# *2020 Sustainability Master Plan Update*

June 7, 2024 | Michael B. Cline

PURDUE UNIVERSITY | Administrative Operations

# *Purdue Sustainability: Recent Recognition*

### 2024 QS World University
Ranked **#12 in the U.S** and #93 globally for sustainability in higher education

### 2022 CHP Project of the Year Award from the Combined Heat and Power Alliance
Received with Duke Energy for emissions reductions, reliability and efficiency

### 2023 AASHE STARS Silver
Earned STARS Silver rating from the Association for the Advancement of Sustainability in Higher Education (AASHE)

### U.S. EPA Combined Heat and Power Partnership Certificates of Avoided Greenhouse Gas Emissions
Received annually since 2012

### 2023 U.S. Department of Education Green Ribbon School
Recognized for a holistic approach to sustainability with a commitment to a sustainable campus

### Tree Campus USA
Received annually since 2009

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# 2020 Sustainability Master Plan

## Administrative Operations

### ENERGY




**E-1** Cut Carbon Emissions in Half



**E-2** No Net Gain



**E-3** Pursue 500kW Renewable Energy

### WATER

**W-1** Reduce Water by 30%

**W-2** Strategy to Eliminate the CSO

### MATERIALS

**M-1** Recycle Half our Waste

**M-2** Recycle 75% + Construction Waste

**M-3** Recycle All Institutional e-Waste

### BUILDINGS


**B-1** LEED Silver for New Buildings > $10M

**B-2** High Performance Requirements for Building Renovations < $10M

### GROUNDS

**G-1** Plant One Tree per Day

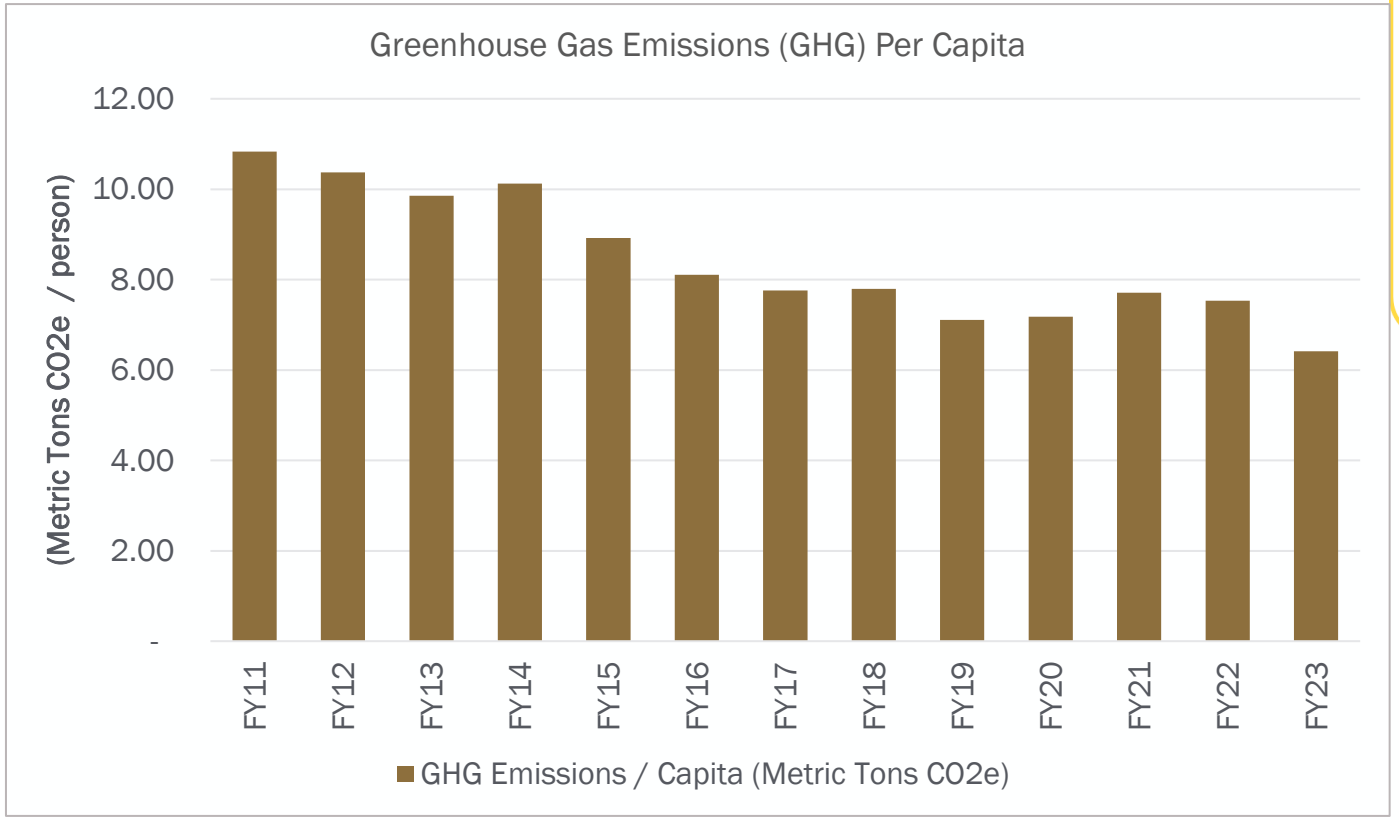
**G-2** Sustainable Landscapes for Purdue

**G-3** Double Bike Infrastructure

# Energy

## 2020 Sustainability Master Plan Update

- Greenhouse gas emissions are **down 41% per capita** since FY11
- Total energy consumption increased 10%, but energy consumption per square foot decreased 10% FY11-FY23
- ✓ Pursue 500kW of renewable energy through ongoing solar feasibility study




*Per capita data includes student enrollment and faculty and staff headcount for each fiscal year.*
*source: https://www.purdue.edu/datadigest/*

**ENERGY**

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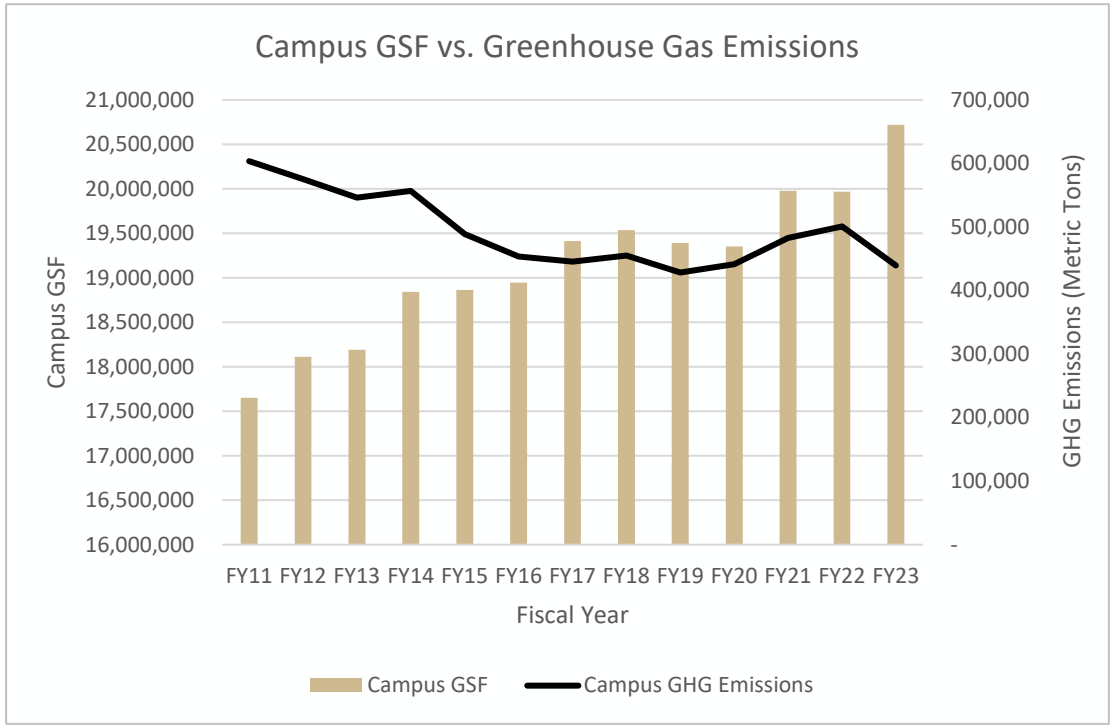
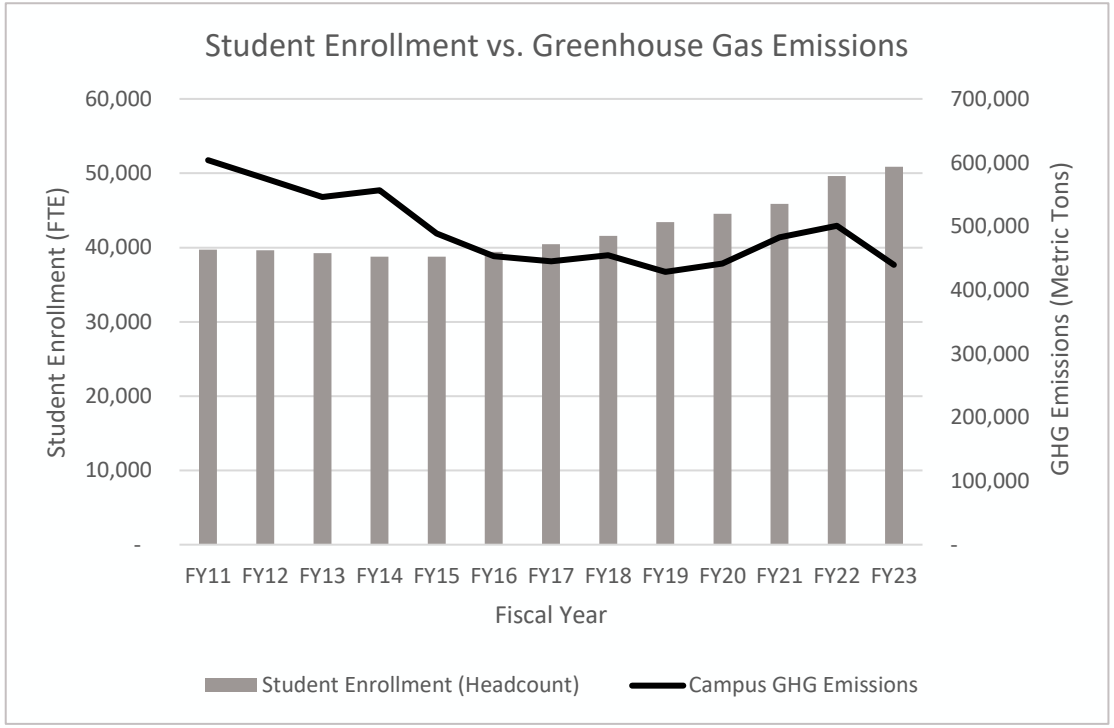
# Energy

## 2020 Sustainability Master Plan Update




**ENERGY**

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# ↑17%

**GROWTH IN PURDUE OWNED GROSS SQUARE FOOTAGE (GSF)**

*17,648,695 (FY11) to 20,717,839 (FY23)*
*Reflects West Lafayette campus proper (only owned space, no farms)*

# ↓27%

**REDUCTION IN GREENHOUSE GAS EMISSIONS FY11-23**

*604K metric tons (2011) to 439K metric tons (2023)*

# ↑28%

**GROWTH IN WEST LAFAYETTE CAMPUS STUDENT ENROLLMENT**

*39,726 (Fall 2010) to 50,884 (Fall 2022)*

# *Materials, Buildings and Water*

## 2020 Sustainability Master Plan Update

### Materials

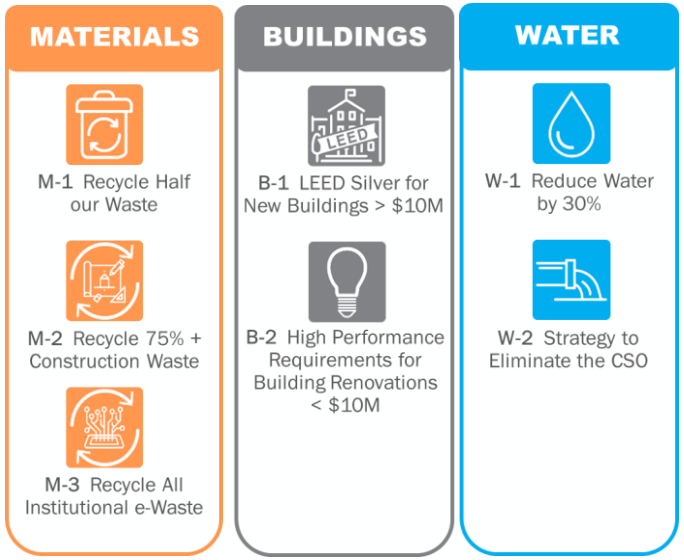
- ○ 32% of waste is being recycled, and progress made in waste food recycling and instructional recycling signage
- ✓ An average of 84% of construction waste for LEED projects has been recycled – above 75% goal
- ✓ 100% of university e-waste has been recycled each year since FY11

### Buildings

- ✓ New buildings either achieved or are pursuing LEED certification
- ✓ Draft criteria for high performance building renovations is complete and undergoing internal reviews

### Water

- ✓ 30% reduction in water consumption
- ✓ Strategy to eliminate the combined sewer overflow (CSO) will be complete by end of FY24




**↓170M**

**GALLON REDUCTION IN WATER USE FY11 vs. FY24 (projected)**

*~470,000 GALLONS LESS PER DAY*

# Grounds

## 2020 Sustainability Master Plan Update

- ✓ All 3,738 trees in the 1869 Tree Planting Plan will have been planted by end of FY24

  *860+ trees thanks to partnership with Purdue for Life and the Days of Service*

- ✓ Sustainable Landscaping Plan update complete
- ✓ Added 8.38 miles of bicycle infrastructure, surpassing the goal by 1.63 miles

*Spring 2024 Day of Service at Horticulture Park*

*New multi-use / bicycle infrastructure near Dudley and Lambertus Halls*

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# 2020 Sustainability Master Plan (FY11-23)

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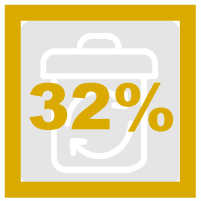


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# *Purdue Sustainability: Strategy and Innovation*

## *Pursue Clean Energy*

- Small Modular Nuclear Reactor Feasibility Study
- Indiana Office of Energy Development state-wide study

## *Work with Duke Energy*

- Duke Energy on-campus CHP plant resulted in reduced emissions of ~50,000T/year
- Purdue's use of clean energy increases as Duke Energy's portfolio evolves

## *Energy Demand Management*


- Saved >2000T of chilled water demand through targeted facility calibrations
- Launching Energy Action Days – Summer 2024
- Incentivizing Green Labs program

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# THANK YOU

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