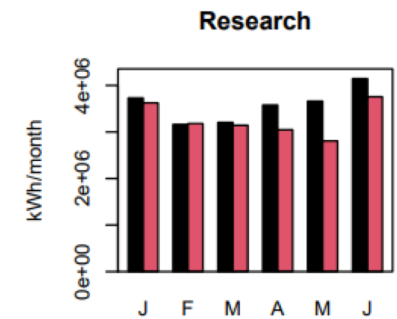
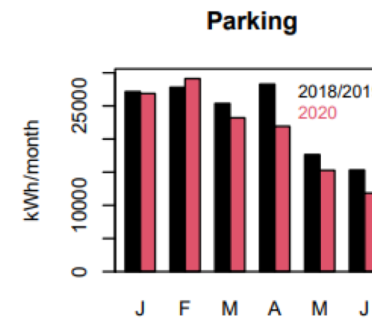
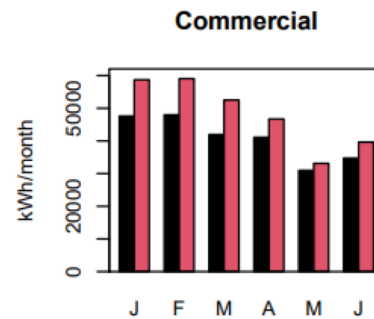
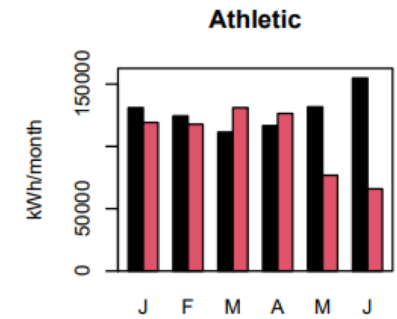
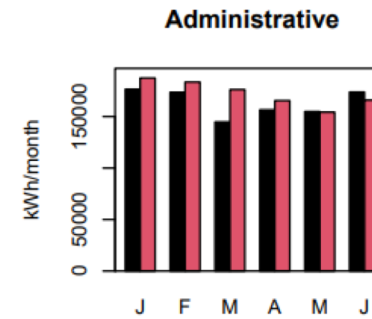
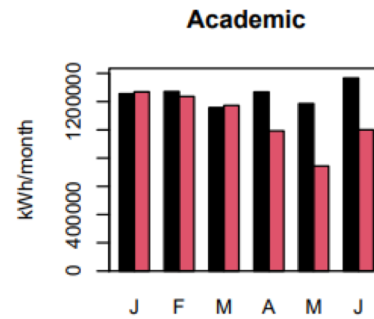
Electricity Use During COVID

- COVID-19 lockdown began March 24, 2020
- Research continued at BU in June
- January-March: -4.28%
- April-June: -22.99%



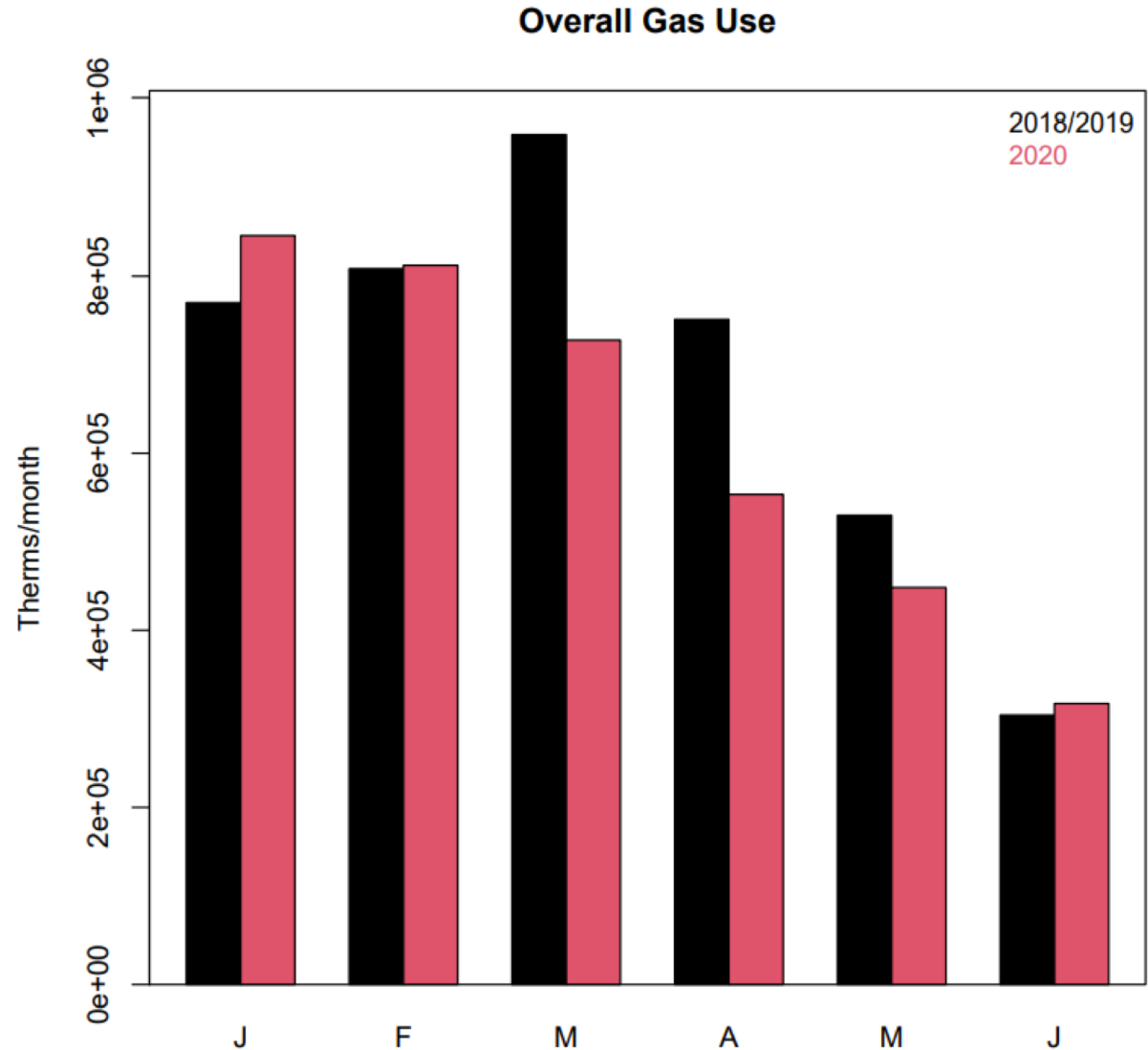
Electricity Use During COVID

- Student centric buildings saw the largest declines (April-June)
 - Student support: -40.35%
 - Athletic: -28.42%
- Buildings that had less of a shutdown had little to no decline (April-June)
 - Commercial: 11.59%
 - Administrative: 0.28%
- Residential buildings shutdown but only had a -20.57% decline (April-June)



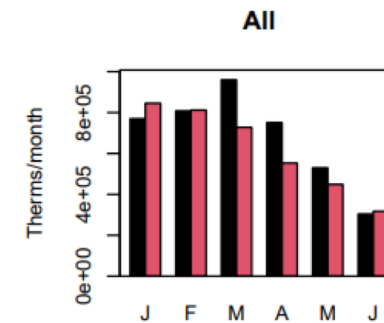
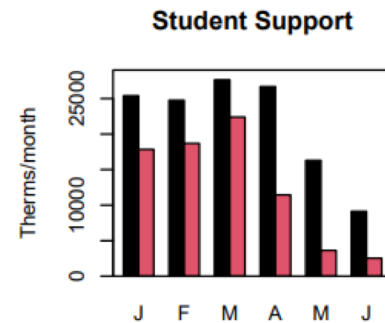
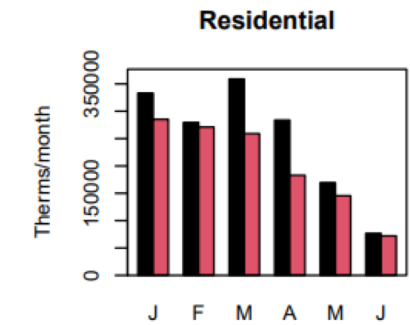
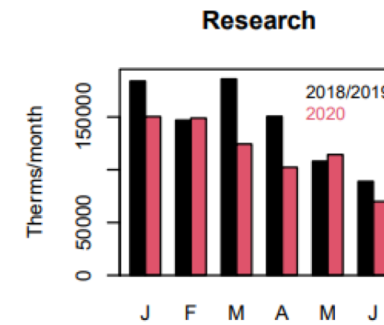
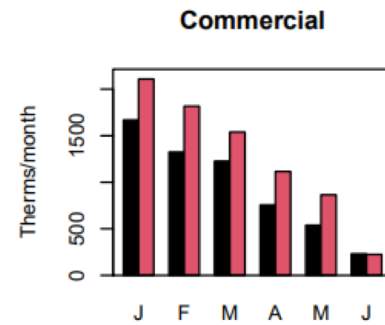
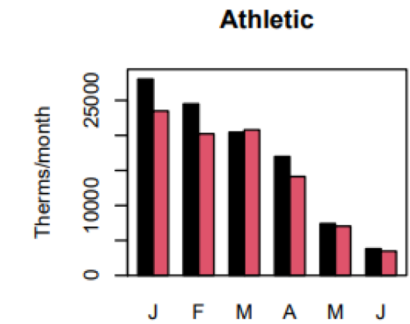
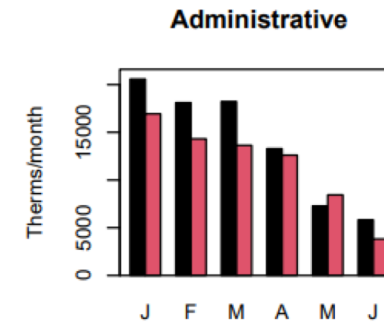
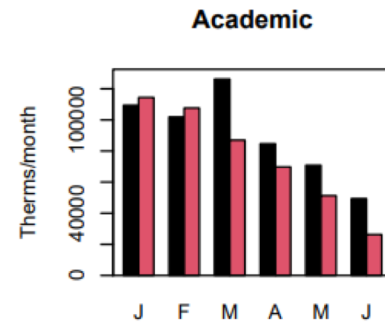
Gas Use During COVID

- COVID-19 lockdown began March 24, 2020
- Research continued at BU in June
- January-March: -4.62%
- April-June: -12.48%
- This is a smaller decline than seen in electricity
 - Gas use is largely controlled by thermostats rather than electronics



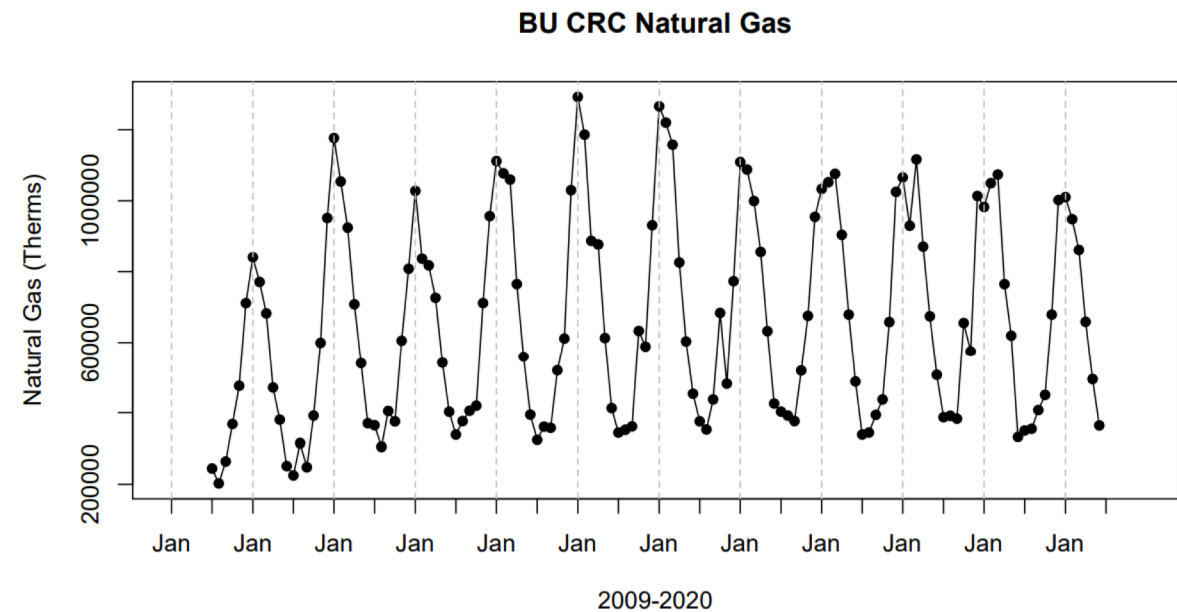
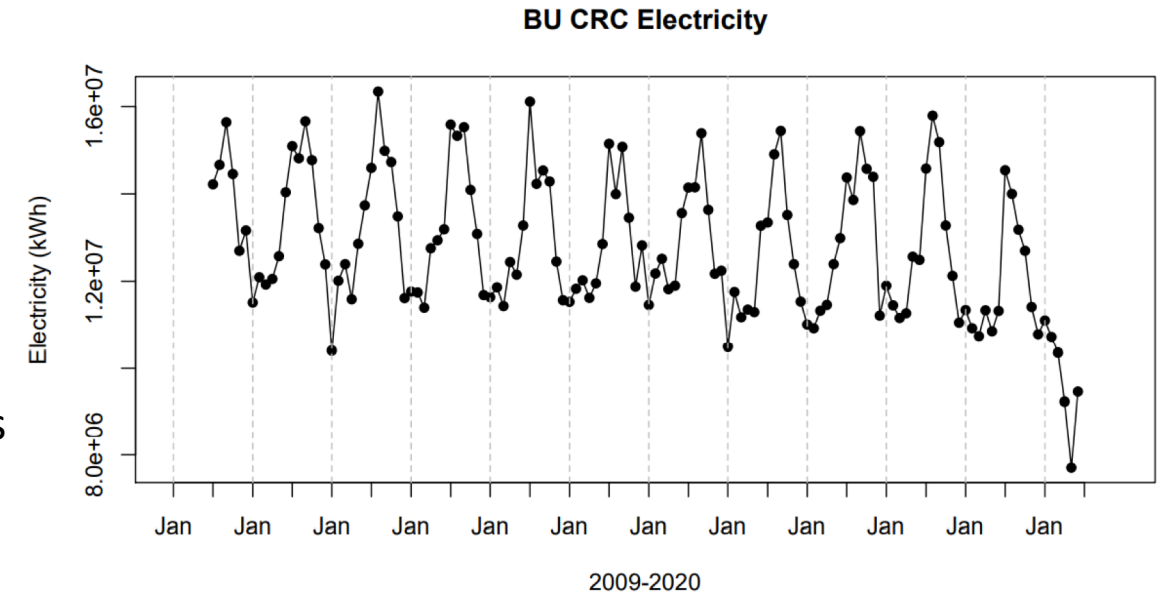
Gas Use During COVID

- Student centric buildings saw the largest declines (April-June)
 - Student support: -68.95%
 - Athletic: -10.21%
- Buildings that had less of a shutdown had little to no decline (April-June)
 - Commercial: 35.02%
 - Administrative: -7.91%
- Residential buildings shutdown but only had a -18.64% decline (April-June)



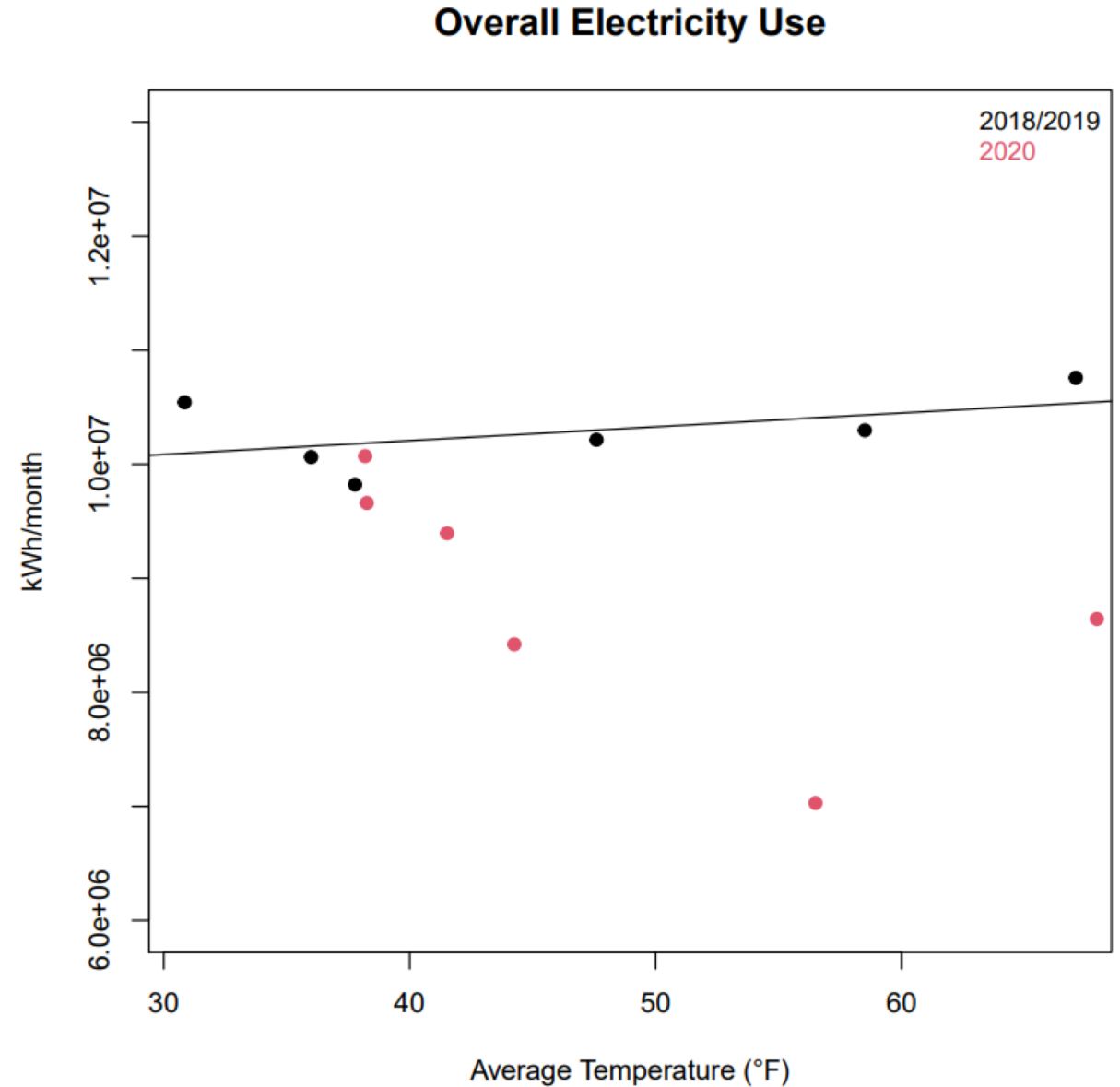
Seasonality and Temperature Influence on Energy Use

- Both electricity and gas use contain seasonal cycles related to temperature and human behavior
- Gas use is highest in the winter primarily due to heating
- Electricity use is highest in the summer primarily due to air conditioning



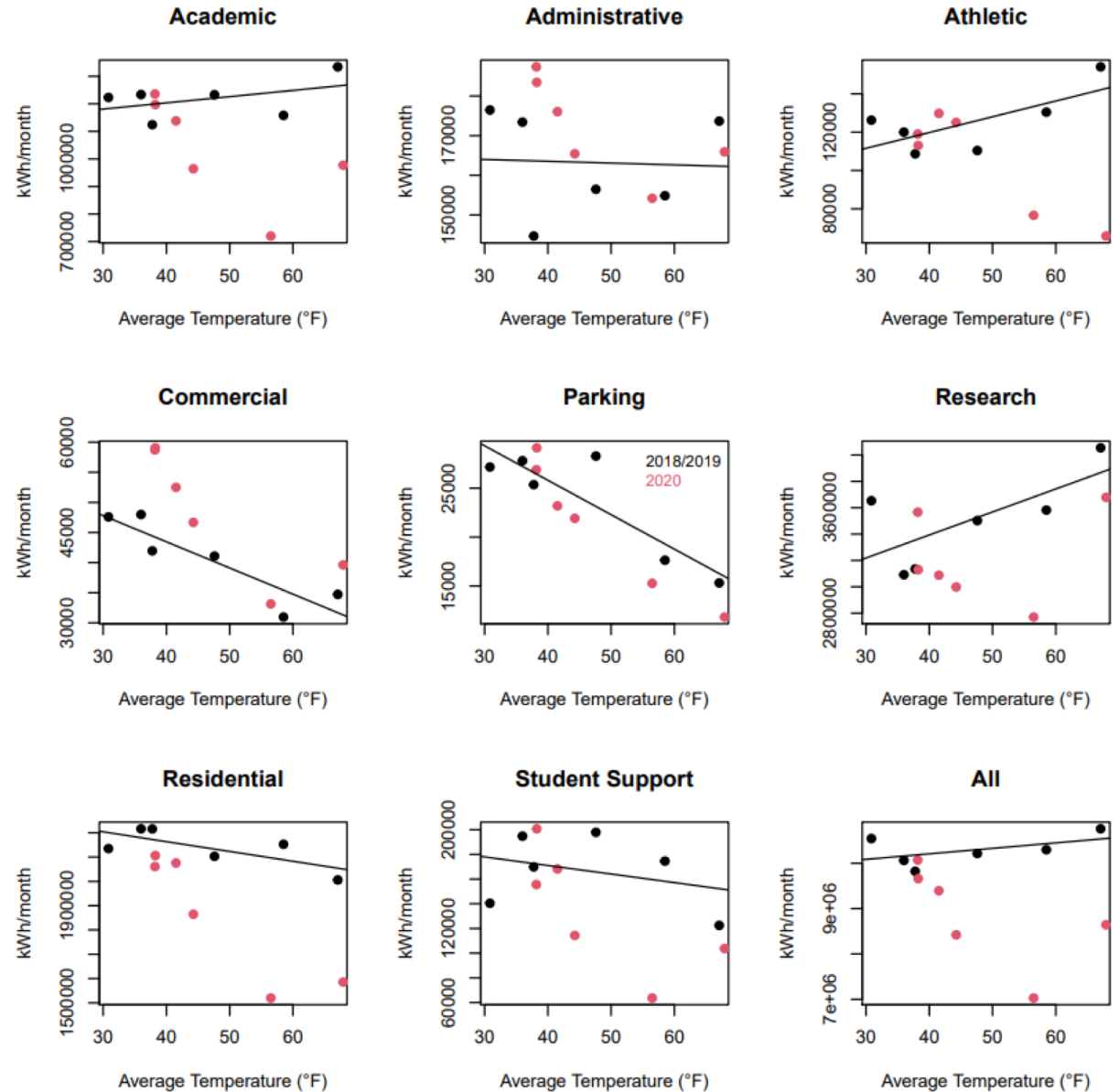
Electricity Use and Temperature

- The trend in electricity was largely unaffected by temperature



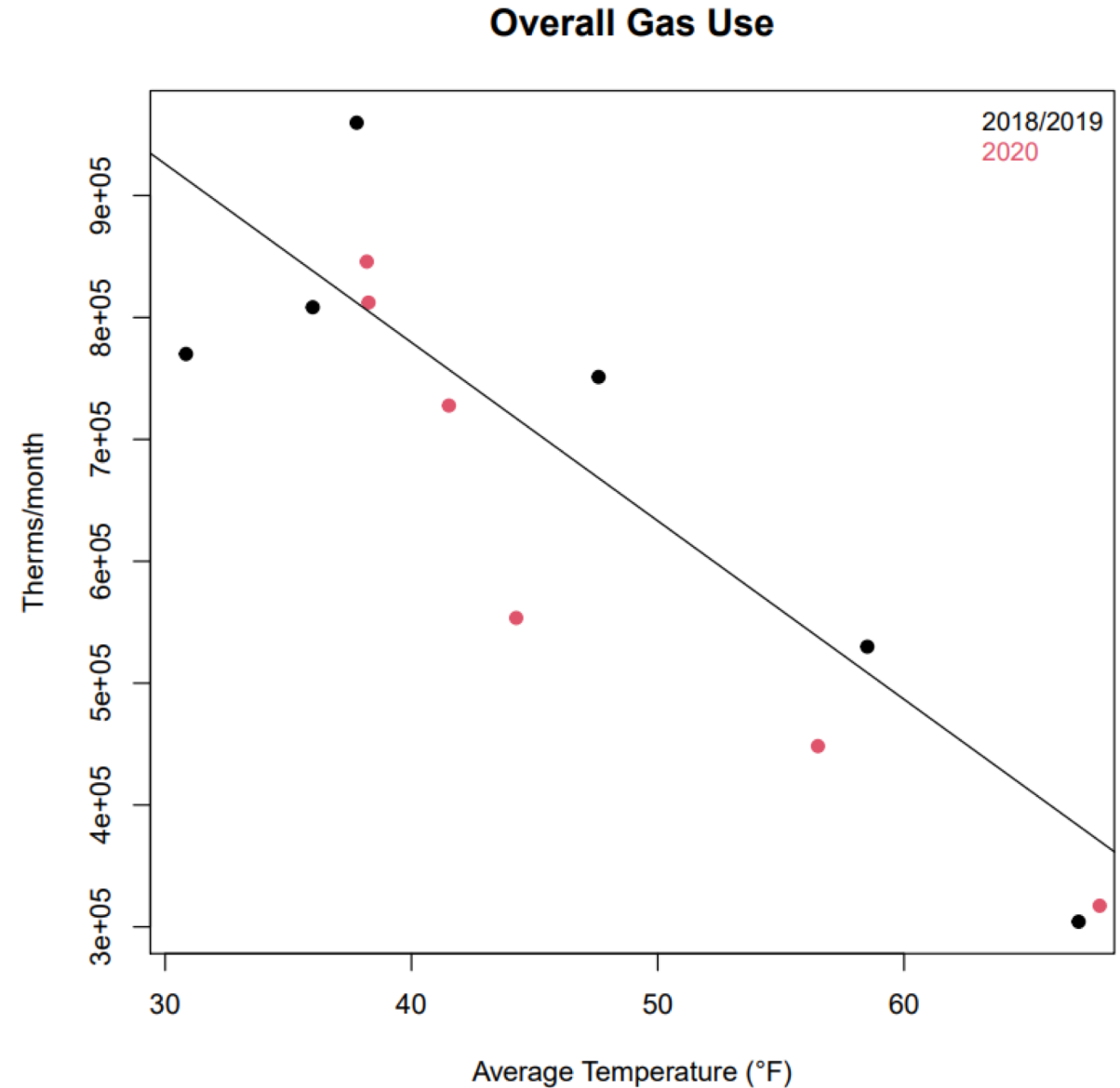
Electricity Use and Temperature

- Student centric buildings saw the largest declines
 - Student support
 - Athletic
- Buildings that had less of a shutdown had little to no decline
 - Commercial
 - Administrative



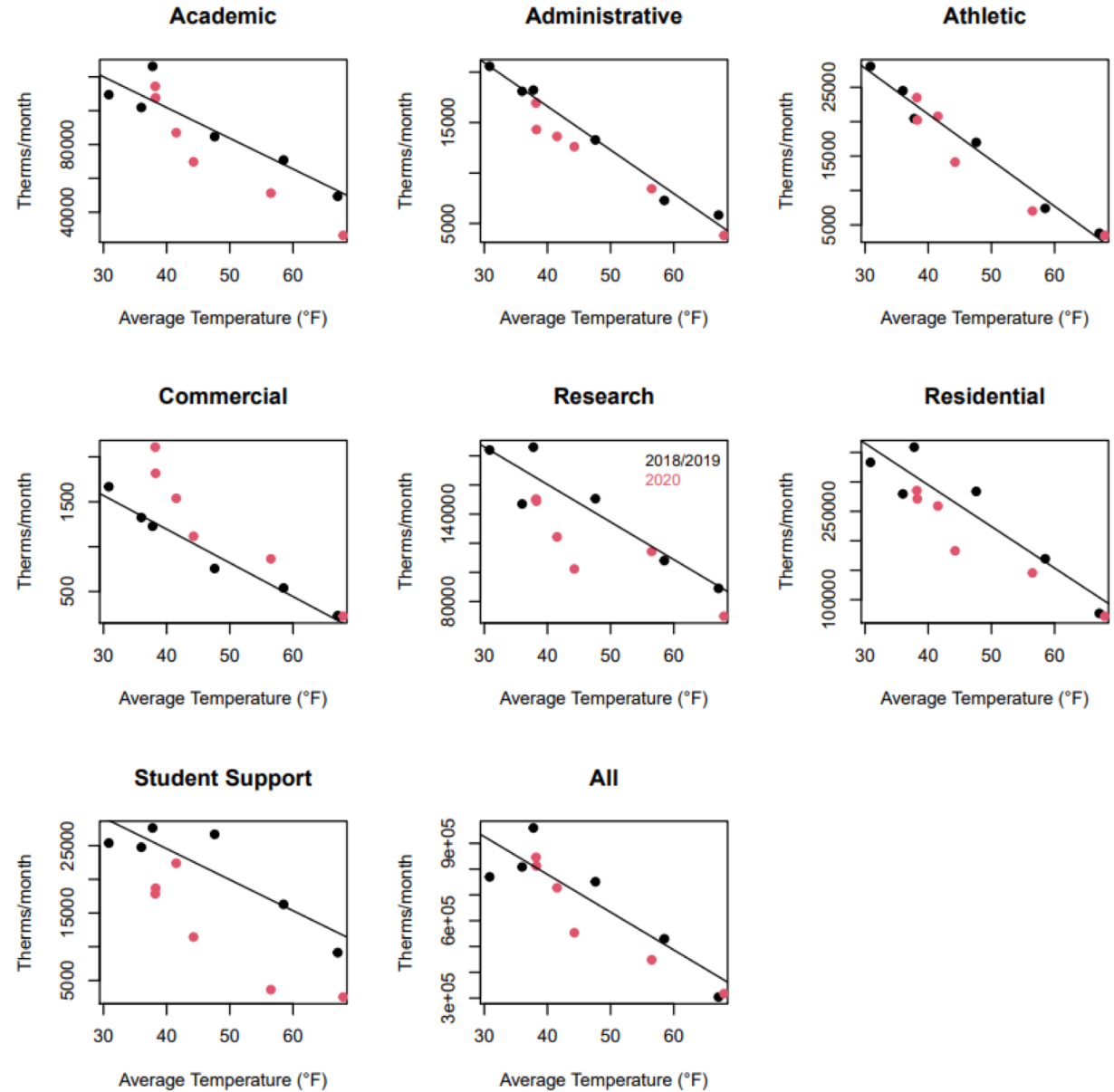
Gas Use and Temperature

- The trend in gas was affected by temperature
- Gas use is largely controlled by thermostats



Gas Use and Temperature

- Student centric buildings saw the largest declines
 - Student support
 - Athletic
- Buildings that had less of a shutdown had little to no decline
 - Commercial
 - Administrative



Lessons Learned & Next Steps

“For the University to reduce emissions over the long term, **it is necessary to reduce demand** while sourcing energy through clean renewable resources. While reducing the energy demand of 15 million square feet will take time and **require a continuous effort**, it is critical to begin to address the source of our energy as soon as possible.”

- Learned from COVID about how our actions influence energy use
 - Globally only a 7% decrease in GHG emissions
(University of East Anglia, University of Exeter, and the Global Carbon Project)
- Challenges and opportunities for emissions reduction during moments of lower occupancy
- Next steps: Extend the energy use analysis through 2020 and 2021, taking changes to HVAC systems into account



RECOMMENDATIONS OF THE CLIMATE ACTION TASK FORCE FOR BOSTON UNIVERSITY'S CLIMATE ACTION PLAN

SYNTHESIS AND OVERVIEW
December 2017