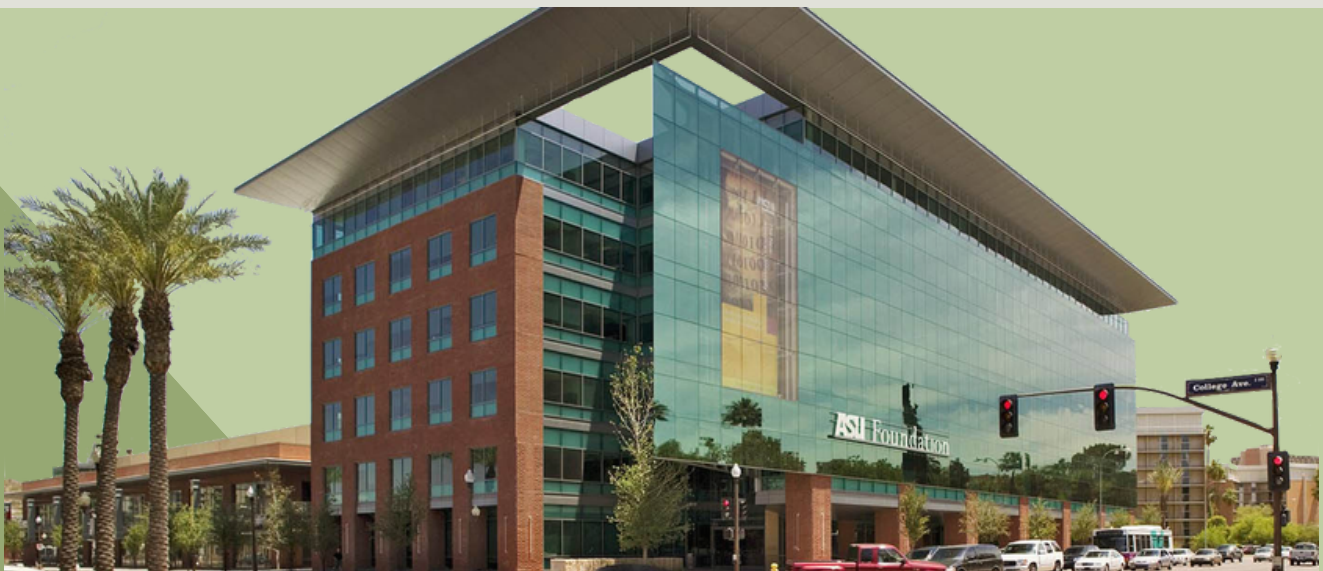




Team Green Impact
For ASUF

THE PATH TO NET-ZERO

For ASUF & Fulton Center



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2035 NET-ZERO TARGET

To limit global warming below 2°C compared to pre-industrial levels, organizations across the globe have been making drastic commitments to reduce their methane and greenhouse gas (GHG) emissions, and the ASU Foundation is no different. ASUF is the philanthropic arm of Arizona State University (ASU) but is legally a separate entity. ASUF manages ASU's endowments and aligns the investments with the university's mission. Because ASUF is a separate entity from ASU, the foundation is not included in ASU's sustainability reporting, and must set its own sustainability goals.

ASUF has set a target of becoming net-zero on its Scope 1, Scope 2, and Scope 3 emissions by 2035. To meet this goal, they have partnered with Team Green Impact to assess and develop a strategy to reduce their Scope 1 and Scope 2 emissions - below are their findings.

To further analyze on what ASUF's biggest emission categories are, Team Green Impact recommends making further efforts to calculate Scope 3 emissions, and replicating similar projects to this one for Scope 1, 2, and 3 for any future buildings the ASU Foundation makes home.



Summary of Fulton Center Scope 1 and Scope 2 GHG Emissions

Scope 1 emissions are direct greenhouse gas emissions that occur from sources that are controlled or owned by an organization. The Fulton Center has two refrigerants, R22 and 410A, and one diesel generator.

The Fulton Center's Scope 1 carbon emissions for FY22 is **47.14 Metric Tons CO₂e**, or **0.046%** of the Fulton Center's total carbon emissions. This is equivalent to 10.2 gasoline-powered passenger vehicles driven for one year and 109 barrels of oil consumed.

Scope 1

Currently, as we are housed in a building that is part of ASU's campus, our Scope 1 emissions are offset through carbon sequestration through Urban Forestry as well as the Carbon Sink and Learning Forest at ASU West, making The Fulton Center net-zero for Scope 1 carbon emissions.

Scope 2 emissions are indirect greenhouse gas emissions associated with the purchase of electricity, steam, heat, or cooling. The Fulton Center purchases electricity from APS which includes heating, and get chilled water from the ASU Combined Heat & Power Plant.

The Fulton Center's Scope 2 carbon emissions for FY22 is **1028.93 Metric Tons CO₂e**, or **99.95%** of the Fulton Center's total carbon emissions. This is equivalent to 222 gasoline-powered passenger vehicles driven for one year and 2,382 barrels of oil consumed

Scope 2

Currently, as we are housed in a building that is part of ASU's campus, our Scope 2 emissions are matched with Renewable Energy Credits (RECs) purchased through the ASU Red Rock Solar Project, making The Fulton Center net-zero for Scope 2 carbon emissions.

GENERAL EMISSION REDUCTION RECOMMENDATIONS

- **Upgrade Lighting to LED:** lighting generally makes up 17% of a commercial building's electricity use.
- **Utilize System Performance:** perform routine maintenance checks and ensure optimal use of appliances when necessary utilizing timers.
- **Upgrade Appliances:** using ENERGY STAR appliances and equipment can improve energy performance.
- **Install Solar:** commercial buildings can reduce their energy cost by up to 75% by installing solar panels, reducing carbon emissions from purchased electricity.
- **Offsetting:** while greenwashing can occur, nature-based offsetting should be prioritized and actions should occur along side the recommendations above.
- **Energy Attribute Certificates:** While all electricity can be matched with renewable energy credits, this does not mean that the energy consumed does not emit carbon, so large responsibility comes with the purchase of EACs.

LOW-IMPACT RELOCATION

The ASU Foundation is considering relocating to a new building within the next few years, so a key deliverable assigned to the master's team was to identify strategies for the foundation to reduce their GHG emission impact as part of their relocation. Below are recommendations based on ASU's Student Pavilion (the university's first attempt at a net-zero building) to identify strategies that align with ASU's. In addition to these findings, our team recommends that the foundation utilize building certifications like LEED and ENERGY STAR.

Energy Performance

- Solar panels for electricity and shade - Installing solar can reduce commercial building energy consumption by 75%.
- Highly insulated walls and roof
- High-efficiency, self-tinting, dual, and triple-pane windows reduce the heat moving through the building and the glare
- Solar tubes
- LED Lighting

Water Efficiency

- Low-flow sinks and toilets (WaterSense) - Use 20% less water
- Purple pipes to capture and reuse gently used greywater
- Landscaping bioswales allow water to soak into the ground rather than go down a drain

Construction

- Zero waste construction - Recycled material & locally sourced
- Exterior shading of walls and windows to reduce heat.

REDUCING EMISSIONS

While The Fulton Center is considered carbon neutral as it is factored into ASU's carbon neutral practices, Team Green Impact recommends that offsetting and RECs should play a small, and ideally nonexistent, role in ASU's emission reduction strategy. Below are some large and small-scale efforts that can help reduce carbon emissions, and truly get the foundation to net-zero.

LARGE SCALE EFFORTS

- Retrofitting the Fulton Center parking garage to have more EV chargers.
- Creating an incentivization systems to promote Sustainable workplace habits like using a reusable water bottle with rewards like gift cards or PTO.
- Doing another project or using another carbon accounting platform to calculate Scope 3.
- Upgrade HVAC equipment with higher SEER rating refrigerants.

PERSONAL EFFORTS

In the mean time, as the foundation strategizes a low-impact relocation and new large-scale efforts, we can take action on reducing our carbon footprint by:

- Using reusable water bottle
- Carpooling
- Limiting food waste
- Turn off lights when leaving a room
- Consider vegetarian catering options
- Support local businesses

