



**Climate Action Plan 2021** 

October 2021



# **Table of Contents**

LIST OF ABBREVIATIONS/ACRONYMS/DEFINITIONS	4
EXECUTIVE SUMMARY	7
Figure ES1: GS Business—as-Usual GHG Emissions Projections for FY 2019 – FY 2050	8
Figure ES2: GS GHG Emissions Stabilization Wedge Diagram	10
INTRODUCTION	11
GENERAL INFORMATION	13
GREENHOUSE GAS EMISSIONS	14
Updated Emission Baseline Basis	15
Table 1: Comparison of Previous Baseline FY 2009 and Revised Baseline FY 2019 GHG E Sources	
Updated Emission Source Basis	17
Figure 1: FY 2009 Baseline Total Campus GHG Emission by Source Type	17
Figure 2: FY 2019 Total Campus GHG Emissions by Source Type	18
Updated Business-As-Usual Forecasting	19
Figure 3: GS Business-as-Usual GHG Emissions Projection FY 2019 - 2050	20
GHG EMISSIONS REDUCTION STRATEGIES	21
Strategic Initiative Areas	21
Diagram 1: Strategic Research Four Core Areas	22
ENERGY CONSERVATION AND MANAGEMENT OVERVIEW	22
Approach to Energy Conservation and Management Initiatives	23
Diagram 2: Energy Conservation Initiatives with Behavioral and Operational Changes v Conservation Measures.	0,
Energy Conservation Measures	
Table 2   Energy Conservation Measures: Short-Term Initiatives (1 - 5 Years)	



Table 3   Energy Conservation Measures: Intermediate-Term Initiatives (5 - 15 Years)	25
Table 4   Energy Conservation Measures: Long-Term Initiatives (Greater Than 15 Years)	26
Behavioral and Operational Changes	26
Table 5   Behavior/Operational Measures: Short-Term Initiatives (1 - 5 Years)	26
Table 6   Behavior/Operational Measures: Intermediate-Term Initiatives (5 - 15 Years)	30
Table 7   Behavior/Operational Measures: Long-Term Initiatives (Greater Than 15 Years)	32
Other Energy Conservation Strategies	32
Offset Strategies	32
Demand Side Reduction Strategies	32
Supply Side Reduction Strategies	32
2030 CUMULATIVE IMPACT PROJECTION	33
Figure 4: FY 2019 – 2030 GHG Emissions Stabilization Wedge Diagram	33
CURRICULUM, RESEARCH AND COMMUNITY ENGAGEMENT	33
Approach to Curriculum Initiatives	33
Diagram 3   Curriculum, Education, and Research Initiatives	34
Table 8   Curriculum Initiatives: Short-Term Initiatives (1 - 5 Years)	35
Table 9   Curriculum Initiatives: Intermediate-Term Initiatives (5 - 15 Years)	36
Table 10   Curriculum Initiatives: Long-Term Initiatives (Greater Than 15 Years)	36
Approach to Research Initiatives	36
Table 11   Research Initiatives: Short-Term Initiatives (1 - 5 Years)	37
Table 12   Research Initiatives: Intermediate-Term Initiatives (5 -15 Years)	40
Table 13   Research Initiatives: Long-Term Initiatives (Greater Than 15 Years)	42
Approach To Community Engagement Initiatives	42
Table 14   Community Engagement Initiatives: Short-Term Initiatives (1 - 5 Years)	43
Table 15   Community Engagement Initiatives: Intermediate-Term Initiatives (5 - 15 Years)	44



Table 16   Community Engagement Initiatives: Long-Term Initiatives (Greater Than 15 Years)	45
IMPLEMENTATION	45
CONCLUSIONS	45
ACKNOWLEDGEMENTS	47

## LIST OF ABBREVIATIONS/ACRONYMS/DEFINITIONS

## Abbreviations/Acronyms:

AASHE – Association for the Advancement of Sustainability in Higher Education

ACUPCC - American College & University President's Climate Commitment

AHU – Air Handling Unit

BAU - Business-as-Usual

BOR – University System of Georgia Board of Regents

BS - Bachelor of Science

CAP - Climate Action Plan

DEI - Diversity, Equality and Inclusion

ECM - Energy Conservation Measure

FTE – Full Time Equivalent students (uniform measure of students enrolled at GS that is often used to normalize energy usage or emissions [see emissions intensity]

FY - Fiscal Year

FYE - First Year Experience

GHG - Greenhouse gas



GS - Georgia Southern University

HVAC - Heating, Ventilation and Air Conditioning

LED – Light Emitting Diode

MRR - Major Repair and Renovation

MS - Master of Science

MTCO<sub>2</sub>E - metric tons of carbon dioxide equivalent (A measure of greenhouse gas emissions used by PCLC and others to allow reporting to a common unit of measure.)

OMI – Operation Move In (Resident housing program operated by GS)

ORSSP – Office of Research Services and Sponsored Programs

P & T – Parking and Transport

PCLC – Presidents' Climate Leadership Commitment (Re-branded and expanded in 2015 from ACUPCC)

PhD - Doctorate

SF – Square Foot (uniform measure of size of facilities operated by GS that is often used to normalize energy usage or emissions [see emissions intensity])

SGA - Student Government Association

SOAR - Southern's Orientation, Advisement and Registration (New student program conducted by GS)

STARS™ - Sustainability Tracking Assessment & Rating System

USG - University System of Georgia



## **Definitions:**

Emissions Intensity – means of normalizing reporting of emissions by dividing emissions by either quantity of operated facilities as measured in square feet (i.e. MTCO<sub>2</sub>E /SF) or by quantity of full time student equivalent enrolled at GS (i.e. MTCO<sub>2</sub>E /FTE).

Fugitive Emissions – Indirect, non-point source emissions.

REC - renewable energy certificates (Renewable energy certificates are purchased to support renewable energy generation completed by others. The market for RECs was established to help fund renewable energy generation projects. Under the ACUPCC, the equivalent emissions associated with a purchased renewable energy certificate can be deducted (offset) from the Source 1, Source 2 and Source 3 emissions when reporting total emissions associated with university operations.)

Planning Horizon: Three planning horizons are used within the CAP: short-term (1 -5 years), intermediate-term (5 – 15 years) and long-term (greater than 15 years).

Scope 1 Emissions - Direct GHG emission from sources owned and operated by GS

Scope 2 Emissions – Indirect GHG emissions from sources operated by others to provide utility services to GS (e.g. purchased electrical power)

Scope 3 Emissions – Indirect GHG emissions produced by sources operated by others because of activities directly affiliated with GS (e.g. travel or commuting undertaken by GS students, faculty, or staff)

SIMAP - Sustainability Indicator Management and Analysis Platform (A carbon and nitrogen accounting platform maintained by the University of New Hampshire and used by Georgia Southern and other PCLC participants for calculating yearly emissions).



#### **EXECUTIVE SUMMARY**

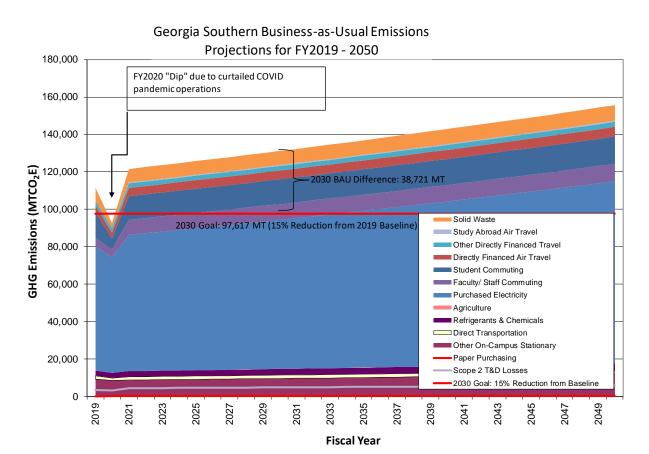
In January 2008, Georgia Southern University (GS) committed to participate in the American College & University Presidents' Climate Commitment (ACUPCC) and "re-signed" this commitment in 2011. In 2014, GS established its initial Climate Action Plan (CAP) to serve as a "living document" to aid the University in reducing its greenhouse gas (GHG) emissions on an ongoing basis. In alignment with the green environment objectives of the CAP, GS has also continued to make sustainability a core value of the institution's operations and planning; a primary focal point in design, construction and procuring practices of GS. GS has continued to report GHG emissions annually and its progress toward a target of climate neutrality (no net GHG emissions). In 2015, the ACUPCC was rebranded and expanded to form the Presidents' Climate Leadership Commitments (PCLC) which houses the Carbon Commitment (focused on reducing GHG emissions), a Resilience Commitment (focused on climate adaptation and building community capacity), and a Climate Commitment that integrates both. The PCLC is aligned with other targeted State and Board of Regents (BOR) initiatives.

In 2017, the University System of Georgia (USG) BOR approved resolutions making Armstrong State University and GS a consolidated institution. This became official in January 2018 with the name of the new, consolidated university as GS. This consolidation includes a third campus location, the Liberty campus located in Hinesville, Georgia. The University now operates on more than 7 million square feet (ft²) of facilities space and on more than 1,000 acres. Based on these operational changes, GS recognizes the need to update and revise the CAP to maintain its relevance to continue to guide emission strategies. The 2021 CAP incorporates a new baseline based on 2019 operating data and considers and is representative of the newly combined operations.

As presented in this CAP, GS has established an interim goal to reduce the total net GHG emissions by 15% by 2030 as compared to GS's current "Business-as-Usual" (BAU) forecast. As presented in the figure below, this represents a decrease of 38,721 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>E) to achieve the interim goal of 97,617 MTCO<sub>2</sub>E by the target date of 2030 (11 years from the revised GS's GHG inventory baseline year of 2019).



Figure ES1: GS Business-as-Usual GHG Emissions Projections for FY 2019 - FY 2050





In keeping with the PCLC carbon commitment, the GS CAP is organized to address four core areas:

- 1. Energy Conservation and Management
- 2. Curriculum
- 3. Research
- 4. Community Engagement

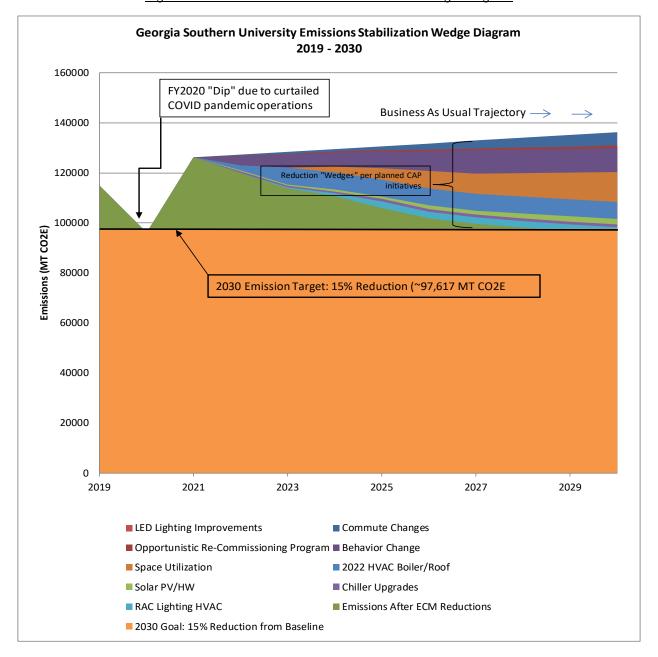
This CAP creates and establishes emission reduction goals with associated progress criteria including the integration of climate action planning and sustainability initiatives into its curriculum and research activities. By aligning the CAP with the University's Strategic Plan and Values (2019 - 2024), the University commits to enhancing environmental sustainability education on campus while increasing the number and scope of green programs. Through these efforts, GS will continue to take the lead in sustainability by engaging both the on campus and greater Savannah, Statesboro, and Hinesville communities in climate action planning and sustainability initiatives and practices. GS will continue to be a respected leader in the community by creating an environmentally conscious campus and implementing sustainability courses and programs in GS's curriculum.

GS will also utilize an assortment of initiatives to mitigate its GHG emissions by focusing on energy conservation measures (ECM), campus sustainability projects, behavior change, and changes in maintenance and operations that will contribute to emission reductions on campus and will steer GS towards the targeted goal of climate impact neutrality. This plan includes specific initiatives in each of the core CAP areas (energy conservation and management, curriculum, research and community engagement) over the short- (1 -5 years), intermediate- (5 – 15 years), and long-term (greater than 15 years) horizons. The initiatives identified in this plan will serve as a road map for the GS objective of reaching carbon neutrality by 2050.

The chart below presents the projected impact of implementing these initiatives compared to the current campus "BAU" projection. Each of the ECMs identified to be implemented through the interim target date of 2030 is graphically presented as a "reduction wedge". As projected, the results of these efforts are projected to achieve a 15% reduction compared to the campus GHG emissions identified by the revise 2019 baseline GHG emissions inventory. Additional initiatives and technologies will need to be identified and adopted to meet the targeted goal of neutrality.



Figure ES2: GS GHG Emissions Stabilization Wedge Diagram





Moving forward, campus capital improvement, maintenance, and operational initiatives will be considered against the commitments of the GS CAP. In addition, this CAP has been developed to flow into future alignment with GS's Master plan. GS will continue to lead by addressing environmental challenges throughout the local community and into the surrounding region to positively influence society - both locally and nationally.

#### INTRODUCTION

In 1906, delegates from Statesboro, Georgia, traveled to Savannah, Georgia and offered the winning bid to establish what is now GS. In 1935, the Armstrong Campus - then known as Armstrong Junior College - was founded by Savannah Mayor Thomas Gamble. Affiliated with the USG, GS is the state's largest and most comprehensive center of higher education in southeast Georgia. In 2017, the USG BOR approved resolutions making Armstrong State University and GS a consolidated institution. This became official in January 2018 with the name of the new, consolidated university as GS. This consolidation includes a third campus location, part of Armstrong State University, the Liberty campus located in Hinesville, Georgia. With almost 27,000 students and 3,000 faculty and staff members, GS is a public Carnegie Doctoral/R2 institution.

GS operates on more than 7 million square feet (ft²) of facilities space and on more than 1,000 acres. The Statesboro campus, including its newly developed South Campus, operates 5.6 million ft² of facilities on 808 acres; the Armstrong campus operates 1.5 million ft² of facilities on 250 acres and the Liberty campus operates one facility encompassing 20,000 ft² on 3 acres. GS offers more than 370 different academic majors and minors for undergraduate and graduate students. The University's largest operating units include academic affairs, athletics, business and finance, and student affairs. It is noted that GS currently operates the Herty Advanced Materials Development Center (Herty Center). In 2012, Georgia Governor Nathan Deal transferred management of Herty (previously operated an independent foundation) to GS to enhance economic and business development in the state of Georgia. GS incorporates the Herty Center in its PCLC reporting; however, long-term planning for Herty under GS is under review. As such, and given its unique operations and mission, this CAP does not include initiatives specific to the Herty operations. The incorporation of the Herty Center will be reviewed in the next CAP update planned for 2026. Throughout this CAP, references to operating campuses refers to the conventional academic campuses (Statesboro, Armstrong and Liberty).

GS is actively committed to conservation efforts and promoting a University-wide culture of environmental sustainability. Through the University's Strategic Plan and Values (2019 - 2024),



the University commits to enhancing environmental sustainability education on campus while increasing the number and scope of green programs. In addition, GS has a goal of maximizing the returns on University investment and reducing the negative financial, social, and environmental impacts of operations on all campuses. Beginning in 2011, GS has been named annually to The Princeton Review's Guide to Green Colleges as one of the nation's top eco-friendly campuses.

GS's CAP preparation included the active engagement of faculty, staff, and students. Key committee members responsible for the CAP include the Divisional and Associate Vice Presidents, Associate Deans, Directors, Faculty, Architects, Environmental Engineers, Sustainability Coordinator, and the Energy Manager. The CAP team was organized based on community engagement, curriculum, education and research, and energy conservation. Each group worked to gather data and ideas of what currently existed within GS's three campuses and developed strategies to assist in drafting the framework for this CAP. Specific short- (1 - 5 years), interim- (5 - 15 years), and long-term (greater than 15 years) goals were created to provide structure and guide GS towards our goal of 15% reduction of GHG emissions by 2030 and chart a targeted course to our 2050 goal of climate neutrality.

The Sustainability Advisory Committee is responsible for the creation, evaluation, and oversight of GS's CAP. The Sustainability Coordinator, housed in the Division of Student Affairs, in partnership with the Environmental and Sustainability Manager and Specialist, housed in the Division of Business and Finance, will work to compile the annual emission data and provide annual GHG emissions updates to be reported to the institutional leadership identified above and other agencies. The Sustainability Coordinator and the Environmental Sustainability Manager will also work to present the outcomes of the CAP to faculty, staff and students and educate our campus communities on campus sustainability goals, initiatives, and CAP implementation progress. The Environmental and Sustainability Manager and Specialist will work with the Sustainability Advisory Committee and campus partners to collect and compile GS's GHG emissions reports.

In 2012, the Student Government Association (SGA) proposed and approved a \$10 student Sustainability Fee to support the sustainability initiatives on the Statesboro campus of GS. The fee was supported by a 75% majority vote of the student body and approved by the USG's BOR in 2013. The fee supports GS's sustainability efforts, including a sustainability speaker series, campus sustainability initiatives, and outreach programming. In addition, the fee supports a grant



program in which it seeks proposals to improve campus sustainability. A fee committee composed of students, faculty, and staff make the decisions regarding how the funds are annually spent.

GS's sustainability efforts to date have included a focus on awareness and educational curriculum enhancements including a new Bachelor of Science (BS) in Sustainability Science scheduled to launch in Fall 2022. GS has continually committed itself to sustainability consciousness which includes behavior change campaigns and targeted programs specific to the Sustainable Development Goals.

# **University System of Georgia Sustainable Energy Management Plan**

https://www.usg.edu/facilities/assets/facilities/documents/Sustainable\_Energy\_Management\_Plan.pdf

# Signatory of the President's Climate Commitment (2012)

https://news.georgiasouthern.edu/2012/04/30/georgia-southern-university-president-brooks-keel-re-signs-climate-commitment/

#### **GENERAL INFORMATION**

In revising GS's 2014 CAP and in consideration of the PCLC's standards and commitments, the following goals were considered:

- A. A 2030 interim goal of 15% reduction in GHG emissions compared to GHG emissions from the revised baseline year of Fiscal Year (FY) 2019.
- B. Implement initiatives across the combined campuses that will lead to greenhouse gas reduction.
- C. Build off the momentum established through establishing the BS in Sustainability Science program to continue to expand and incorporate sustainability into the curriculum for undergraduate and graduate students
- D. Establish key indicators and benchmarks to monitor progress in implementing GHG emission reduction opportunities.
- E. Continuously, improve by adjusting and modifying the CAP to serve as a "living document".



F. Include sustainability education onboarding to all new faculty and staff.

GS CAP focuses on three types of greenhouse gas emission as defined by the PCLC carbon program and described below:

- Scope 1 GHG Emissions:
  - Scope 1 GHG emission includes sources that are direct emission sources owned and operated by GS. Scope 1 GHG emissions for GS are associated with GSowned equipment that directly consumes fossil fuels to produce electricity for: boilers, chillers, incinerators, and furnaces. Scope 1 GHG emissions include those from university vehicle operations and direct and fugitive GHG emissions from other GS equipment and sources.
- Scope 2 GHG Emissions:
  - Scope 2 GHG emissions include indirect emission sources associated with GS consumption of purchased utilities. For GS, these GHG emissions are associated with purchased electricity.
- Scope 3 GHG Emissions:
  - Scope 3 GHG emissions include other applicable indirect GHG emissions associated with GS operations, but not directly produced or controlled by GS. For GS, these include GHG emissions associated with travel and commuting by GS affiliated students, faculty, and staff as well other non-utility sources.

Focusing on these three GHG emission scope areas allows GS to evaluate and assess its overall GHG emissions. Collectively, the total of these three types of emission sources equates to 100% of GS's GHG emissions targeted under the PCLC carbon commitment.

# **GREENHOUSE GAS EMISSIONS**

GS has partnered with the PCLC to assess and document its GHG emissions. While the PCLC carbon commitment focuses on GHG emissions, GS remains conscientious of all its environmental impacts from both direct and indirect actions. The following are steps that GS has



completed since developing the initial 2014 CAP under the ACUPCC and leading up to establishing this revised 2021 CAP:

- Collecting and updating GS's GHG emissions data and publishing the revised emission estimates annually including the addition of two operational campuses in 2018. Data is collected through participation of multiple operations and departments using a regular and standardized process. GS reports this data through a computerized platform (SIMAP) that is an approved platform utilized by many colleges and universities participating in the ACUPCC. This platform includes functions to estimate emissions from local operating data including, but not limited to, travel/vehicle mileage, refrigerant consumption, and utility usage. In this way, GS's emissions estimate is consistent with the reporting of other SIMAP/ACUPCC participants.
- Constructing a revised GHG emissions baseline inventory based on FY 2019 reflective of the revised campus operations. Assimilating, collecting, and updating GS's GHG emissions data and publishing the revised combined operations emission estimates annually.
- Constructing revised "BAU" and "GHG emissions Stabilization Wedge Diagrams" reflective of the combined GS operations.
- Evaluating GS projected GHG emissions from 2019 through 2050.
- Creating a new BS in Sustainable Science creating opportunity for students to achieve bachelor's level degree program.
- Maintaining commitment to climate neutrality by complying with the Campus Master Plan and CAP, and by enacting collective University objectives and policies.

## Updated Emission Baseline Basis

GS signed the ACUPCC in 2011 and submitted its baseline GHG emissions inventory based on FY 2009 operations. This baseline was used to establish the BAU trend projection presented in the 2014 CAP. As part of the 2021 CAP, GS has established a revised baseline based on FY 2019 post consolidation operations. Consistent with the 2014 CAP, this revised baseline inventory identifies and reports GHG emissions from various campus sources that are classified as Scope1, Scope 2, and Scope 3 GHG emissions. The revised baseline has been incorporated into the revised Business-as-Usual emission trend projection presented in the 2021 CAP. Table 1 presents a comparison between the previous FY 2009 baseline source GHG emissions and the 2019 baseline source GHG emissions utilized for the 2021 CAP. The comparison between FY



2009 baseline emission sources and the FY 2019 baseline emission sources are also presented graphically (broken down by scopes) for both fiscal year baselines in Figures 1 and 2.

<u>Table 1: Comparison of Previous Baseline FY 2009 and Revised Baseline FY 2019 GHG Emissions</u>
Sources

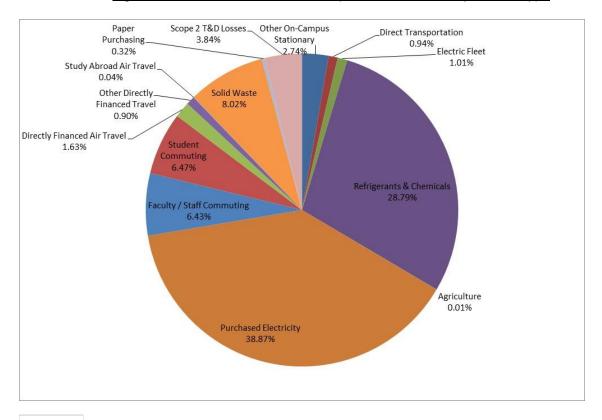
Sources	Sources Unit of	FY 2009	FY 2019
50 11.00	Measurement	(Statesboro Only)	(Statesboro, Armstrong & Liberty)
Gross Square Footage- Total Building Space	ft <sup>3</sup>	4,200,435	7,207,689
Full Time Equivalent Students	unitless	16,136	24,077
Stationary Source (Natural Gas)	MMBtu	71,418	162,007
Stationary Sources (Diesel, Propane)	Gallons	0	1,158
Mobile Sources (Natural Gas)	MMBTU	7,337	0
Mobile Sources (Diesel, Gasoline)	Gallons	101,655	193,113
Refrigerants& Chemicals (lb)	lb	36,341	27,774
Process (CO <sup>2</sup> Cryogenic) (Fertilizers & Animal Husbandry)	lb	45,000	50,805
Agriculture (Fertilizers & Animal Husbandry)	lb	37,818	41,751
Purchased Electricity	kWh	89,422,057	140,665,314
Solid Waste	U.S. Tons	1,700	4,816
Paper/Recycling	U.S. Tons	285	494
Student Commuting	Miles/year	23,611,575	38,659,310
Faculty/Staff Commuting	Miles/year	23,736,661	12,295,088
Faculty/Staff Air Travel	Miles/year	3,652,94	3,539,004
Student Air Travel	Miles/year	518,616	5,553,744
Study Abroad Air Travel	Miles/year	90,720	608,533
Business Travel (Taxi/Ferry/Rental Car)	Miles/year	3,432,523	5,837,858
Personal Mileage Reimbursement	Miles/Year	828,535	828,695

Note: Some differences between 2009 and 2019 Baseline source measurements are a result of evolution in data collection/reporting to improve accuracy and consistency. Data listed reflect data reported by GS to SIMAP. Future CAP reporting will reference 2019 as baseline for the combined campuses.



# **Updated Emission Source Basis**

Figure 1: FY 2009 Baseline Total Campus GHG Emission by Source Type



Study Abroad Air Travel\_ Scope 2 T&D Losses Paper Purchasing **Direct Transportation** 2.96% 0.16% 0.09% 1.54% Other Directly Financed Refrigerants & Chemicals Travel Other On-Campus 2.46% Solid Waste 2.09% Stationary 5.97% Agriculture 8.14% 0.01% Directly Financed Air Travel 2.87% Student Commuting 12.13% Faculty / Staff Commuting 3.86% **Purchased Electricity** 57.73%

Figure 2: FY 2019 Total Campus GHG Emissions by Source Type

The baseline inventory is an integrated measure of GS institution-wide energy and resource usage. The primary purpose of the baseline inventory is to establish a "benchmark" against which future progress towards carbon neutrality can be measured, and to help establish priorities with regards to the primary emission sources responsible for most GS GHG emissions. GS intends to conduct annual updates to check progress and implement adaptive changes, as necessary to reach objectives. GS has actively worked with utility suppliers to implement the beneficial purchase of utilities from environmentally friendly energy sources. In addition, the utility suppliers



have assisted GS with accurately measuring and metering all resources to ensure that GS meets the objectives and reduces GHG emissions. Future emission reductions can be empowered and implemented by the Provost, Vice Presidents, Deans, Directors, Architects, Designers, Environmental Engineers, and Managers.

Since establishing its baseline in FY 2009 and following the original 2014 CAP, GS has continued to document and report the campus GHG emissions for comparative purposes and using a consistent approach and technique. GS has placed a high priority on constructing energy efficient buildings, and implementing applications of multiple types of energy conserving measures to achieve energy efficiency thus reducing GHG emissions. In addition, operating the campus more efficiently has reduced energy use and GHG emissions. As older buildings are replaced or refurbished and newer more efficient buildings are constructed on campus, energy efficient measures will continue to be deployed with the target of assisting in reducing GHG emissions.

From this effort, GS has recognized that the reduction efforts already implemented have resulted in significant reductions in GHG emissions associated with the Statesboro campus. Comparing FY 2009 to FY 2018 (before the consolidations) the total GHG emissions were 19% lower in FY 2018 compared to baseline of FY 2009. Emission intensity (metric tons per SF of facilities) was 41% lower in 2018 compared to baseline FY 2009.

GS's annual GHG emission inventory reports will continue to be published on the Sustain Southern website as well as the PCLC Second Nature reporting website.

# **Updated Business-As-Usual Forecasting**

The primary purpose of the "BAU forecasting" is to present GS's current GHG emissions trend assuming a continuation of historic practices and operation strategies so that reductions associated with CAP strategies can be recognized and an alternate GHG emissions trajectory projected for the future. The overarching goal of the CAP is to diminish GHG emissions and achieve carbon neutrality.

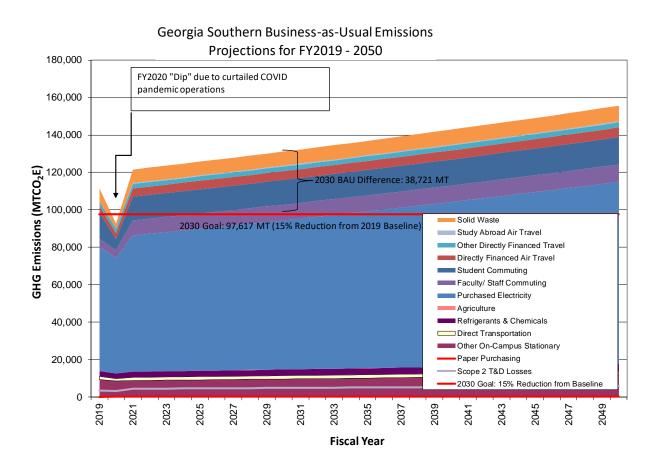
Facilities Planning, Design and Construction Management team continues to be executing capital and major repair and renovation (MRR) projects to both add square footage of additional facilities and improve the performance of existing buildings. For purposes of addressing the estimated facility growth, a 1% growth rate in new facilities was assumed year over year for the forecast period. In addition, full time equivalent (FTE) student enrollment growth was estimated at 0.9%



year over year growth in student population for the forecast rate. Both these projections are consistent with historical growth rates and were used in the 2014 CAP.

The BAU forecasting was developed by examining the average emission intensities for the historic inventory periods (FY 2009 – 2019) for the Statesboro campus and the FY 2019 GHG emissions for the Armstrong/Liberty campus. These intensities were then applied as a weighted average based on the gross square footage/student FTE population represented by the Statesboro and Armstrong/Liberty campuses. Below is the resulting BAU trend graph (Figure 3).

Figure 3: GS Business-as-Usual GHG Emissions Projection FY 2019 - 2050





#### **GHG EMISSIONS REDUCTION STRATEGIES**

The CAP presents GHG emission reduction strategies focused in two main areas: Energy Conservation and Management and Education/Community Awareness. The overarching goal and strategy for this CAP is to reduce GHG emissions through efforts relevant to one or both of these areas.

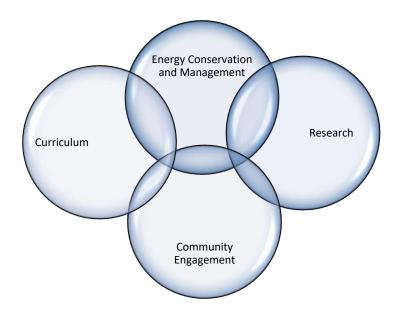
The energy conservation and management section presents GS strategies for reducing GHG emissions through a combination of behavioral and operational changes, and the advancement of ECMs and improvements on campus. In considering the emission reduction strategies considered within the CAP, each GHG emission reduction initiative is represented as a reduction "wedge." The GHG Emissions Reduction projection diagram presents the cumulative expected resultant reductions through FY 2030 compared to the BAU forecast. The interim target established by this CAP is to reduce GHG emissions by 15% from the FY 2019 baseline by 2030, and to work toward establishing a pathway to GHG emission neutrality by year 2050.

The Education and Community Awareness section presents GS's strategies that focus on education through curriculum and research initiatives, and community engagement initiatives (both on campus and off-campus). The strategies will include the addition of specific curricula which focus on sustainability as well as the integration of sustainability criteria into existing curriculum. Climate Action Planning and broader sustainability criteria objectives will also be integrated into advanced research initiatives. Lastly, GS's strategy will include partnering and engaging with others in the community to help generally educate and raise climate action planning and sustainability awareness on and off-campus as well as to look for community based initiatives that can be implemented to reduce GHG emissions by the comprehensive community. Ultimately, GS recognizes that education and awareness of climate action planning and sustainability will contribute equally with the energy conservation and management initiatives to reduce the GHG emissions of GS and its community.

## Strategic Initiative Areas

GS will measure progress and provide opportunities to make adaptive changes through its initiatives in these four areas:





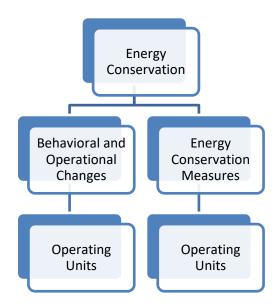
<u>Diagram 1: Strategic Research Four Core Areas</u>

## **ENERGY CONSERVATION AND MANAGEMENT OVERVIEW**

The objective of energy conservation measures proposed under the energy conservation and measurement strategy is to directly reduce either energy and other resource consumption compared to current practices or the elimination of direct GHG fugitive emissions (e.g. refrigerants). Through these reductions, GHG emissions will be reduced. Energy conservation measures will steer GS to carbon neutrality.

GS will utilize an assortment of strategies to mitigate it GHG emissions. GS has established its reduction strategy through the identification of emission reduction wedges, which are used to graphically represent GHG emission reductions associated with identified energy conservation measures. GS has focused on identifying ECMs and behavior and operational changes that can be implemented in short-, intermediate-, and long-term time horizons. The short-term horizon, next 5 years (by FY 2026) are intended to establish a clear downward GHG emissions trend toward the ultimate target of climate neutrality. Identification of additional energy conservation and projects will be governed by priorities established through future cost-benefit analyses, advancements in technology, and future funding opportunities.

### Approach to Energy Conservation and Management Initiatives



<u>Diagram 2: Energy Conservation Initiatives with Behavioral and Operational Changes with Energy</u>

Conservation Measures.

In identifying initiatives to conserve energy and/or reduce GHG emissions, GS organized the initiatives as either direct energy conservation measures (typically addressing changes, replacements or improvements in infrastructure systems or technologies) or targeted focused operational and behavior changes that can be implemented without significant capital cost. Initiatives in each of these areas were then broken down by the targeted implementation horizon. The tables below present the identified energy conservation strategies.

# **Energy Conservation Measures**

Table 2 | Energy Conservation Measures: Short-Term Initiatives (1 - 5 Years)

Item			Implementation
Number	Description	Expected Impact	Plan
ECM-Energy-ST-	Nessmith Lane Heating, Ventilation and	Scope 2 - Purchased	MRR FY 2022
001	Air Conditioning (HVAC) renovation	Electrical Reduction	



Item Number	Description	Expected Impact	Implementation Plan
ECM-Energy-ST- 002	Newton Bldg. HVAC Renovation (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2022
ECM-Energy-ST- 003	Campus Chiller Changeouts (Jenkins, Solms, Burnett) (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2022
ECM-Energy-ST- 004	Herty Building HVAC Upgrades (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2022
ECM-Energy-ST- 005	Campus Chiller Replacements (Nursing/Chem, Health Services) (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2022
ECM-Energy-ST- 006	Science Center Air Handling Unit (AHU) No. 3 Replacement (Armstrong)	Scope 2 - Purchased Electrical Reduction	MRR FY 2022
ECM-Energy-ST- 007	Science Center Boiler Replacements (Statesboro)	Scope 1 - Stationary Equipment Fuel Reduction	MRR FY 2022
ECM-Energy-ST- 008	Central Plant No. 1 - Construction (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2023
ECM-Energy-ST- 009	Carroll Building HVAC Upgrades (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2023
ECM-Energy-ST- 010	Sports Center Chiller Replacement (Armstrong)	Scope 2 - Purchased Electrical Reduction	MRR FY 2023
ECM-Energy-ST- 011	MP Arts Re-Roof (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2024
ECM-Energy-ST- 012	Fine Arts Building HVAC Upgrades (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2024
ECM-Energy-ST- 013	Russell Student Union Skylight Vestibule Repairs (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2024
ECM-Energy-ST- 014	Campus Building Controls upgrades (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2024
ECM-Energy-ST- 015	Henderson Library Light-Emitting Diode (LED) Lighting upgrades (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2024
ECM-Energy-ST- 016	Campus LED lighting upgrades (NL Auditorium, Carroll & IT Bldg.) (Statesboro)	Scope 2 - Purchased Electrical Reduction	MRR FY 2025
ECM-Energy-ST- 017	LED Interior Lighting Upgrades (26 Targeted Bldgs.)	Scope 2 - Purchased Electrical Reduction	MRR FY 2022 – FY 2026
ECM-Energy-ST- 018	Marvin Pitman/McCroan Auditorium Building Renovation and Historic Preservation (Statesboro): Improvements to building infrastructure and energy systems	Scope 2 - Purchased Electrical Reduction	Capital plan FY 2028.
ECM-Energy-ST- 019	Science Center Lab Upgrades (Armstrong)	Scope 2 - Purchased Electrical Reduction	Capital Plan FY 2024
ECM-Energy-ST- 020	Deal Hall Renovation (Statesboro)	Scope 2 - Purchased Electrical Reduction	Capital Plan FY 2025



## Table 3 | Energy Conservation Measures: Intermediate-Term Initiatives (5 - 15 Years)

Item Number	Description	Expected Impact	Implementation Plan
ECM-Energy- IT-001	Improve space utilization and scheduling to allow extended setback of building systems during non-occupied periods.	Scope 2 - Purchased Electrical Reduction	Incorporated into long-term post pandemic strategy for delivery of services and incorporation or remote learning.
ECM-Energy- IT-002	Central Plant No. 2 - Construction (Statesboro) - Continue long-term strategy of centralized utility plant implementation.	Scope 2 - Purchased Electrical Reduction	Aligned to long-term capital plan.
ECM-Energy- IT-003	Central Plant No. 3 - Construction (Statesboro) Continue long-term strategy of centralized utility plant implementation.	Scope 2 - Purchased Electrical Reduction	Aligned to long-term capital plan.

Note: Item Numbering Convention: AAA-BBBBB-CC-###: AAA = CAP Area (ECM, Curriculum, Research or Community Outreach); BBBBB = Type of Initiative (Energy, Behavior Change\_Energy Management [BH\_MNG], Waste, Transportation [TRANSP]); CC = Planning Horizon (ST = Short Term, IT = Intermediate Term, LT = Long-term); ### = sequential item number.



# Table 4 | Energy Conservation Measures: Long-Term Initiatives (Greater Than 15 Years)

Item Number	Description	Expected Impact	Implementation Plan
ECM-Energy-LT- 001	Install smart temperature zoning systems to distribute heating and cooling efficiently (e.g. Adjusting heating/cooling in rooms based on occupancy).	Scope 2 - Purchased Electrical Reduction	Facilities to monitor technologies and consider implementation long term integrated with campus building system control and reporting strategies.
ECM-Energy-LT- 002	Evaluate changes/viability of solar technology projects to assist with sustainable transportation projects and reduce electricity costs.	Scope 2 - Purchased Electrical Reduction	Facilities Services working in collaboration with P & T will evaluate the following projects:  ECM- LT-002.1 - Covered parking with solar panels.  ECM-LT-002.2 - Install solar panels near EV charging station to charge electric vehicles.  ECM-LT-002.3 - Solar panels on roofs of buildings or near parking lots to generate power for parking lot lights.

Note: Item Numbering Convention: AAA-BBBBB-CC-###: AAA = CAP Area (ECM, Curriculum, Research or Community Outreach); BBBBB = Type of Initiative (Energy, Behavior Change\_Energy Management [BH\_MNG], Waste, Transportation [TRANSP]); CC = Planning Horizon (ST = Short Term, IT = Intermediate Term, LT = Long-term); ### = sequential item number.

# Behavioral and Operational Changes

# Table 5 | Behavior/Operational Measures: Short-Term Initiatives (1 - 5 Years)

Item Number	Description	Expected Impact	Implementation Plan
ECM- BH_MNG-ST- 001	Survey the campus community on sustainability behaviors on campus.	Education to raise awareness and create culture change.	ECM-BH_MNG-001.1 - Digitally survey the behaviors of the student population. ECM-BH_MNG-001.2 - Rank order on importance the sustainability behaviors of students and their impacts.  ECM-BH-MNG-001.3 - Conduct a transportation survey every year.
ECM- BH_MNG-ST- 002	Implement "Green Eagle" program on campus.	Education to raise awareness and create culture change.	ECM BH_MNG-001.1 Create checklist in Folio with levels of engagement/ badges



Item	<b>5</b>		
Number ECM- BH_MNG-ST- 003	Description Create university account for rebates from LED installations to be used for Energy efficiency projects.	Funding source for execution of ECMs.	Implementation Plan Coordinate with finance to establish accounting structure to segregate rebate cash stream for reuse on ECM program.
BH_MNG-ST- 004	Increase use of independently metered buildings or temporary metering to support energy/ emission challenge events.	Education to raise awareness and create culture change.	Coordinate use of temporary or existing independent meters to conduct awareness challenges.
ECM- BH_MNG-ST- 005	Continuous Re- Commissioning Assessment Program.	Scope 2 - Purchased Electrical Reduction.	Establish formal procedures to review MRR projects for retro-commissioning need and continually benchtop survey building inventory for re-commissioning opportunities.
ECM- BH_MNG-ST- 006	Host an annual energy competition between Residence Halls. Gamify sustainability in the residence halls by offering incentives to residents, using competitiveness to drive participation.	Education to raise awareness and create culture change.	ECM-BH_MNG-006.1 - Brainstorm a competition that students could easily participate in.  ECM-BH_MNG-006.2 - Decide on a prize that an entire residence hall could enjoy (bare in the mind the variance of size of halls).
ECM- BH_MNG-ST- 007	Create sustainability checklist for student organizations when hosting events. Incentivizing with points (or relevant student org event currency) to drive engagement.	Awareness, education to create culture change.	ECM-BH_MNG-007.1 - Research typical ways student orgs are unsustainable.  ECM-BH_MNG-007.2 - Develop a checklist covering common sustainability mistakes as well as general guidelines with respect to waste, single use plastics, microplastics, materials sourced unsustainably, energy use, emissions, etc.
ECM- BH_MNG-ST- 008	Capitalize on familiarity of Web-based remote meetings to reduce the commuting and energy required to host.	Culture change/Scope 2 - Purchased Electrical Reduction.	ECM-BH_MNG-008.1 - Coordinate remote delivery efforts with space utilization initiatives to achieve proper balance.
ECM- BH_MNG-ST- 009	Dining halls serving meatless options on main serving lines every Monday.	Reduce scope 3 emissions by reducing meat/dairy.	Require dining locations to adhere to Meatless Mondays initiative.
ECM- TRANSP-ST- 001	Run a marketing campaign to promote and incentivize changes in student, faculty	Reduce scope 3 emissions associated with commuting.	The P & T office will update the website with initiatives that may include information on carpool permits, hybrid spaces, Zipcar, etc.



Item Number	Description	Expected Impact	Implementation Plan
	and staff commuting behavior.		
ECM- TRANSP-ST- 002	Update university travel website to include and advocate information on environmentally friendly forms of transportation.	Education to raise awareness and create culture change	Work with Finance to include sustainable travel information on the university website where travel forms are located.
ECM- TRANSP-ST- 003	Create a campus environment that supports the use of bicycles. Develop bicycle rental and repair program at Armstrong.	Education to raise awareness and create culture change/ Reduce scope 3 emissions associated with commuting.	ECM-TRANSP-003.1 Apply for Bike Friendly University accreditation.  ECM-TRANSP-003.2 Work with Southern Adventures/CRI to expand the bike rental and repair program to Armstrong.  ECM-TRANSP-003.3 Work with Campus Planning and Design to increase the number of bike pathways on Statesboro campus.  ECM-TRANSP-003.4 Create incentives for students to choose biking over other less environmentally friendly forms of transportation.
ECM- TRANSP-ST- 004	Implement carbon commuter program.	Reduction of scope 3 emissions.	The Sustainability Programs Office and the P & T office will investigate the implementation of a Carbon Commuter Program. This will include research of the average commuter miles per year for each campus. The initiative will allow students, faculty and staff to fund sustainability projects along with purchasing yearly parking passes at the P & T office.
ECM- TRANSP-ST- 005	Expand use of biodiesel for buses.	Reduce Scope 1 Direct Transportation emissions.	Aggressively monitor biodiesel usage under new 10-year contract with First Transit. Monitor for advancements to improve efficiencies and reduce carbon emissions. Possibly retrofitting existing buses with any advancements.
ECM- WASTE-ST- 001 Waste	Reduce overall food waste from dining halls FY 2023 and catering/retail units from 2024 baselines by 10% by end of FY 2026.	Reduce Scope 3 Emissions associated with wastes.	ECM-WASTE-ST-001.1 Identify preconsumer food waste from the dining halls baseline data by end of FY 2023 and from retail/catering by FY 2024. Using the created baseline, reduce food waste. Utilize proper pars and small batch cooking. Analyzing customer



Item Number	Description	Expected Impact	Implementation Plan
Number	Description	Expected impact	trends to determine amounts of food to produce.
			ECM-WASTE-ST-001.2 Utilize proper pans and small batch cooking.
			ECM-WASTE-ST-001.3 Analyzing customer trends to determine amounts of food to produce.
			ECM-WASTE-ST-001.4 - Have food waste put into separate bins.
ECM- WASTE-ST- 002	Begin composting on the Armstrong campus by end of FY 2025. Expand to Statesboro by end of FY 2026.	Reduce Scope 3 Emissions associated with wastes.	Establish team create implementation plan.
ECM- WASTE-ST- 003	Create education program on Food Waste.	Education to raise awareness and create culture change. Reduction of waste associated emissions.	Set portion control standards at serving stations.
ECM- WASTE-ST- 004	Decrease single use plastics in dining locations by 50% by end of FY 2023. Completely eliminate by end of FY 2026.	Education to raise awareness and create culture change.	ECM-WASTE-ST-004.1 Eliminate plastic straws, styrofoam boxes, and cups, plastic bags, etc.  ECM-WASTE-ST-004.2 Buying more paper/compostable products in lieu of plastic. Possibly utilize reusable containers.
ECM- WASTE-ST- 005	Reduce printed paper consumption on campuses by 20% by FY 2026.	Reduce Scope 3 Emissions associated with wastes.	Obtain baseline data for paper use.
ECM- WASTE-ST- 006	Develop targeted marketing campaign to reduce contamination of recycle streams by promoting recycling with signage	Increase, collaborate, advertise organized Campus wide recycling efforts.	ECM-WASTE-ST-006.1 Conduct campaigns aimed at students/ staff/faculty to raise awareness about recycling.
	similar to the (COVID-19) signs.	Promote the importance of collaboration and inclusivity. Each individual is key to the success of our program to increase waste diversion rate.	ECM-WASTE-ST-006.2 Place additional recycling receptacles for various waste types throughout campuses, including walkways and buildings. Designate spaces to house marked containers for specific recycling streams. Produce a yearly tonnage and emissions reduction report that is communicated throughout campus.  ECM-WASTE-ST-006.3 Recruit Human

Item			
Number	Description	Expected Impact	Implementation Plan
			Resources (HR) and Admissions departments to incorporate recycle initiatives into On-Boarding and Southern's Orientation, Advisement and Registration (SOAR) programs.
ECM- WASTE-ST- 007	Utilize existing digital signage by adding recycling messages.	Education to raise awareness and create culture change.	Inventory existing signs to identify coverage area and initiate new messaging by end of FY 2021.
ECM- WASTE-ST- 008	Reinstate the preference to utilize paper made with a 30% of recycled content by FY 2026.	Education to raise awareness and create culture change.	ECM-WASTE-ST-008.1 Procurement to communicate preference to faculty/staff/ students.  ECM-WASTE-ST-008.2 Target ePro users who shop electronic marketplace.
ECM- WASTE-ST- 010	20% of waste diverted from landfill by FY 2026.	Reduce Scope 3 Emissions associated with wastes.	ECM-WASTE-ST-010.1 Create behavior change marketing campaign focused on recycling. Utilize signage per ECM-WASTE-ST-006.  ECM-WASTE-ST-010.2 target consumption habits of the campus community.

Table 6 | Behavior/Operational Measures: Intermediate-Term Initiatives (5 - 15 Years)

Item Number	Description	Expected Impact	Implementation Plan
ECM-BH_MNG- IT-001	Create sustainability onboarding for new employees	Education to raise awareness and create culture change	Implement a briefing of the CAP for new employees on campus
ECM-TRANSP- IT-001	Evaluate and prepare a strategic plan to implement an electric university fleet and associated infrastructure.	Reduce Scope 1 Emissions from direct transportation.	The P & T Office and Facilities Services will strive to purchase an electric fleet for the university. This will include a comprehensive investigation in the procurement of buses and other university vehicles, as well as associated infrastructure. Plan will be shared for approval of the Vice President for Business and Finance.
ECM-TRANSP- IT-002	Expand zipcar rentals for Armstrong and Liberty campuses.	Reduce Scope 3 Emissions associated	The P & T Office will continue to engage in negotiations with representatives of Zipcar to expand



ltem			
Number	Description	Expected Impact	Implementation Plan
		with student and faculty commuting.	the program to the Armstrong and Liberty campuses. P & T can provide updates on the negotiation.
ECM-TRANSP- IT-003	Add buses to Savannah campus routed around immediate area apartment complexes	Reduce scope 3 reductions associated with student commuting	Coordinate through CAT.
ECM-WASTE-IT- 001	Reduce pre-consumer food waste from dining halls/catering/retail units from FY 2024 baselines by 25% by end of FY 2030. Reduce by 40% by end of FY 2035.	Reduce Scope 3 Emissions associated with wastes	Expand on structure/momentum from short term initiative implementation.
ECM-WASTE-IT- 002	Expand GS ownership of waste compactors to improve utilization.	Reduce Scope 3 Emissions associated with wastes	Negotiate purchase from current vendors or replace with new.
ECM-WASTE-IT- 003	Add hydration stations to outdoor areas on campus.	Reduce the use of plastics.	Add to bus stops, other populated areas.
ECM-WASTE-IT- 004	Reduce printed paper consumption on campuses by 50% by FY 2036.	Reduce Scope 3 Emissions associated with wastes.	IT Services insure all computers are imaged with Enterprise licensing to digital platforms for conducting business where possible. Continue to provide video training on "How to" in Folio or BBU.
ECM-WASTE-IT- 006	Organize two recycling events throughout the year.(technology and shredding).	Education to raise awareness and create culture change.	Work with community outreach to organize and promote events.
ECM-WASTE-IT- 007	Obtain a minimum of 3 external grants by 2035. Funding amount goal 50k or more.	Provide funding source.	Partner with Georgia Department of Natural Resources or similar groups.



Table 7 | Behavior/Operational Measures: Long-Term Initiatives (Greater Than 15 Years)

Item			
Number	Description	Expected Impact	Implementation Plan
ECM-BH_MNH- LT-001	Implement Green Labs program to introduce sustainable practices and technologies into lab buildings.	Scope 2 - Purchased Electrical Reduction/ Educate and Increase awareness.	Research benchmark universities.

# Other Energy Conservation Strategies

#### Offset Strategies

The purchase of renewable energy certificates (RECs) generated by external GHG emission reduction programs are sometimes used as a supplemental strategy to direct emission reduction projects to achieve carbon neutrality. GS is not currently considering offsets to be a significant part of its overall reduction strategy. In the future GS may revisit this strategy as part of future CAP updates.

#### **Demand Side Reduction Strategies**

GS's GHG emissions are primarily generated by GS's use of electricity, and natural gas to power and condition GS facilities and systems. Demand side strategies include: applying changes to existing technologies, and applications of new alternative technologies to reduce GHG emissions. Changes in behavior and operational practices also play a major role in our demand side approach to reducing GHG emissions.

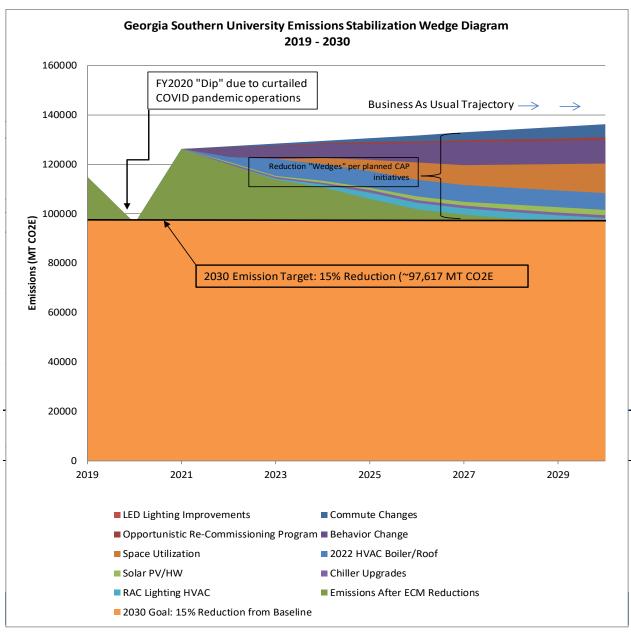
#### Supply Side Reduction Strategies

The PCLC recognizes GHG emissions generated outside of direct GS control, but in support GS operations. The supply side reduction strategies focus on considering the use of alternative fuels, energy sources and electric generating technologies that have reduced GHG emissions than those currently used. Furthermore, supply side reduction strategies will be applied as new technologies are introduced to GS campus.



#### 2030 CUMULATIVE IMPACT PROJECTION

Figure 4: FY 2019 – 2030 GHG Emissions Stabilization Wedge Diagram





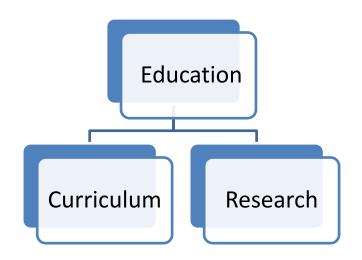


Diagram 3 | Curriculum, Education, and Research Initiatives

Introduction to GS's commitment to sustainability and climate action planning starts early at GS. In collaboration with the Division of Enrollment Management, all SOAR Leaders and Southern Ambassadors are trained to incorporate sustainability messaging into campus tours. These students are tour guides for prospective GS students and receive sustainability tour information and guidance from the Sustainability Coordinator within the Office of Leadership and Community Engagement before SOAR sessions begin each year.

A Curriculum Initiatives committee was established as a part of CAP planning for the purpose of developing goals and associated action items related to updating and aligning the sustainability education objectives for students, including the following:

- Standardizing and aligning the criteria for climate change/sustainability-related courses across the GS departments, colleges, and campuses.
- Providing first-year students with opportunity for increased exposure to climate change/sustainability-related courses
- Increasing currently enrolled and prospective student awareness of climate change and sustainability issues.
- Encouraging student interest in climate change and sustainability such that student involvement in sustainability research and community engagement increases

The Curriculum Initiatives committee developed a list of short- (1 - 5 years), intermediate- (5 - 15 years), and long-term (greater than 15 years) initiatives and action items under the implementation plan. These initiatives are summarized below in Tables 8, 9, and 10.

<u>Table 8 | Curriculum Initiatives: Short-Term Initiatives (1 - 5 Years)</u>

Initiative			
Number	Initiative Description	Expected Impact	Implementation Plan
CURR-ST-001	Create a list of standards and/or criteria for climate change or sustainability courses.	Education to raise awareness and create culture change.	CURR-ST-001.1 - Create a criteria list for identifying sustainability courses.  CURR-ST-001.2 - Create a sustainability course ID.  CURR-ST-001.3 - Survey faculty to accumulate a detailed list of courses with climate change/sustainability content; assess climate change/ sustainability penetration into curriculum.
CURR-ST-002	Determine the extent to which students are exposed to climate change and sustainability topics in academic courses and programs.	Education to raise awareness and create culture change.	CURR-ST-002.1 - Survey faculty to accumulate a detailed list of courses with climate change/sustainability content; assess climate/ sustainability penetration into curriculum.
CURR-ST-003	Determine how to increase the population of students exposed to climate change/ sustainability topics across all campuses.	Education to raise awareness and create culture change.	CURR-ST-003.1 - Integrate options for climate change/sustainability into aspects of First Year Experience (FYE) and Second Year Experience *(SYE).  CURR-ST-003.2 - Offer assistance to faculty to develop or integrate climate change/sustainability science topics; find & adapt former Center of Sustainability modules for sustainability advising certification (resources required).  CURR-ST-003.3 - Add BS in Sustainability Science and minor.
CURR-ST-004	Link climate change & Sustainability Science to GS Diversity, Equity & inclusion (DEI).	Education to raise awareness and create culture change.	CURR-ST-004.1 - Demonstrate connection between DEI and climate change/sustainability within courses climate change/sustainability course tag.  CURR-ST-004.2 - Create a standard for how to link Climate Change/ Sustainability to DEI.

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT= Long Term); ###=sequential item number.



Table 9 | Curriculum Initiatives: Intermediate-Term Initiatives (5 - 15 Years)

Initiative Number	Initiative Description	Expected Impact	Implementation Plan
CURR-IT-001	Continue to increase the population of students exposed these topics.	Education to raise awareness and create culture change.	CURR-IT-001.1 - Add Master of Science (MS) and Doctorate (PhD) degrees in Environmental Science. CURR-IT-001.2 - Improve the Center for Sustainability to sponsor academic speakers, fundraise to support student researchers
CURR-IT-002	Increase faculty engagement with climate change/sustainability.	Education to raise awareness and create culture change.	CURR-IT-002.1 - Workshop for faculty to develop climate change/sustainability courses. CURR-IT-002.2 - Enhance climate change/sustainability study abroad opportunities.

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT= Long Term); ###=sequential item number.

Table 10 | Curriculum Initiatives: Long-Term Initiatives (Greater Than 15 Years)

Initiative Number	Initiative Description	Expected Impact	Implementation Plan
CURR-LT- 001	Ensure that 95% of GS graduates have climate change/sustainability coursework.	Education to raise awareness and create culture change.	CURR-LT-001.1 - Improve inclusion of climate change/sustainability courses across curricula on all campuses.  CURR-LT-001.2 - Expand service and experiential learning opportunities in climate change/sustainability to a requirement for students.

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT= Long Term); ###=sequential item number.

## Approach to Research Initiatives

Currently, GS has strong research programs in renewable fuels, biodiversity and conservation housed in various colleges. GS is committed to expanding the already extensive climate change and sustainability-related research programs to include the three distinct campuses as well as every department and college.



A Research Initiatives committee was established as part of CAP planning for the purpose of developing goals and associated action items related to the following:

- Improving students' access to climate change and sustainability-related research opportunities;
- Increasing the number of students involved in climate change sustainability research;
- Improving GS's faculty base in climate change and sustainability-related research;
- Standardizing the campus guidelines for climate change and sustainability-related research:
- Incorporating ECMs and Curriculum Initiatives into Research Initiatives and opportunities;
   and
- Expanding GS's climate change and sustainability-related research to include the three distinct campuses and all departments and colleges.

The Research Initiatives committee developed a list of initiatives and action items under the implementation plan. These initiatives are summarized below in Tables 11, 12, and 13.

Table 11 | Research Initiatives: Short-Term Initiatives (1 - 5 Years)

Initiative			
Initiative Number	Initiative Description	Expected Impact	Implementation Plan
RES-ST- 001	Increase the number of students engaged in climate and climate education-related research (undergraduate and graduate).	Education to raise awareness and create culture change.	RES-ST-001.1: Identify current student grants on sustainability, energy and GHG reduction.
	Engage those who are interested or engaged in climate change and climate change-related research.		RES-ST-001.2: Begin discussion with the GS Office of Research to secure targeted resources to support student research ongoing through 2050.
	Engage those who are not interested or not personally involved in climate change and climate change-related research to increase overall involvement.		RES-ST-001.3: Increase informal engagement opportunities for faculty, staff, student and community interactions toward climate-awareness.
RES-ST- 002	Evaluate change in campus climate regarding climate understanding, acceptance, and pro-environmental behaviors.	Education to raise awareness and create culture change.	RES-ST-002.1 - Establish a baseline/use existing knowledge of students climate change perceptions.



Initiative			
Number	Initiative Description	Expected Impact	Implementation Plan
RES-ST- 003	Increase the number of climate- related programs and activities available to students.	Education to raise awareness and create culture change.	RES-ST-003.1 - Coordinate with all planners of climate-related programming and activities to develop a baseline of current activities directed at climate change.
RES-ST- 004	Increase climate and climate education-related research across colleges by filling gaps in faculty expertise regarding different aspects of energy, climate and climate-education related research.	Education to raise awareness and create culture change.	RES-ST-004.1 - Hire and promote qualified and diverse faculty whose research to some degree addresses climate and climate-education related research.  RES-ST-004.2 - Identify opportunities for future sustainability or energy and climate-change related research initiatives/projects.  RES-ST-004.3: Assign committee to work with the Office of Research Services and Sponsored Programs (ORSSP) to explore funding opportunities available for energy, climate and climate-education related research and increase proposals submitted AND to quantify grant activity and success rate from 2014-2020.
RES-ST- 005	Increase credit given faculty who engage in collaborative research, teaching, and outreach related to energy, climate change and climate-change education.	Education to raise awareness and create culture change.	Increase the percentage of faculty and/ or staff whose engagement in sustainability/ energy/ climate change research includes cross-discipline collaborations.
RES-ST- 006	Encourage faculty research lines to include evaluation of objectives, from Education, (e.g., student researchers' perceptions. How do their research experiences affect their pro-environmental behaviors regarding climate change, as well as the peers they might influence).	Education to raise awareness and create culture change.	Increase by 1% per year (from 2022 baseline) collaborations between researchers and facilities on climate-related activities and programs ongoing till by 2024.
RES-ST- 007	Increase international research profile in areas of energy, climate and climate-education research, including increased international collaborations.	Education to raise awareness and create culture change.	Participation in international conferences and publishing in peer reviewed journals.
RES-ST- 008	Creation of a 'living lab' course and research project, physical space.	Education to raise awareness and create culture change.	Seek, obtain extramural funding to support the Living lab concept with physical space for multidisciplinary learning starting 2022.



Initiative	Indicative Basedation	E-marked books	lumber of the Plan
Number RES-ST- 009	Initiative Description  Develop guidelines and procedures for infusing climate change and climate-education related research into existing departments.	Expected Impact Education to raise awareness and create culture change.	Implementation Plan Establish presidential commission to develop guidelines.
RES-ST- 010	Increase recognition/promotion of energy/climate change and GS climate change and climate-change education efforts by executive leadership (e.g., president's announcements, newsletters, etc.)	Education to raise awareness and create culture change.	Provost lecture series on energy & climate change and climate change education-related research.
RES-ST- 011	Highlight sustainability/energy/ efforts as requisite to addressing both global and local challenges.	Education to raise awareness and create culture change.	RES-ST-011.1: Discuss guidelines for an annual report to recognize climaterelated efforts, which informs promotion and tenure decisions.  RES-ST-011.2: Work with GS library to create a library support guide related to sustainability.
RES-ST- 012	Encourage faculty to increase research and teaching to address climate change and climate change-education.	Education to raise awareness and create culture change.	RES-ST-012.1: Develop new/enhance existing website regarding climate-related research and outreach. RES-ST-012.2: Create a special session on climate research and teaching at GS's annual research symposium on climate research and teaching. RES-ST-012.3: Develop a core faculty that can teach about climate research across the university at all campuses
RES-ST- 013	Increase faculty expertise related to climate change and climate change-education through identifying current expertise, providing professional development to increase expertise across faculty, and when necessary, directing hires to fill gaps in expertise.	Education to raise awareness and create culture change.	Create committee to analyze current campus climate regarding climate-awareness.
RES-ST- 014	Increase and promote sustainability and energy conservation and efficiency research challenge initiatives at Georgia Southern (e.g., see Division of Student Affairs and Office of Leadership and Community Engagement website on sustainability) and increase students' interactions with that website.	Education to raise awareness and create culture change.	Increase interaction between peers, scholars, and researchers around sustainability themes.

Initiative Number	Initiative Description	Expected Impact	Implementation Plan
	https://students.georgiasouthern.ed u/LeadServe/sustainability/		

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT= Long-term); ###=sequential item number.

Table 12 | Research Initiatives: Intermediate-Term Initiatives (5 -15 Years)

Initiative			
Number	Initiative Description	Expected Impact	Implementation Plan
RES-IT- 001	Increase the number of students engaged in climate and climate education-related research (undergraduate and graduate).  Engage those who are interested or engaged in climate change and climate change-related research.  Engage those who are not interested or not personally involved in climate change and climate change and climate change related research to increase overall involvement.	Education to raise awareness and create culture change.	RES-IT-001.1: Continue discussion with GS library (3 campuses) for support related to climate research.  RES-IT-001.2: Increase the number of students (at all levels) engaged climate-related activities and programs on campus by 1% (from 2022 baseline) ending in 2025.  RES-IT-001.3: Increase the Office of Research, extramural sources targeted support for student research by 1% ending in 2025.
RES-IT- 002	Evaluate change in campus climate regarding climate understanding, acceptance, and pro-environmental behaviors.	Education to raise awareness and create culture change.	Annualized survey, with results to be aggregated after 5 years to give us a look over time.
RES-IT- 003	Increase the number of climate-related programs and activities available to students.	Education to raise awareness and create culture change	Increase the number of climate-related activities and programs on campus by 1% (from 2022 baseline) ending in 2025
RES-IT- 004	Increase climate and climate education- related research across colleges by filling gaps in faculty expertise regarding different aspects of energy, climate and climate-education related research.	Education to raise awareness and create culture change.	Increase the number of undergraduate and graduate student engaged energy, climate-related activities and programs on campus by 1% (from 2022 baseline) ending in 2025.
RES-IT- 005	Offer interdisciplinary undergraduate and graduate degrees with energy and climate themes.	Education to raise awareness and create culture change.	Create, implement faculty-student research learning collaborative energy and climate and climate-education related research, training and related pedagogy (teaching, presentations, publication) – ongoing, open-ended. (We do have the Energy cluster already doing that.)



Initiative			
Number	Initiative Description	Expected Impact	Implementation Plan
RES-IT- 006	Creation of a 'living lab' course and research project, physical space.	Education to raise awareness and create culture change.	Seek, obtain extramural funding to support the Living lab concept with physical space for multidisciplinary learning starting 2025.
RES-IT- 007	Develop guidelines and procedures for infusing climate change and climate-education related research into existing departments.	Education to raise awareness and create culture change.	Adopt policies that give positive recognition to faculty engaged in climate change and climate change education-related research and teaching.
RES-IT- 008	Increase recognition/promotion of energy/climate change and GS climate change and climate-change education efforts by Upper admin (e.g., president's announcements, newsletters, etc.).	Education to raise awareness and create culture change.	University Awards, recognize leaders in climate change (research, efforts) and expanding the standard of sustainability.
RES-IT- 009	Highlight sustainability/energy/ efforts as requisite to addressing both global and local challenges.	Education to raise awareness and create culture change	Establish annual report mechanism to recognize climate-related efforts, which informs promotion and tenure decisions.
RES-IT- 010	Increase climate and climate-education fundraising efforts.	Education to raise awareness and create culture change	Work with the administration to establish financial incentives and recognition programs for climate change and climate change education-related research and teaching.
RES-IT- 011	Encourage faculty to increase research and teaching to address climate change and climate change-education.	Education to raise awareness and create culture change.	Communication between admin and departments to encourage climate-related leadership capacity and new hires.
RES-IT- 012	Increase faculty climate change and climate change-education expertise across faculty through professional development and when necessary, directing hires to fill gaps in expertise.	Education to raise awareness and create culture change.	Identify gaps in climate-related research and teaching expertise.
RES-IT- 013	Enhance network of partnerships to advance research, education, and outreach related to climate change.	Education to raise awareness and create culture change.	Interaction between colleges to focus directed climate hires.
RES-IT- 014	Develop and promote a physical space for collaborative sustainability work.	Education to raise awareness and create culture change.	Amplify the Center for Sustainability's work through the Institute of Coastal Plain Science within Academic Affairs.
RES-IT- 015	Increase extramural funding for sustainability/climate change related research	Education to raise awareness and create culture change.	Identify potential funding sources and establish tracking metric to track sustainability/climate research related funding

Note: Item Numbering Convention: AAA--BB-##: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT = Long-term); ###=sequential item number.



Table 13 | Research Initiatives: Long-Term Initiatives (Greater Than 15 Years)

Initiative Number	Initiative Description	Expected Impact	Implementation Plan
RES-LT- 001	Increase the number of students engaged in climate and climate education-related research (undergraduate and graduate).  Engage those who are interested or engaged in climate change and climate change-related research  Engage those who are not interested or not personally involved in climate change and climate change-related research to increase overall involvement	Education to raise awareness and create culture change.	RES-LT-001.1: Continue discussion with GS library (3 campuses) for support related to climate research.  RES-LT-001.2: Sustain the Office of research's targeted support for student research at 10% of all student research funding ending in 2050.
RES-LT- 002	Increase the number of climate- related programs and activities available to students.	Education to raise awareness and create culture change.	Sustain the number of climate-related activities and programs on campus at 10% of all student activities ending in 2050.
RES-LT- 003	Increase climate and climate education-related research across colleges by filling gaps in faculty expertise regarding different aspects of energy, climate and climate-education related research.	Education to raise awareness and create culture change.	Sustain 10% (from 2022 baseline) level of collaborations between researchers and facilities on energy and climaterelated activities and programs ongoing till 2050.
RES-LT- 004	Creation of a 'living lab' course and research project, physical space.	Education to raise awareness and create culture change.	Continue to seek, obtain extramural funding to support the Living lab concept with physical space for multidisciplinary learning up and going with physical space for multidisciplinary learning through 2035.

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT= Long-term); ###=sequential item number.

# Approach To Community Engagement Initiatives

GS is dedicated to helping to educate our campus communities in sustainability, energy and GHG reduction and climate change mitigation and to foster collaborative teams by creating successful relationships with other community stakeholders and striving to expand the impact of sustainability initiatives in a coordinated manner. It is vital that the University includes our three distinct campus communities to create unity in achieving GS sustainability goals, not just as a university, but as a



community member. GS intends to engage its many campus communities on the issues of sustainability, energy research and reducing overall GHG emissions through internal, external, and personal initiatives/goals focused on encouraging sustainability-focused culture.

The Community Engagement Initiatives committee developed a list of short- (1-5 years), intermediate- (5-15 years), and long-term (greater than 15 years) initiatives and action items under the implementation plan. These initiatives are summarized below in Tables 14, 15, and 16. It is noted that these initiatives also incorporate consideration of the ECMs and Curriculum and Research initiatives.

Table 14 | Community Engagement Initiatives: Short-Term Initiatives (1 - 5 Years)

Initiativa			
Initiative Number	Initiative Description	Expected Impact	Implementation Plan
CE-ST-001	Enhance and create sustainability events to include Climate Action Plan education	Increased sustainability culture and awareness	CE-ST-001.1 - Create partnerships to host annual green programs outside of Sustainability to educate the campus community on the Climate Action Plan  CE-ST-001.2 - Host a sustainability week each spring semester on every campus.  CE-ST-001.3 - "GreenFest" event.  CE-ST-001.4 - Farmers Market (on-campus).
CE-ST-002	Generate university and administrative support for the CAP.	Increased sustainability culture and awareness.	CE-ST-002.1 - Create a Sustainability Liaison on campus committees and governance groups (SGA, faculty senate, and staff council).  CE-ST-002.2 - Add sustainability component to "Operational Efficiency" for President's Cabinet scorecards.  CE-ST-002.3 - continue restructuring of Sustainability office to hire a permanent full time director to manage strategic sustainability initiatives on campus

Initiative			
Number	Initiative Description	Expected Impact	Implementation Plan
			(such as CAP and Association for the Advancement of Sustainability in Higher Education [AASHE] Sustainability Tracking, Assessment & Rating System™ [STARs™])
CE-ST-003	Create a comprehensive communications and marketing plan for CAP and/or sustainability efforts	Increased sustainability culture and awareness	CE-ST-003.1 - Create a website for Sustain Southern within Student Affairs that details goals, highlights research by faculty and collects resources to engage the community.  CE-ST-003.2 - Create branding for Sustain Southern and/or sustainability efforts within the university.  CE-ST-003.3 - Create a campaign associated with university sustainability efforts.  CE-ST-003.4 - Announce sustainability campaign in university wide communication.

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT = Long Term; ###=sequential item number.

Table 15 | Community Engagement Initiatives: Intermediate-Term Initiatives (5 - 15 Years)

Initiative Number	Initiative Description	Expected Impact	Implementation Plan
CE-IT-001	Implement uniform sustainability fee for all campuses	Fee would help fund the various efforts and initiatives by the university towards reducing GHG emission and educate about sustainability on campus	CE-IT-002.1 - Utilize liaisons to establish desire within the student body.  CE-IT-002.2 - Submitting for approval for newly created fee.  CE-IT-002.3 - Implement Fee at Armstrong and Statesboro.

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT = Long Term; ###=sequential item number.



Table 16 | Community Engagement Initiatives: Long-Term Initiatives (Greater Than 15 Years)

Initiative Number	Initiative Description	Expected Impact	Implementation Plan
CE-LT-001	Finding ways to offset GHG during large-scale programs on any GS campus including Operation Move-In (OMI), SOAR, Graduation, Sporting Events, etc.	Meeting GHG Reduction	CE-LT-001.1: Research into carbon neutral events and creating a baseline checklist.  CE-LT-001.2: Develop a committee to look at large-scale events and opportunities to further integrate climate action goals (reduce waste output, GHG emissions, etc.).

Note: Item Numbering Convention: AAA--BB-###: AAA= CAP Area (Curriculum, Research or Community Outreach); BB=Planning Horizon (ST=Short Term, IT=Intermediate Term; LT = Long Term; ###=sequential item number.

#### **IMPLEMENTATION**

To implement the above listed goals, the Sustainability Advisory Committee will champion subgroups to assist in achieving the above goals. The implementation of project will be completed as budgets permit. Recognizing the available budget restraints, this overall committee will actively meet quarterly to strategize program priorities and monitor progress, while the subcommittees will meet more regularly in order to implement the CAP. Within these subcommittees GS will prioritize having committees, including but not limited to, energy conservation, curriculum and research, and community outreach and engagement. Each committee will utilize the CAP as guidance on where to move throughout the years ahead. These committees will move forward with the integration of the CAP and its content, as well as committing to increasing a culture of sustainability on all campuses. In addition, Sustain Southern, in coordination with the Sustainability Advisory Committee, will create an implementation plan based on the suggestions within the CAP.

GS will continue to annually report via the Second Nature platform, while integrating CAP updates for annual reports to senior administration. GS commits to the CAP being a living document, ensuring to update the plan every five years, with the next update taking place during FY 2026.

### **CONCLUSIONS**



The approach in refreshing GS's CAP has been to build on initial 2014 CAP, but recognize the organizational and operational changes that has arisen through the integration of the Armstrong and Liberty campuses. The 2021 CAP builds on the initial 2014 CAP and previously undertaken initiates to create a new framework for the continuous consideration and improvement of GHG emissions. The immediate focus of the CAP is to implement actionable short-term initiatives to achieve a goal of a 15% reduction in GHG emissions by 2030 compared to GS baseline emissions rate established in FY 2019. The long-term goal of GS's CAP is to achieve carbon neutrality. The projects and strategies identified for short term implementation represent specific strategies that utilize readily identifiable technologies and are in alignment with USG plans. During the short-term implementation period, the Sustainability Advisory Committee will continue to identify both short-, intermediate-, and long-term projects and initiatives to continue to improve GS's progress toward its immediate 2030 reduction goal and its long-term carbon neutrality objective. It is recognized that the CAP is a living document and that modifications to the Plan and strategies therein will have to be made to meet the challenge facing GS in reaching the stated goal of carbon neutrality by 2050.

This plan is endorsed by GS President, President's Cabinet, Sustainability Advisory Committee, Faculty, Staff and Students.



## **ACKNOWLEDGEMENTS**

### Co-Chairs

- Co-Chair Jodi Kennedy Office of Leadership and Community Engagement, Director
- Co-Chair Cami Sockow Office of Leadership and Community Engagement, Sustainability Coordinator

### Ramboll Consultants

- John Boneberg. PE; Senior Project Manager
- Tricia D'Agostino, PE; Project Associate

#### **General Committee**

			•
PARTICIPA	NT NAME	DEPARTMENT	TITLE
Lance	McBrayer	Biology	Associate Dean of Faculty
			& Research Programs
Michele	Martin	Student Wellness and Health Promotion	Associate Director
John	Banter	Office of Leadership and Community	Associate Director
		Engagement	
Steve	Watkins	Facilities Services	Energy Manager
Michael	Murphy	University Communications and	Director of Auxiliary
		Marketing	Services Marketing
Theresa	Mason	Procurement and Logistical Services	Purchasing Supervisor
Tiffoni	Buckle-McCartney	Facilities Services	Environmental and
			Sustainability Manager
Tatiana	Joseph-Saunders	Journalism	Student
Temitayo	Adebile	Public Heath	Graduate Student
Isabella	Nelson	Public Health	Graduate Student
Lashunda	Morris	SGA	Graduate Student
Shanice	Patterson	SGA	Student Representative



In addition to the general committee above, the revised CAP included contributions from Energy Conservation Measures, Curriculum, Research and Community Engagement subcommittees that included participants from:

Department	Department
Athletics	Logistics and Supply Chain Management
Auxiliary Services	Mechanical Engineering
Biology	Middle Grades & Secondary Education
Chemistry & Biochemistry	Public Health
Civil Engineering	Office of Leadership and Community Engagement
Communication Arts	Office of Multicultural Affairs
Planning, Construction and Design	Parking and Transportation
Campus Recreation and Intrarmurals	Political Science
Curriculum Studies	Procurement
Eagle Dining	Student Government Association
Economics	Sustain Southern
Facilities Services	University Communications & Marketing
Finance	University Housing
Fraternity and Sorority Life	University Stores
Geology& Geography	Student Wellness and Health Promotion
Institute of Coastal Plain Sciences	Writing & Linguistics
Kinesiology	