



UNIVERSITY OF MARYLAND

UNIVERSITY SENATE

1100 Marie Mount Hall
College Park, Maryland 20742-7541
Tel: (301) 405-5805 Fax: (301) 405-5749
<http://www.senate.umd.edu>

SENATE LEGISLATION APPROVAL

Date:	April 7, 2017
To:	Wallace D. Loh
From:	Jordan Goodman Chair, University Senate 
Subject:	Approval of The University of Maryland Climate Action Plan 2.0
Senate Document #:	16-17-30


I am pleased to forward for your consideration the attached legislation entitled, "The University of Maryland Climate Action Plan 2.0." Carlo Colella, Vice President for Administration and Finance, presented the proposal. The University Senate approved the proposal at its April 7, 2016 meeting.

We request that you inform the Senate Office of your decision as well as any subsequent action related to your conclusion.

Enclosure: Approval of The University of Maryland Climate Action Plan 2.0
Senate Doc. No. 16-17-30

JG/rm

Cc: Mary Ann Rankin, Senior Vice President and Provost
 Reka Montfort, Executive Secretary and Director, University Senate
 Michael Poterala, Vice President and General Counsel
 Cynthia Hale, Associate Vice President for Finance and Personnel
 John Bertot, Associate Provost for Faculty Affairs
 Elizabeth Beise, Associate Provost for Academic Planning & Programs
 Sylvia B. Andrews, Academic Affairs
 Carlo Colella, Vice President of Administration and Finance
 Anne Martens, Assistant Vice President for Administration & Finance
 Scott Lupin, Director, Office of Sustainability

Approved: 
 Wallace D. Loh
 President

Date: 04-21-2017



University Senate TRANSMITTAL FORM

Senate Document #:	16-17-30
PCC ID #:	N/A
Title:	University of Maryland Climate Action Plan 2.0
Presenter:	Carlo Colella, Vice President for Administration & Finance
Date of SEC Review:	March 27, 2017
Date of Senate Review:	April 6, 2017
Voting (highlight one):	<ol style="list-style-type: none"> 1. On resolutions or recommendations one by one, or 2. In a single vote 3. To endorse entire report
Statement of Issue:	<p>In December 2016, the Sustainability Council endorsed Climate Action Plan (CAP) 2.0, the first update to UMD's CAP developed in 2009. The 2009 plan was endorsed by the University Senate and approved by President Mote.</p> <p>The 2009 CAP set the university on course for cutting its carbon footprint 25% by 2015 and achieving carbon neutrality by 2050. The university has achieved all CAP targets to date, prevented more than 577,000 metric tons of carbon dioxide from reaching the atmosphere, and expanded opportunities for students to learn about sustainability and climate action.</p> <p>CAP 2.0 is an update of the original CAP and describes current and future strategies to reduce emissions 50% by 2020 and 60% by 2025 (from 2005 emissions levels) and to meet other CAP targets including ones related to education and research. All major carbon reduction targets remain unchanged from the original CAP.</p> <p>A new online format will allow the campus community to stay informed with regular status updates on the implementation of each strategy. The new numbering system (2.0) is a flexible format for CAP, making it easy to publish minor updates (ex. version 2.1, 2.2, etc.), prior to a full revision of CAP due by 2025. The Senate Executive Committee will receive a summary of updates whenever the Office of Sustainability changes versions from 2.0 to 2.1, 2.1 to 2.2, etc.</p>
Relevant Policy # & URL:	www.climateplan.umd.edu
Recommendation:	The Vice President for Administration & Finance recommends that the University Senate endorse CAP 2.0.

<p>Committee Work:</p>	<p>After the University Senate approved the original CAP in 2009, the University President created a standing University Sustainability Council to advise the President, the Office of Sustainability, and the campus community about issues related to the integration of sustainability into campus operations and to oversee implementation of CAP. The Sustainability Council, chaired by the Vice President for Administration & Finance, has 15 members including a representative from each division, four faculty members, one graduate student, and one undergraduate student.</p> <p>The Office of Sustainability and Sustainability Council began revising CAP strategies several years ago. Several key strategies were developed by workgroups with broad campus representation. These included the Sustainable Buildings and Energy Sources Workgroup, Education for Sustainability Workgroup, and Carbon Offset Workgroup. Sustainability Council endorsed CAP 2.0 in December 2016. The Administrative Council reviewed CAP 2.0 in March 2017.</p>
<p>Alternatives:</p>	<p>The University of Maryland is a charter participant of the American College and University Presidents’ Climate Commitment (now called the Carbon Commitment), which requires signatories to develop and regularly update climate action plans. Because the university intends to maintain its status as a signatory, having no CAP or an outdated CAP are not options.</p> <p>CAP 2.0 describes a set of achievable and cost-effective strategies given technologies available today. Alternative approaches to achieving goals are continually evaluated and, when appropriate, new strategies will be endorsed and incorporated in plan updates.</p>
<p>Risks:</p>	<p>The known risks of climate change are too numerous to list here but those risks are the reasons that the world’s nations agreed during a United Nations conference last year to take collective action to curb greenhouse gas emissions. Obviously, the University of Maryland’s emissions are a tiny fraction of global emissions but solving the climate crisis requires action at every scale. This university is currently recognized as a leader on climate action, a status that carries with it measurable and immeasurable reputational benefits. Not approving CAP 2.0 would put that reputation in jeopardy. Furthermore, the university’s progress on climate action could stagnate since it would not have a plan that accurately describes its current and future strategies to meet its CAP 2009 targets.</p>
<p>Financial Implications:</p>	<p>The Office of Sustainability and the Environmental Finance Center estimate that the university will save a net total of \$167 Million between 2016 and 2040 by implementing CAP 2.0 strategies.</p>
<p>Further Approvals Required:</p>	<p>Senate Approval, Presidential Approval</p>

DRAFT
March 2017



University of Maryland **Climate Action Plan 2.0**



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Climate Action Plan (CAP) 2.0 is meant to be viewed as a webpage.

Please visit www.climateplan.umd.edu.

This PDF version was prepared exclusively for the University Senate and Administrative Council.

PDF Date: March 13, 2017

CAP 2.0 was approved by the University Sustainability Council in December 2016.

Additional Approvals Required:

University Administrative Council

University Senate

University President



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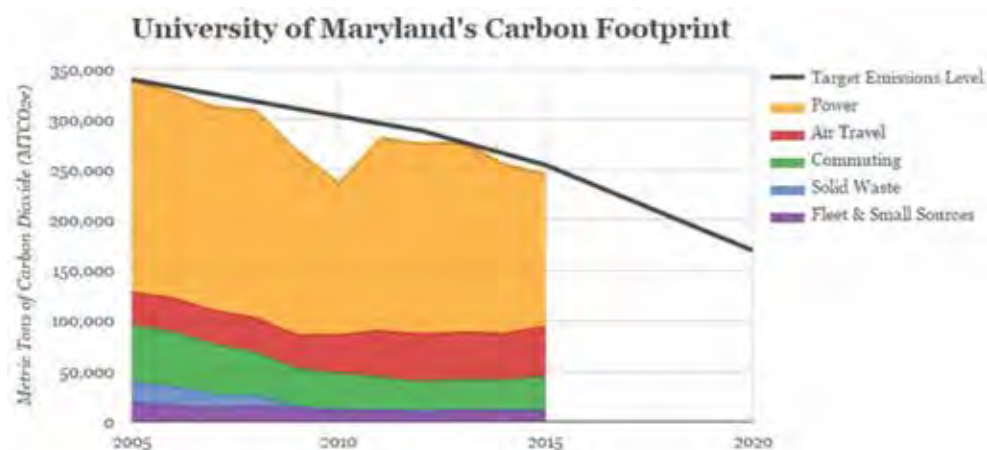
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INTRODUCTION

The University of Maryland became a charter signatory of the **American College and University Presidents' Climate Commitment** (now called the **Carbon Commitment**) in 2007 and finished its first **Climate Action Plan (CAP)** in 2009. Many faculty, staff, and students worked tirelessly over the years implementing CAP strategies and keeping the university on track with meeting its targets. By 2015, the university had achieved its targets of **reducing its carbon emissions by 25%** and enhancing opportunities for all students to learn about sustainability and climate action.

CAP 2.0 is an update to the original CAP and clarifies the university's strategies for meeting upcoming targets, including a **50% reduction** in carbon emissions (from 2005 levels) by 2020 and a **60% reduction** by 2025. These are aggressive targets to hit, which is why this CAP 2.0 focuses on strategies that are currently being implemented or need to be implemented within the next several years to meet near-term goals. The university is committed to achieving carbon neutrality for all scopes of emissions by 2050 and will make major updates to CAP at least every five years to include strategies that are based on the best knowledge and technology available at that time.

This new [online format](#) and numbering system (2.0) is a flexible format for CAP, making it easy to publish minor updates (ex. version 2.1, 2.2, etc.), including annual status reports on each strategy. As a "living document," the Office of Sustainability welcomes your feedback and ideas to help the university meet and exceed its goals. Please email sustainability@umd.edu to share your thoughts.





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The University of Maryland has already achieved many of its original CAP goals. Notable accomplishments include:

- **Reducing its carbon footprint 27%** from 2005 to 2015 despite growing campus facilities by 11% during that period
- Getting **76% of its purchased electricity from renewable sources** in 2015
- Implementing several performance contracts, **reducing energy consumption 20%** or more in select buildings
- Increasing the percentage of commuters who choose **alternative transportation** for daily commuting

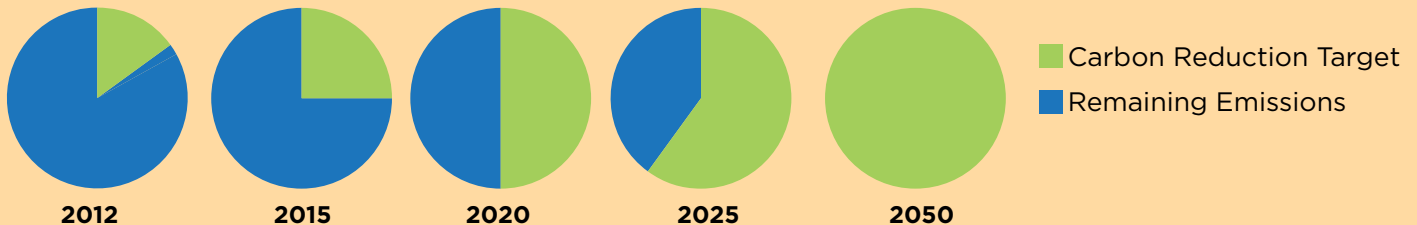


- Cutting emissions associated with solid waste by **99%**
- Creating a **Sustainability Studies Minor** — now the largest minor at UMD
- **Educating more than 11,000 students** in their first semester at UMD about sustainability challenges and opportunities

The US Federal Government uses the Social Cost of Carbon to estimate economic damages associated with an increase in carbon dioxide emissions in a given year. Damages include decreased agricultural productivity, impacts on human health, property damages from increased flood risk, etc. Based on these government estimates, **the University of Maryland has reduced its carbon liability and benefited the economy by \$19 Million by preventing approximately 577,000 metric tons of carbon dioxide equivalent (MTCO₂e) from entering the atmosphere since 2005.**

Targets

Planned Emissions Trajectory



The university is now striving to meet the following ambitious targets for all scopes of emissions:

- 50% reduction in carbon emissions (from 2005 levels) by 2020
- 60% reduction in carbon emissions (from 2005 levels) by 2025
- Carbon neutrality (net-zero carbon emissions) by 2050



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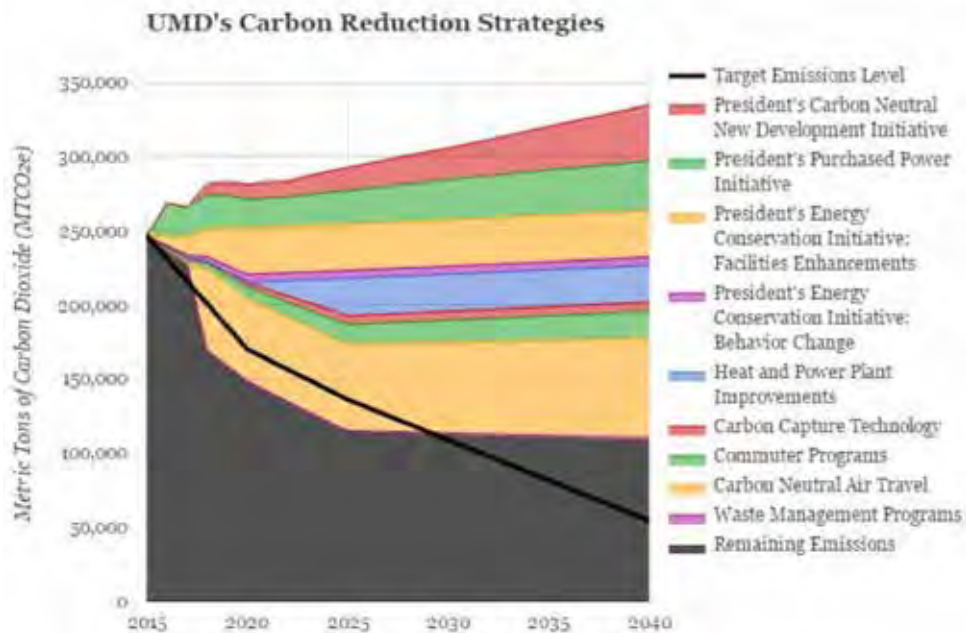
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STRATEGIES

The University of Maryland is estimated to **save \$167 Million** while **preventing 4.3 Million MTCO_{2e}** from entering the atmosphere between 2016 and 2040 by implementing the following strategies. The Federal Government estimates that the additional economic benefit to the world is approximately **\$216 Million** from this level of carbon reduction. The university's impact will become even greater as it develops and implements additional strategies in the future to reach its goal of carbon neutrality.





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POWER

The campus receives most of its power from a combined heat and power plant (CHP), which uses natural gas to produce steam and electricity simultaneously. CHP is already an efficient process but planned projects will make it and campus buildings even more efficient, thereby decreasing the carbon intensity of each facility. By 2020, all electricity coming from sources other than CHP must be produced renewably and any carbon emissions associated with powering new facilities must be offset. New technologies including algae-based carbon capture may drive carbon emissions even lower. There is plenty of opportunity for every person on campus to contribute toward reaching these goals! The UMD campus community can collectively **save over 44,000 MTCO₂e by 2025** through everyday behaviors like turning off computers, lights, and other equipment when not in use.

STRATEGY	CO ₂ e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
President's Energy Conservation Initiative: Facilities Enhancements	719,577 MTCO₂e	\$99/MTCO₂e
TARGET: 17% decrease in electricity consumption from existing facilities, through facilities enhancements, between 2014 and 2020		
ACTIONS: Implement various infrastructure improvements to achieve 17% decrease in electricity use. These include an Energy Performance Contract for 9 energy intensive facilities, FM and Auxiliary-led projects, proactive O&M, IT projects including cloud computing, and other initiatives.		
LEADER: Facilities Management - Engineering & Energy and Operations & Maintenance		
STATUS: FM is currently reviewing proposals from Energy Service Companies to perform the next Energy Performance Contract and implementing other energy conservation measures		
President's Purchased Power Initiative	643,888 MTCO₂e	\$12/MTCO₂e
TARGET: 100% of purchased electricity comes from renewable energy sources by 2020		
ACTIONS: Increase the percentage of the university's purchased electricity that is produced by renewable energy sources by purchasing and retiring bundled and/or unbundled Green e-Certified Renewable Energy Credits (RECs).		
LEADER: Facilities Management - Engineering & Energy		
STATUS: 76% of the university's purchased electricity was generated by wind and solar power in 2015		

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POWER CONTINUED

STRATEGY	CO ₂ e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
President's Carbon Neutral New Development Initiative	489,774 MTCO₂e	-\$8.48/MTCO₂e
<p>TARGET: Negate all emissions associated with the electrical and thermal load of new facilities</p> <p>ACTIONS: Negate new greenhouse gas emissions resulting from new construction, renovations, building occupancy changes, and major program changes that begin construction in CY2016 or later by designing buildings to strict energy-efficiency standards and using energy from renewable sources.</p> <p>LEADER: Facilities Management - Engineering & Energy, Design & Construction, and the Office of Sustainability</p> <p>STATUS: The Iribe Center and Cole Field House, which are currently under construction, will be the first facilities to comply with this initiative</p>		
Heat and Power Plant Improvements	450,000 MTCO₂e	-\$23/MTCO₂e
<p>TARGET: Decrease annual CHP emissions 25,000 MTCO₂e (20% reduction from 2014 baseline) by 2025</p> <p>ACTIONS: Through a combination of initiatives including improving the efficiency of the steam distribution system, installing new power generation technology, reducing energy demand from new and existing facilities, and carbon offsetting, the campus Combined Heat and Power Plant will produce at least 25,000 MTCO₂e fewer emissions by 2025 (target: 101,429 MTCO₂e) than it produced in 2014 (baseline: 126,429 MTCO₂e).</p> <p>LEADER: Facilities Management - Engineering & Energy</p> <p>STATUS: Engineering and economic studies are currently underway for these projects.</p>		
President's Energy Conservation Initiative: Behavior Change	126,984 MTCO₂e	\$120/MTCO₂e
<p>TARGET: 3% decrease in electricity consumption from existing facilities, through behavior change, between 2014 and 2020</p> <p>ACTIONS: Implement behavior change programs to achieve 3% decrease in electricity use. This includes plug load management, Green Offices, Green Housing, and other behavior change programs.</p> <p>LEADER: Facilities Management - Engineering & Energy and the Office of Sustainability</p> <p>STATUS: Green Offices is now in its sixth year of operation and Green Housing programs are launching in 2016/2017.</p>		

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POWER CONTINUED

STRATEGY	CO2e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
<p>Carbon Capture Technology</p> <p>TARGET: Capture approximately 3,000 MTCO2e of power plant emissions by 2020; 6,000 MTCO2e by 2025</p> <p>ACTIONS: Use algae-based carbon capture technology to absorb carbon dioxide from the Combined Heat and Power Plant's flue emissions. Capture 3,000 MTCO2e by 2020 and, with advances in technology, capture 6,000 MTCO2e by 2025.</p> <p>LEADER: Office of Sustainability</p> <p>STATUS: Currently trying to find a site for the carbon capture facility.</p>	120,000 MTCO2e	\$80/MTCO2e
<p>On-Campus Renewable Energy</p> <p>TARGET: 2.7 megawatts of photovoltaic power on UMD facilities by 2018</p> <p>ACTIONS: 1.9 megawatts of photovoltaic (PV) power — approximately 7,000 solar panels — will be installed on three parking garages in 2017 and another 200 kilowatts of PV at IBBR. Combined with the existing 631 kilowatt system at Severn, the campus will have approximately 2.7 megawatts of PV by 2018.</p> <p>LEADER: Facilities Management - Engineering & Energy</p> <p>STATUS: A 631 kW solar array has been operation at the Severn Building since 2011. The parking garage and IBBR arrays should begin installation in summer 2017.</p>	0 - Covered by the Purchased Power Initiative	N/A
<p>Additional Capital Investment for High Performing Energy Efficient Buildings</p> <p>TARGET: Advocate for greater State funding and utilize other funding sources to achieve high performance new buildings</p> <p>ACTIONS:</p> <ol style="list-style-type: none"> 1. State should provide additional capital to construct high performing, energy efficient buildings based on engineering estimates /guarantees of operations and maintenance savings over the life of the building. Currently there is a 2% premium provided for green building construction and design but this is too small an amount to make the radical leap forward that is needed and possible. 2. Facilities Management will seek additional funds for high performance new construction in the form of performance contracts, Energy Reserve Fund loans, or other internal or external loans and grants. <p>LEADER: Facilities Management - Design & Construction and Engineering & Energy</p> <p>STATUS: Facilities Management - Engineering & Energy is providing some additional funding to achieve enhanced energy performance in new facilities</p>	0 - Contributes toward other strategies	N/A



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COMMUTING

Many faculty, staff, and students are choosing alternative transportation and those who drive alone are increasingly choosing fuel-efficient cars. New federal fuel-efficiency standards are making it easier to find vehicles that save on gas and reduce carbon emissions. By 2025, these standards alone may **reduce carbon emissions by 53,000 MTCO₂e**



from just commuters' trips to and from campus. The more people who choose carpooling, vanpooling, public transit, walking, or biking as a means of getting from one place to another, the greater those reductions will be. New housing projects located throughout College Park will increase options for living where you work/study. Those who want to eliminate their carbon footprints associated with commuting will have the option of offsetting their emissions when they register for parking permits.

STRATEGY	CO ₂ e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
Improved Fuel Efficiency of Commuter Vehicles	223,868 MTCO₂e	No cost to UMD
TARGET: 25% of vehicles at 35 mpg by 2020; 50% by 2030, and 100% by 2040		
ACTIONS: No direct action required from UMD. The fuel efficiency of commuter vehicles should improve as federal fuel efficiency standards (CAFE Standards) for new vehicles become more stringent.		
LEADER: Federal Government and Auto Makers		
STATUS: In progress		
Offer Voluntary Carbon Offsets for Commuters	33,182 MTCO₂e	-\$0.17/MTCO₂e
TARGET: At least 5% of commuters offset their own commuting emissions by 2020; 10% by 2025		
ACTIONS: The Department of Transportation Services will offer a calculator that lets people determine their actual carbon footprint and corresponding offset quantity when signing up for a parking permit. The cost of offsets will be added to the permit price. The Department of Transportation Services and Office of Sustainability will absorb the cost of promoting and administering the program.		
LEADER: Department of Transportation Services and Office of Sustainability		
STATUS: Carbon offset program is currently under development		

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COMMUTING CONTINUED

STRATEGY	CO ₂ e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
Additional Student Housing On and Near Campus	23,851 MTCO₂e	N/A - <i>This project will happen regardless of CAP</i>
TARGET: Add 2,445 student beds between 2015 and 2020; add 3,784 student beds between 2015 and 2025		
ACTIONS: The Departments of Resident Life and Residential Facilities and non-affiliated developers intend to construct several new student housing facilities on and near campus between 2015 and 2025. More on and near campus housing means less commuting and commuting-related emissions.		
LEADER: Departments of Resident Life, Residential Facilities, and non-affiliated developers		
STATUS: Several projects are currently in development		
Increase Use of Vanpools for Commuting	23,680 MTCO₂e	N/A - <i>This project will happen regardless of CAP</i>
TARGET: 400 vanpoolers by 2020; 800 by 2025		
ACTIONS: Via a contractor, develop employee-financed vanpools. The Department of Transportation Services will provide preferential parking to vanpool vehicles and promote the vanpool program.		
LEADER: Department of Transportation Services		
STATUS: DOTS plans on launching its vanpool program in 2017		
Addition of Purple Line Light-Rail Service	7,461 MTCO₂e	N/A - <i>This project will happen regardless of CAP</i>
TARGET: 800 commuters will switch from personal vehicles to Purple Line by 2025		
ACTIONS: The Department of Transportation Services and the Office of Sustainability will promote Purple Line ridership opportunities to students, faculty, and staff starting the year before trains begin carrying passengers.		
LEADER: Department of Transportation Services		
STATUS: Purple Line may be operational starting in 2022		
Increase Use of Carpooling for Commuting	4,280 MTCO₂e	N/A - <i>This project will happen regardless of CAP</i>
TARGET: 50 additional carpoolers by 2020; 100 by 2025		
ACTIONS: Promote a less formalized, more casual carpooling program than the previous carpool program. Develop and implement ways to quantify actual carpooling numbers (possibly through proximity apps).		
LEADER: Department of Transportation Services		
STATUS: TBD		

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COMMUTING CONTINUED

STRATEGY	CO2e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
Install More Electric Vehicle Charging Stations	1,214 MTCO2e	-\$710/MTCO2e
TARGET: 43 EV parking spaces with Level 2 chargers by 2020; 64 by 2025; 93 by 2040		
ACTIONS: The Department of Transportation Services will continue to install EV parking spaces with Level 2 chargers on campus.		
LEADER: Department of Transportation Services		
STATUS: The campus currently has 35 EV charging stations for commuters		
Develop a Plan for Effective Transportation Demand Management Programming	0 - Contributes toward other strategies	N/A
TARGET: Complete a study of TDM opportunities by mid-2017; develop a plan for implementing new programs by mid-2018		
ACTIONS: By mid-2017, complete a study to determine the types of TDM programs (mass transit, vanpools, carpools, etc.) that would be most effective in getting a significant number of UMD commuters to choose alternatives to single-occupancy-vehicle commuting. By mid-2018, develop a plan to implement new programs that would start in 2019.		
LEADER: National Center for Smart Growth and Department of Transportation Services		
STATUS: The study is currently underway		
Support Projects that Improve Bicycle Connectivity between UMD and Local Neighborhoods	TBD	TBD
TARGET: By 2020, work with local governments/agencies to implement at least one new bicycle infrastructure project that connects campus to neighboring communities in addition to the City of College Park. Help implement at least one additional project by 2025.		
ACTIONS: The BikeUMD Coordinator and Facilities Management staff will work with local municipalities, the Prince George's County government, State Highway Administration, Purple Line planners, and other appropriate organizations to plan and implement projects that improve bicycling connectivity between the campus and local neighborhoods.		
LEADER: Department of Transportation Services and Facilities Management - Facilities Planning		
STATUS: TBD		



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AIR TRAVEL

Whereas the university has control over its energy infrastructure and some influence on commuting behaviors, it has little effective control of air travel emissions. Given the university's goal of being globally connected, restricting air travel would hinder important university work. Faculty travel for research, students study abroad, athletes fly to competitions, and staff travel to conferences; all of which support university functions. To address the environmental impact of this travel, the university will implement a carbon offset program to **negate 100% of the carbon emissions** associated with air travel starting in 2018. A Carbon Offset Fund Committee reporting to the University Sustainability Council will select verified projects that sequester or prevent carbon emissions and determine the best process for administering the program.

STRATEGY	CO ₂ e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
Carbon Neutral Air Travel	1,400,212 MTCO₂e	-\$7.80/MTCO₂e

TARGET: Starting in 2018, offset 100% of business, study abroad, and athletic air travel emissions

ACTIONS: The university will use verified carbon offsets or new investments in on-campus emission reduction activities to negate emissions associated with air travel. The Sustainability Council will establish a Carbon Offset Fund Committee to recommend an annual carbon fee and select offset projects. The standing committee will ensure that the university's offsets are appropriate each year, given the changing offset price and continuous development of new offset projects.

LEADER: Office of Sustainability

STATUS: The Sustainability Council approved this strategy in spring 2016. Awaiting Administrative Council approval.



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SOLID WASTE

Emissions from solid waste decreased 99% since 2005! Today, solid waste emissions account for **less than 1% of the university's carbon footprint**. The university accomplished this by greatly expanding recycling and composting efforts over the past decade and sending remaining solid waste to landfills that capture and destroy methane, a potent greenhouse gas. Looking ahead, the campus can achieve carbon neutrality in this category by getting more recyclable and compostable materials in their correct receptacles and reducing the total amount of solid waste (including recyclable, compostable, and landfill waste) generated.

STRATEGY	CO ₂ e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
Recycle Appropriate Solid Waste & Compost Appropriate Organic Solid Waste	7,548 MTCO₂e	-\$1,411/MTCO₂e
TARGET: Individual combined compost and recycling rates of 60% by 2020 and 65% by 2025		
ACTIONS: Increase in campus-wide recycling participation to increase the percentage of personal solid waste that individuals on campus divert from landfills. Expand compost collection, increase individual participation in compost collection efforts, and assess feasibility of creating an on-site or nearby compost facility. Conduct periodic waste audits to monitor and minimize contamination.		
<i>Note: Although this strategy is expensive when measured in terms of greenhouse gas reductions, other environmental benefits make it an important sustainability strategy for the university.</i>		
LEADER: Facilities Management - Recycling and Solid Waste		
STATUS: As of 2015, the individual combined compost and recycling rate was 47%		

Reduce Solid Waste Generation	5,471 MTCO₂e	\$37/MTCO₂e
TARGET: Reduce total solid waste (recycling, compost, and landfill waste excluding construction & demolition waste) by 1% per person per year		
ACTIONS: Foster a university-wide culture of reuse. Increase efforts to reduce usage of disposable materials and packaging on campus.		
LEADER: Facilities Management - Recycling and Solid Waste		
STATUS: The amount of solid waste generated per person has decreased 3.7% on average over the last three years		

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SOLID WASTE CONTINUED

STRATEGY	CO2e REDUCTION (cumulative 2016-2040)	NET PRESENT VALUE (based on 2016-2040 costs & savings)
Divert Solid Waste from Landfill	No additional CO2e reductions	No additional cost
<p>TARGET: Maintain an institutional diversion rate of 75% or above every year</p> <p>ACTIONS: Maintain high levels of landfill diversion for all construction and demolition projects. Individual recycling and compost actions will also contribute to this goal.</p> <p>LEADER: Facilities Management - Recycling and Solid Waste</p> <p>STATUS: As of 2015, the institutional diversion rate was 83%</p>		
Education and Outreach to Promote Waste Reduction	0 - Contributes to achieving other strategies	N/A
<p>TARGET: Reach 4,000 students through education and outreach initiatives by 2020</p> <p>ACTIONS: Create an online video tutorial about compost and recycling, with different versions targeting different campus audiences. Utilize a peer education team for zero waste events with support from the LEAF Outreach Team.</p> <p>LEADER: Facilities Management - Recycling and Solid Waste</p> <p>STATUS: Video tutorial is currently in development and peer education is underway.</p>		



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LAND USE AND MAINTENANCE

As Maryland’s land grant institution, the University of Maryland owns and operates research farms located from the mountains of Western Maryland to the coastal plain of the Eastern Shore. Approximately 2,000 MTCO₂e is emitted each year from cows on research farms (methane emissions from digestion) and from fertilizer applied to crops and campus grounds. A bit more carbon dioxide is emitted from farm and landscape equipment, which predominantly run on gasoline and diesel. Based on a study conducted last decade, trees on the College Park campus sequester approximately 683 MTCO₂e annually. The university is working on **decreasing carbon emissions associated with agriculture and landscaping** and plans on **quantifying the carbon sequestration of university owned forests located** around the State.

Carbon Neutral Grounds and Landscaping

TBD

TBD

TARGET: Reduce grounds and landscaping emissions incrementally and achieve carbon neutrality for landscape maintenance by 2050

ACTIONS: Facilities Management, RecWell, Extension and other groups that manage grounds and landscape equipment will replace old equipment with lower-emissions models when possible and seek opportunities to implement landscape practices that are less carbon intensive than current practices.

LEADER: Facilities Management, RecWell, Extension

STATUS: TBD

Quantify the Carbon Sequestration of Forests on University Land and Increase the Tree Canopy on Campus

Potential offsets

from UMD-owned forests TBD

TARGET: Quantify carbon sequestration from forests on university land by 2018 and plant at least 100 new trees on campus annually

ACTIONS: UMD Extension will conduct a field study to quantify the acreage and species composition of forests on university land and determine total carbon sequestration by 2018. FM Building and Landscape Services will oversee efforts to increase the net acreage of tree canopy on campus and will plant at least 100 new trees per year toward that goal.

LEADER: UMD Extension and Facilities Management - Building & Landscape Services

STATUS: Facilities Management planted more than 100 trees on campus last year. A study of the carbon sequestration of university-owned forests has not yet started.



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PURCHASING

Although the university does not currently track the carbon footprint of purchasing, it certainly has the opportunity to reduce the environmental impact associated with the manufacturing, transportation, and use of the food, equipment, and other goods that it buys. By reducing consumption of goods, selecting goods that meet sustainability criteria, and working with contractors who practice a similar environmental ethic, **the university's carbon reductions in this area could be greater than those across all other areas of this Climate Action Plan.** The Department of Procurement and Strategic Sourcing and Department of Dining Services are leading efforts to drive sustainability into the core of the university's purchasing decisions.

Expand Sustainable Food Purchasing

TARGET: Continue 20% sustainable food purchasing or increase by 1% - 4% each year

ACTIONS: Diversify purchases to include more humane, ecologically sound, locally grown, and fair food (as defined by Dining Services' Sustainable Food Commitment).

LEADER: Dining Services

STATUS: Dining Services met its goal of 20% sustainable food purchasing six years ahead of schedule and is working on going even further with its Sustainable Food Commitment

Add Sustainability Language to Active UMD Procurement Procedures and Mechanisms

TARGET: By the end of 2017, sustainability will be embedded within procurement operating procedures and purchasing processes with a focus on office products, computers and lab equipment

ACTIONS:

- Include sustainability requirements to requisitions made through the KFS System.
- Include sustainability guidelines in POs, Purchasing Card training, Cardholder agreements and any other procurement.
- Include links to the Office of Sustainability's Green Purchasing Guide at relevant PSS website locations.
- Sustainable choices are flagged within Vendor Contracts.
- All university RFPs/ Contractor solicitation will include sustainability requirements.

LEADER: Department of Procurement and Strategic Sourcing

STATUS: The Sustainable Procurement Committee is working on implementing this strategy

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PURCHASING CONTINUED

Achieve Compliance with Environmentally Preferable Procurement Policy (EPP)

TARGET: By the end of 2018, achieve full compliance with all sections of this campus policy

ACTIONS: Focus on VIII-3.10(C) sections:

- V2a (100% post-consumer or tree free copy paper), V3a-h (PSS Responsibilities).
- The AVP of Procurement and Strategic Sourcing will oversee activities to achieve full compliance with the EPP by the beginning of CY2018.

LEADER: Department of Procurement and Strategic Sourcing

STATUS: The Sustainable Procurement Committee is working on implementing this strategy

Implement eProcurement System with EPP Guidance

TARGET: By the end of 2019, procurement officers will be steered to preferred sustainable products and services

ACTIONS:

- Ensure that products available for purchase follow the EPP and provide preferred purchasing choices.
- Include links to the Office of Sustainability's Green Purchasing Guide at relevant PSS website locations.

LEADER: Department of Procurement and Strategic Sourcing

STATUS: The Sustainable Procurement Committee is working on implementing this strategy

Create Sustainable Procurement Policies and Practices for Vendor Contracts

TARGET: Develop and achieve full compliance by the end of 2020

ACTIONS: PSS and OS develops sustainable procurement language in Vendor Code of Conduct and/or Terms and Conditions.

LEADER: Department of Procurement and Strategic Sourcing

STATUS: The Sustainable Procurement Committee is working on implementing this strategy



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EDUCATION AND RESEARCH

As a signatory of the American College and University Presidents' Climate Commitment, the University of Maryland set an ambitious goal to educate all students about sustainability. UMD is progressing toward that goal through its broad array of degree granting programs, living-learning programs, and initiatives such as the Sustainability Advisors and Chesapeake Project. Year by year, students are increasingly likely to receive an introductory lesson on sustainability during their first semester, grapple with sustainability concepts in various courses spanning the academic disciplines, and get involved with sustainability-focused action-learning or research activities. Sustainability and climate change research at UMD continues to be among the best in the world and groups like the Council on the Environment help those research activities flourish.

Educate First Year Undergraduate Students about Sustainability

TARGET: Reach 100% of students enrolled in UNIV100 and in Honors, Scholars, and Gemstone seminar classes

ACTIONS: Utilize Student Sustainability Advisors (trained undergraduate instructors) to teach a lesson on sustainability in all UNIV100, HONR100, Scholars colloquia, and other freshmen seminar classes.

LEADER: Office of Sustainability

STATUS: Student Sustainability Advisors presented the lesson to nearly 11,000 first-year students over the past eight years. The Advisors presented the lesson to around 2,500 students in the fall of 2015 alone.

Integrate Sustainability across the Curriculum

TARGET: Run the Chesapeake Project faculty development workshop for at least 15 UMD faculty members annually

ACTIONS: The Chesapeake Project is a multiday workshop to help faculty integrate sustainability across various disciplines. Those who complete the workshop become Chesapeake Project Faculty Fellows and receive ongoing support from the Office of Sustainability and Chesapeake Project Faculty Fellows community.

LEADER: Office of Sustainability

STATUS: 185 UMD faculty members have participated since 2009 and integrated sustainability into over 190 courses in all 13 colleges/schools

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EDUCATION AND RESEARCH CONTINUED

Offer more Sustainability Courses in General Education

TARGET: Increase the percentage of Gen Ed courses that have a focus on sustainability

ACTIONS: This strategy has three components as approved by the Sustainability Council:

1. The Office of the Provost should provide incentives to faculty who develop new sustainability-focused Gen Ed courses;
2. The Office of the Provost should encourage faculty who teach courses in the Sustainability Minor to classify those courses as Gen Ed;
3. The Office of Sustainability should encourage the development of sustainability-focused Gen Ed courses through the Chesapeake Project.

LEADER: Office of the Provost and Office of Sustainability

STATUS: The Office of Sustainability encourages the development of sustainability-focused Gen Ed courses through the Chesapeake Project

Foster Active Learning Programs on Sustainability and Climate Change

TARGET: All undergraduates have access to action-learning, service-learning, or travel-related sustainability programs

ACTIONS: Provide financial support to university programs that offer students real world experience in solving environmental problems and developing new sustainable technologies. Funds could be used to create institutionalized structures that support special projects, such as the Partnership for Action Learning in Sustainability (PALS) and the U.S. Department of Energy's international Solar Decathlon competition.

LEADER: Office of the Provost

STATUS: Programs including PALS and UMD's Solar Decathlon team receive financial support from the university.

Develop New Sustainability Graduate Degree and/or Certificate Programs

TARGET: In 2017, establish a committee to develop and implement new graduate programs in sustainability

ACTIONS: Establish an interdisciplinary committee including faculty, sustainability practitioners, employers, and current/prospective students to develop the curriculum and funding model for new graduate degree and/or certificate programs in sustainability. The committee should start its work in early 2017 and submit its recommendations to the Office of the Provost and Sustainability Council by the end of 2017.

LEADER: Sustainability Council

STATUS: No progress yet

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EDUCATION AND RESEARCH CONTINUED

Assess Students' Sustainability Literacy

TARGET: Assess the sustainability literacy of undergraduate and graduate students every three years

ACTIONS: The Office of Sustainability will work with appropriate partners to conduct a Sustainability Literacy Assessment of undergraduate and graduate students once every three years.

LEADER: Office of Sustainability

STATUS: Planning to conduct an assessment in 2017

Foster Research on Climate Change, Energy, and Sustainability

TARGET: Establish the University as a leader in improving sustainability outcomes at local, state, national, and global levels through integrated, cutting-edge, and transformative research

ACTIONS: The University, through its various research centers and initiatives, will make annual progress on each of the following goals:

- Demonstrate global engagement and regional relevance through the University's research efforts
- Establish the University of Maryland as a leader in supporting, through research in relevant disciplines, the implementation of sustainability commitments made at all levels including on campus
- Identify large-scale opportunities that leverage existing University of Maryland strengths to collaboratively deliver impactful research
- Provide incentives and support the development of cross campus proposals for transdisciplinary research to amplify the impact, visibility, and outcomes of such work
- Raise the level of discourse on sustainability issues across campus to foster an engaged, informed, and active community of scholars working on current issues
- Identify gaps and potential overlap in various college curricula and, as needed, recommend how our students can become more engaged with local, regional, and global sustainability issues, including as they relate to campus sustainability efforts
- Pioneer new modes of collaborative learning and new approaches to education that equip students at all levels with the knowledge and skills necessary to support the sustainability initiatives of today, and lead the sustainability initiatives of the future
- Raise the profile and visibility of the high quality sustainability research done at the University through an appropriate communications strategy that is reflective of the University's world class capabilities and reputation
- Enhance the University's existing connections with governments, research institutions, businesses, and non-governmental organizations to engage these partners in collaborative efforts to deliver improved sustainability outcomes
- Foster relationships with alumni, partners and friends to garner financial and strategic support

LEADER: Various research centers and initiatives

STATUS: University-wide efforts continue to make progress towards these goals

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EDUCATION AND RESEARCH CONTINUED

Support Research on Campus Sustainability through the Sustainability Fund

TARGET: Provide Sustainability Fund support to at least one research project each year that focuses on improving sustainability at the University of Maryland

ACTIONS: The Sustainability Fund Review Committee of the University Sustainability Council will seek opportunities to fund research projects that: A) create substantial opportunities for student involvement; B) have practical implications for improving the environmental performance of campus operations.

LEADER: Sustainability Fund Review Committee of the University Sustainability Council

STATUS: At least one research project has received a Sustainability Fund grant in each of the last six years that the Sustainability Fund has existed

Deploy Research Technologies Developed on Campus

TARGET: As they become available, deploy cost-effective technologies developed by the UMD research community to reduce environmental impacts

ACTIONS: Faculty and students whose research could influence campus operations should contact the Office of Sustainability to explore the potential for implementing their research technologies. The university may prioritize and offer greater financial support to home-grown technologies versus current commercially available alternatives.

LEADER: UMD researchers

STATUS: Researchers regularly approach the Office of Sustainability about applying their research to campus operations



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ACKNOWLEDGEMENTS

The Office of Sustainability is grateful to its many partners who helped develop this Climate Action Plan. The UMD Environmental Finance Center was instrumental in conducting carbon and financial impact calculations for all carbon reduction strategies. Thank you to the following partner organizations for helping develop and implement these strategies and for everything else they do to make the University of Maryland a national model for a Green University.

- **Facilities Management**
- **Transportation Services**
- **Procurement and Strategic Sourcing**
- **Dining Services**
- **Extension**
- **Resident Life**
- **Residential Facilities**
- **Sustainability Council**
- **Council on the Environment**