



Meeting Summary April 10, 2015

Council Members Present:

Carlo Colella, Vice President for Administration and Finance (Chair)
Linda Clement, Vice President for Student Affairs
Ann Tonggarwee, Assistant to President
Scott Lupin, Associate Director, Environmental Safety, and Director, Office of Sustainability
Mary-Ann Ibeziako, Director, Department of Engineering and Energy
Eric Wachsman, Professor, Materials Science and Engineering, and Director, Energy Research Center
David Cooper, Assistant Director of IT Operations
David Lovell, Associate Professor, Civil and Environmental Engineering
Bryan Quinn, Director of Technical Operation, Department of Electrical and Computer Engineering
Ori Gutin, Director of Sustainability, Student Government Association
Matthew Dahlhausen, Graduate Student, Mechanical Engineering

Meeting start time: 2:00pm

Meeting Highlights

Welcome and Review of December 11, 2014 Meeting Minutes

Carlo Colella, Vice President for Administration and Finance, welcomed the Council members and called the meeting to order.

University Sustainability Fund Projects

Ori Gutin, Director of Sustainability for the Student Government Association, presented eight University Sustainability Fund Projects for the Council to review:

Center for Young Children Rain Garden

The Center for Young Children submitted a proposal requesting \$6,975.00 to install a rain garden. The CYC is already working with Michael Carmichael of Facilities Management, and also plans to install rain barrels to collect runoff. In addition, the CYC will incorporate an educational component to the project. The Council voted to approve the request for \$6,975.00.

Bolstering Organics Collection Infrastructure

Facilities Management submitted a proposal requesting \$50,400.00 to properly maintain and improve the current system for collecting organics from dining halls, Stamp Student Union, and select administrative buildings on campus. A compost compactor and 60 green, wheeled totes will be purchased and distributed across campus. In addition, a stationary tote tipper will be attached to the compactor to facilitate the safe and efficient collection and consolidation of organic material into a centralized space. The Council voted to approve the request for \$50,400.00.

Piezoelectric Sensing and Energy Harvesting in Touchscreens (Team PIEZO)

A sophomore team from the Gemstone Honors Program submitted a proposal requesting \$2,400.00 for prototyping materials for their research project. The project aims to integrate piezoelectric materials into touchscreen phones to make cellphones more reliant on renewable energy. The integration of piezoelectric materials into touchscreens could increase the battery life of smart phones. The Student Subcommittee recommended approving the request for \$1,400.00. The Council voted to approve the request for \$1,400.00.

Solar Power Charging and Study Station

The BSOS Sustainability Task Force submitted a proposal requesting \$10,000.000 to implement a solar-powered, outdoor study area on campus. This will feature one table, equipped with outlets powered by two solar panels with benches on both sides. The Student Subcommittee recommended approving the request for \$5,000.00. The Council voted to approve the request for \$5,000.00.

Stamp Napkins - #UMDGreenHacks

A group of undergraduate students submitted a proposal requesting \$5,300.00 to develop a series of customized napkins for the food court in the Stamp Student Union. The napkins will include a catchy phrase on one side, and generalized information about trash, composting, and recycling on the other side. The information displayed on the napkins will be developed by working with Stamp and Terps Recycle in order to maintain consistent messaging and imaging across campus. The Council voted to approve the request for \$5,300.00.

Real-time UMD Campus Energy Water Monitoring, Mapping, and Management (M-CUBE)

Faculty in the Department of Mechanical Engineering submitted a proposal requesting \$20,100.00 to install and run a real-time, energy and water monitoring system. This project will start with the collection and monitoring of building occupancy rates, hourly electricity and daily water consumption. Afterwards, the project team will visualize the collected data in a web-based interface to allow building occupants to monitor the impact of their presence on the building's performance. Finally, the occupants in selected buildings will be involved in a challenge to reduce their energy and water footprint. The Council voted to approve the request for \$20,100.00.

Small Scale Vertical Axis Wind Turbine for UMD

An undergraduate student submitted a proposal requesting \$8,900.00 to construct and maintain a vertical axis wind turbine. The turbine will be installed in a public location (AV Williams), collect data and display results, and show students the capabilities of this method of power generation. The Student Subcommittee recommended approving the request for \$7,400.00. The Council voted to approve the request for \$7,400.00.

Electronic Bicycle Counters and Bicycle Barometer

The Department of Transportation Services submitted a proposal requesting \$16,899.50 to install a network of electronic bicycle counters and a bike barometer on campus. This network will consist of a combination of moveable pneumatic tubes, inductive loops, and the customizable Eco TOTEM. The Student Subcommittee recommended approving the requested for \$11,344.00. The Council voted to reject the request, however, and will encourage DOTS to resubmit the project next year with more concrete plans regarding how the collected data will be used.

SGA Resolution on Power Generation (Appendix A, B, and C)

Ori Gutin, Director of Sustainability for the Student Government Association, presented a resolution from the SGA regarding power generation on campus, "UMD: Carbon Neutral Power 2025." The SGA has resolved that the university should "establish a committee comprised of students, staff, faculty and experts from on and off campus in order to develop a comprehensive University energy strategic plan, detailing the necessary path for the University to attain carbon neutral power generation by the year 2025." Mary-Ann Ibeziako, Director of the Department of Engineering and Energy, explained that an extensive assessment of the university's energy systems will be conducted, and the results released in fall 2015. The Department of Engineering and Energy plans to use the information gathered through the assessment to develop an energy strategic plan for the university.

Carbon Offsets Work Group – Revised Draft Scoping Document (Appendix D)

Scott Lupin, Director of the Office of Sustainability, presented a revised scoping document for the Carbon Offsets Work Group. The work group will be chaired by Joanne Throwe of the Environmental Finance Center, and its first meeting will occur next month.

Adjourn: 4:00pm

APPENDIX A



UNIVERSITY OF
MARYLAND

Student Government Association

Student Government Association
0209J Student Involvement Suite
Stamp Student Union

March 2nd, 2015

Dear Carlo,

As you know, the progress that this University has made on mitigating climate change in the past 10 years is highly impressive. We have gone from lacking data on our campus emissions to achieving an annual reduction of approximately 6,395 metric tons of Greenhouse gases during the past six years. Currently, we are 18% below our 2005 emissions and our success has given us national recognition. For two consecutive years, the Sierra Club has ranked us as the nation's 13th "greenest" school, and for five consecutive years, the Princeton Review has listed us on their Green Colleges Guide. Furthermore, with the energy initiatives announced last Earth Day, the future looks bright for sustainability at UMD. Thank you for your immense leadership on the issue, and for recognizing that the continued well-being of each and every member of our community depends on a stable climate.

Despite UMD's overall success, we have not addressed the campus' largest source of emissions—our on-campus, natural gas cogeneration heat and power plant (CHP), which provides roughly half of our campus electricity and all of the steam needed to heat our buildings. In 2005, the CHP emitted 123,511 metric tons of CO₂e, representing 38% of our emissions, and this past year it emitted 125,425 metric tons, representing 45% of our emissions. Last year, the CHP operated by burning nearly 2.5 billion cubic feet of natural gas, connecting UMD to the harmful natural gas extraction process of hydraulic fracturing.

Unfortunately, there is no easy solution to reducing the CHP's emissions and severing the tie to the natural gas industry. The Climate Action Plan (CAP) suggests that we switch to a biofuel-powered CHP, increase on-campus renewable energy generation, and utilize hydro and nuclear power. These options have not been extensively explored, and yet the CAP lists them as accounting for over half of the emissions reductions the university needs to achieve its 2025 goal of 60% reductions. Already, we are likely not going to achieve our goal of 25% reductions by 2015, and without action to address our reliance on the CHP, we certainly will not meet the subsequent goals, either. Luckily, the 20 year operating lease with the CHP ends in 2019, posing the question—where do we go from there, and how? The answer: **carbon neutral power generation by 2025.**

The University System of California, composed of 10 college campuses and 238,700 students, has committed to being carbon neutral by the year 2025. They too have a challenging road ahead, and their President, Janet Napolitano, is bravely committed to figuring out the

solution to this issue. She has established a Global Climate Leadership Council comprised of students, staff and faculty and world class scientists from inside and outside of the UC System in order to achieve their goal. The UC System isn't alone in setting ambitious carbon neutrality goals. Arizona State University recently committed to achieving carbon neutrality from power and operations by 2025, and American University is aiming for 2020. In order for UMD to continue to be recognized as a leader in sustainability and to meet our CAP goals, we must be as aggressive as our peers. We need to establish our own climate leadership council, utilizing the best and brightest of this University and beyond, and dive deeply into the issue of carbon neutral power generation. Through this council's research, we can develop a strategic plan to achieve carbon neutral power generation by the year 2025.

The time to establish this council is now: the research they conduct and the recommendations they provide will inform how UMD renews the CHP contract and hence dictate our climate future. That is why **the Student Government Association unanimously passed the attached resolution urging the development of this council, and the subsequent release of a comprehensive strategic plan for carbon neutral power generation by the year 2025.** We request that this strategic plan be announced to the campus at the start of the Fall 2016 semester.

The University's 2008 Strategic Plan states, "*We will be a campus that is a model for the sustainability of its environment, and we will be a university that seeks solutions to the world's most challenging and vexing problems.*" Now is the opportune time to act on that statement, and to establish this very important and necessary council. The Student Government Association is committed to assist in any way possible with this action.

Sincerely,
Ori Gutin
Director of Sustainability,
Student Government Association

CC:

Ann Tonggarwee, Assistant to President
Bryan Quinn, Director of Technical Operation, Department of Electrical and Computer Engineering
Dana Fisher, Associate Professor, Sociology
David Cooper, Assistant Director of IT Operations, Division of IT
David Lovell, Associate Professor, Civil and Environmental Engineering
Eric Wachsmann, Director, Energy Research Center
Linda Clement, Vice President, Student Affairs
Mary Ann Ibeziako, Director, Department of Engineering and Energy

Margaret McFarland, Director, Colvin Institute of Real Estate Development
Matthew Dahlhausen, Graduate Student, Mechanical Engineering
Russell Furr, Director, Environmental Safety
Scott Lupin, Director, Office of Sustainability
Steve Fetter, Associate Provost

APPENDIX B



UNIVERSITY OF
MARYLAND

STUDENT GOVERNMENT ASSOCIATION

P.O. Box 168
0209J Stamp Student Union
College Park, Maryland 20742
301.314.8329 TEL 301.314.5804 FAX
www.sga.umd.edu

UMD: Carbon Neutral Power 2025

The Request: Establish a committee comprised of students, staff, faculty, and experts from on and off campus in order to develop a comprehensive University energy strategic plan, detailing the necessary path for the University to attain carbon neutral power generation by the year 2025. Said plan is requested to be released to the campus by September 1st, 2016.

Summary: In the past 10 years, the University of Maryland has made impressive progress on reducing greenhouse gas emissions. We have gone from lacking data on our campus emissions to achieving an annual reduction of approximately 6,395 metric tons of Greenhouse gases during the past six years. Currently, we are 18% below our 2005 emissions and our success has given us national recognition. For two consecutive years, the Sierra Club has ranked us as the nation's 13th "greenest" school, and for five consecutive years, the Princeton Review has listed us on their Green Colleges Guide. Furthermore, with the energy initiatives announced last Earth Day, the future looks bright for sustainability at UMD. Despite UMD's overall success, we have not addressed the largest source of campus emissions—our, natural gas cogeneration heat and power plant (CHP). In 2005, the CHP emitted 123,511 MTCO₂e, representing 38% of our emissions, and this past year it emitted 125,425 MTCO₂e, representing 45% of our emissions. Unfortunately, there is no easy solution to reducing the CHP's emissions. The Climate Action Plan (CAP) suggests that we switch to a biofuel-powered CHP, increase on-campus renewable energy generation, and utilize hydro and/or nuclear power. These options have not been extensively explored, and yet the CAP lists them as accounting for over half of the emissions reductions the university needs to achieve our 2025 goal of 60% reductions. Without action to address our reliance on the CHP, we certainly will not meet future goals. We have already committed to purchasing only clean energy by the year 2020, and with CHP's 20 year operating lease ending in 2019, now is the perfect time to commit to not only purchasing clean energy, but to producing it as well. It is the time for **carbon neutral power generation by 2025**.

Why Carbon Neutral Power Generation by 2025?

- 1) **Climate change is too serious a threat to the State of Maryland, and our economic future, not to take action:** A 2008 report entitled, "*Climate Change Impacts on Maryland and the Cost of Inaction*," completed by the Center for Integrative Environmental Research (CIER) at our University states, "The physical changes that develop will significantly alter the State's coastline, beachfront, agricultural productivity, species biodiversity, weather patterns and other factors that are tightly correlated with economic conditions... climate change impacts will place immense strains on public sector budgets." The same report also continued:
 - "Sea level rise will increase by .6-1.22 m (24-48 inches) over the next century along the coast, making Maryland the fourth most vulnerable state with an estimated 6.1 per cent of its land likely to be inundated by a rise in sea level... An Environmental Protection Agency study on Ocean City beaches suggested that without preventative measures, a 15-inch increase in sea level would result in a 216 – 273 feet loss of shoreline. With an estimated 3,750 households in Ocean City and property values that likely exceed one million dollars, such a loss in shoreline and land availability would easily translate into a several billion-dollar loss."
 - "Coastal impacts will come in the form of more frequent and intense storms as well as flooding. Considerable strain will be placed on Maryland's coastal infrastructure and development, not to mention the estimated 6.3 million people that will live in Maryland's counties by 2020. Major coastal storms will be more intense and more frequent. By century's end, 5-15 per cent more late-winter storms may develop in the Northeast as storm systems move further north in response to warmer ocean surface temperatures."
 - "Maryland can also expect higher rates of heat related deaths during the summer months. A study by the Johns Hopkins School of Public Health correlated daily mortality rates and temperatures for eleven east coast U.S. cities from 1973-1994 and found that there is a "Minimum mortality temperature" (MMT) above which heat-related deaths increase steadily. The study found that Baltimore ranks first among east coast cities for the rate of increased mortality at temperatures above the MMT."
- 2) **Integrity - Holding ourselves accountable to our goals:** As a leading University in the nation, UMD should hold itself to the highest standard of integrity, follow through on its commitments, and live up to the statements that it has set made its governing documents, such as the Climate Action Plan and the 2008 University Strategic Plan.

Climate Action Plan:

- Our sole governing document on campus sustainability, the Climate Action Plan, dictates that by the year 2025 nearly 50% of our emissions reductions will come as the result of a partial switch to a biofuel powered cogeneration heat and power plant. Furthermore, the CAP dictates that we will increase dependence on biofuels from 2025-2030 in order to achieve a 100% switch to biofuels by the year 2030. As written in the CAP, our goal of 60% emissions reductions by 2025 is dependent on the conversion of the CHP to biofuel power.

University Strategic Plan 2008:

- "The University of Maryland will be widely recognized as a national model for a Green University."
- "As the third largest "city" in the State, the University will have a significant impact as a leader and showcase for environmental sustainability."
- "Take responsibility for the future, with dedication to enhancing the quality of life of all people, sustaining the natural environment, and reinforcing the capacity of Maryland's citizens to thrive and prosper in a diverse, ever-changing, globally competitive environment."
- "World-class universities anticipate emerging concerns and opportunities and marshal all their intellectual resources to address big issues."
- "We will be a campus that is a model for the sustainability of its environment, and we will be a university that seeks solutions to the world's most challenging and vexing problems."

- 3) **Remain a National Model for A Green University:** Among our stated goals is to become a nation model for a green university, and over the past 6 years since the establishment of the CAP, we have successfully achieved that goal. However, rather than relaxing our efforts, now is the time where we must push towards sustainability more so than ever before. In these first six years, we have picked the low hanging fruit, and now we must make difficult, but incredibly important, decisions to continue leading the way for other Universities throughout the nation. Pushing for carbon neutral power by the year 2025 is a goal that is among the most progressive in the nation, and would be the sign of a true leader in the movement for action on climate change. Other Universities that have declared similar goals are:

1) University System of California (all 10 UC campuses)

Enrollment: 238,700

Geographic Location: California

Baseline Year Emissions: 1.6 million MTCO₂ (*current emissions*)

Carbon Neutrality Goal: 2025

Quoted: "The University must incorporate a strategy that mitigates its carbon emissions in natural gas and plans to do so by using biomethane instead of natural gas. Biogas sources include landfills, wastewater treatment facilities, and agricultural waste. Biomethane is a commodity and a derivative from biogas that has been cleaned of its impurities and has identical properties to natural gas. It is therefore a perfect substitute for fossil fuel. In November, the Regents authorized the President to approve external financing of up to \$100,000,000 for multiple biomethane supply facilities over the next five years."

2) Arizona State University:

Enrollment: 76,771

Geographic Location: Arizona

Baseline Year Emissions: 308,226 MTCO₂e, Energy & Operations: 230,690 MTCO₂e

Carbon Neutrality Goal: 2025 (transportation by 2035)

Quoted: "By 2025, ASU will mitigate 100 percent of carbon emissions related to energy, 35 percent of which will come from reductions through demand-side energy, and the remaining 65 percent through supply-side energy (including verifiable carbon offsets) savings."

3) Duke University:

Enrollment: 14,600

Geographic location: North Carolina

Baseline Year Emissions: 332,972 MTCO₂e, Energy & Operations: ~200,000 MTCO₂e

Carbon Neutrality Goal: 2024

Quoted: "If Duke accomplishes this reduction scenario by 2024, the campus GHG footprint will be cut nearly in half from the 2007 baseline. This would leave 182,988 MTCO₂e to offset in 2024 to become climate neutral. If the Duke Carbon Offsets Initiative moves forward as expected, the University will have many options in the future to meet this need for high quality, local offsets. It should also be noted that there is a financial benefit to starting to purchase offsets or invest in offset projects in the near term when the price is lower."

APPENDIX C

A Resolution Urging the University to Develop a Comprehensive Strategic Plan for Carbon Neutral Power Generation

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1. WHEREAS, the Student Government Association (SGA) represents the student body; and,
2. WHEREAS, the SGA is dedicated to advocating for students on sustainability issues, as evidenced by the establishment of the Student Sustainability Committee (SSC); and,
3. WHEREAS, in 2007, the University of Maryland became a charter signatory of the American College and University President's Climate Commitment, pledging to become carbon neutral by 2050 [1]; and,
4. WHEREAS, in 2009, the University acted upon that pledge by passing the Climate Action Plan (CAP) in the University Senate [2]; and,
5. WHEREAS, the CAP is a comprehensive description of over 40 strategies spanning across energy and operations, transportation, solid waste, and education and outreach in order to achieve carbon neutrality in 2050; and,
6. WHEREAS, since the Climate Action Plan has been implemented, UMD has achieved an average reduction of 6,395 MTCO₂e each year, met its first CAP goal to achieve 15% emissions reductions in 2012, and is currently at 18% below the CAP GHG baseline level [3]; and,
7. WHEREAS, more progress is yet to come as President Loh committed the University to three huge energy initiatives last Earth Day 2014:
 - Reduce electricity use on campus 20% by 2020,
 - Off-set new greenhouse gas emissions from our new construction by designing new buildings to strict energy-efficiency standards and using energy from renewable sources,
 - We will eliminate carbon emissions from purchased electricity by 2020 by purchasing only from renewable sources [4]; and,
8. WHEREAS, despite our immense progress with climate action, the University has thus far failed to address the campus' largest GHG emitter, the natural gas driven Cogeneration Heat and Power (CHP) Plant; and,
9. WHEREAS, in 2005, the plant emitted 123,511 MTCO₂e, representing 38% of our campus emissions [2], and in 2013, the plant emitted 125,424 MTCO₂e, representing 45% of our campus emissions [5]; and,

10. WHEREAS, in order to meet campus steam and electricity demands, the CHP used 2,311,596,100 cubic feet of natural gas in 2013 [6]; and,
11. WHEREAS, the procurement of natural gas is associated with the extraction process of hydraulic fracturing, which has been linked to explosions and fires, earthquakes, methane leaks, air pollution, groundwater contamination, and exposure to toxic chemicals [7]; and,
12. WHEREAS, the twenty year lease with the CHP operating company, Suez Energy, is ending in 2019, and the university will soon need to structure and sign a new contract; and,
13. WHEREAS, how the university handles the renewal of the contract dictates our campus' climate future; and,
14. WHEREAS, in the CAP, the emissions associated with the CHP are addressed by recommending the expansion of on campus renewables for power generation, as well as the conversion to a biogas-powered CHP [2]; and,
15. WHEREAS, at this time, and without further study, it is unclear whether a biogas CHP is feasible for our campus due to a lack of a sufficient and consistent fuel supply; and,
16. WHEREAS, the CAP recommends that we have 1 MW of solar capacity installed on campus by the end of 2015, but projects to achieve said goal are not currently underway [2]; and,
17. WHEREAS, with the uncertainty behind both a biogas CHP and on campus renewables there is currently no comprehensive strategy to achieve carbon neutral power generation on UMD's campus; and,
18. WHEREAS, other universities have established climate action plan goals that are more progressive than UMD's; and,
19. WHEREAS, for example, the University System of California, with an enrollment of 238,700 spanning across 10 institutions, has pledged to become entirely carbon neutral by the year 2025 [8]; and,
20. WHEREAS, the University System of California is working to achieve said goal through the establishment of a Global Climate Leadership Council, which is described as follows, "The council is comprised of scientists, administrators, students and experts from inside and outside UC and will engage the entire university community in its effort to seek out the best practices, policies and technology to achieve carbon neutrality and to advance teaching and research in climate change and sustainability [9]"; and,

21. WHEREAS, the University's 2008 Strategic Plan states, "The University of Maryland will be widely recognized as a national model for a Green University. In ten years time the University will have made substantial progress towards addressing energy issues [10];" and,

22. WHEREAS, the Strategic Plan further states, "We will be a campus that is a model for the sustainability of its environment, and we will be a university that *seeks solutions* to the world's most challenging and vexing problems [10];" and,

23. THEREFORE BE IT RESOLVED that the Student Government Association urges the University to develop a comprehensive strategic plan for carbon neutral power generation and that the plan detail strategies to achieve carbon neutral power generation by the year 2025; and,

24. LET IT BE FURTHER RESOLVED that the Student Government Association requests that this comprehensive carbon neutral energy plan be presented to the campus no later than September 1, 2016 in order to adequately allow the information to assist in the development of the new CHP lease; and,

25. LET IT BE FURTHER RESOLVED that the Student Government Association requests that this resolution be responded to no later than the closing of this spring's academic calendar.

Sponsor: Annie Rice - South Hill Representative

Committee: Sustainability Committee

Vote: In Favor __21__ Opposed __0__ Abstentions __0__

Therefore, the bill: **PASSES**

Sources:

[1] <http://acupcc.org/signatories/list>

[2] http://rs.acupcc.org/site_media/uploads/cap/278-cap.pdf

[3]

http://www.sustainability.umd.edu/documents/Reports/Sustainability%20Progress%20Report2014_web.pdf

[4] <http://www.sustainability.umd.edu/content/about/presidentsenergyinitiatives.php>

- [5] Ibeziako, MaryAnn. "*Campus Energy Initiatives Update.*" December 11, 2014
- [6] Corry, Susan. "*Greenhouse Gas Inventory Report: Natural Gas Account EEM 2014 Data*"
- [7] http://www.earthworksaction.org/issues/detail/hydraulic_fracturing_101
- [8] <http://universityofcalifornia.edu/news/uc-making-big-moves-toward-carbon-neutrality>
- [9] <http://www.ucop.edu/initiatives/carbon-neutrality-initiative.html>
- [10] <http://www.sp07.umd.edu/PlanApril29.pdf>

APPENDIX D

Carbon Offsets Work Group

Background, Objectives and Membership

University Sustainability Council Work Groups

The University Strategic Plan established the goal for the University of Maryland to “become a national model for a Green University.” UMD is making significant progress toward that goal but much work remains to integrate sustainability into the core of campus operations, teaching, and service.

The University Sustainability Council annually reviews general progress on the University’s Climate Action Plan (CAP), trends in selected campus sustainability metrics, and UMD’s recent performance on the Sustainability Tracking, Assessment, and Rating System (STARS). This review and assessment process reveals priority areas where leadership and focused work is needed. The Council, currently chaired by Carlo Colella, Vice President for Administration and Finance, requested the creation of the following campus-wide work groups to develop recommended goals, plans and strategies:

- Sustainable Buildings and Energy Sources (2012-2013)
- Sustainable Water Use and Watershed Protection (2012-2014)
- Education for Sustainability (2013-2014)
- Carbon Offsets (launch date in early 2015)

Background on Carbon Offsets

A carbon offset is a credit for greenhouse gas reductions achieved by one party that — once verified by a qualified third party — can be purchased and used to compensate (offset) the emissions of another party. For instance, the University of Maryland could contribute to projects that restore wetlands in the Chesapeake Bay or capture methane at a landfill. If the greenhouse gas reductions from those projects can be measured, verified, and certified, then the university can claim credit for the reductions because of its role in making the projects happen.

Carbon offsets are often considered a last resort in carbon neutral plans because organizations prefer to reduce emissions associated with their own operations before investing in another party’s greenhouse gas reduction project and taking credit for those reductions. Organizations that purchase carbon offsets are sometimes criticized for “buying their way out” of doing more of the hard work of reducing their own emissions. Still, carbon offsetting is often a necessary strategy for achieving carbon neutrality especially for emissions from sources like commuting and air travel where equipment is not under the organization’s direct control. Organizations that have made significant progress in reducing direct emissions are rapidly moving into the offset space to meet their carbon reduction goals.

Campus Carbon Footprint and Role of Carbon Offsets to meet Climate Action Plan Targets

The University of Maryland reduced its emissions 18% from 2005 to 2013 and will likely achieve its CAP goal of a 25% reduction in emissions for 2015 as it ramps up its use of renewable energy. The Office of

Sustainability estimates that President Loh's Energy Initiatives — if fully implemented over the next five years — will reduce emissions approximately 40% below the 2005 baseline by 2020, which will get the campus closer but not fully to its CAP goal of a 50% reduction by 2020. The university may have to offset an additional 30,000 MT-CO₂e or more to achieve that goal.

In 2020, almost all of the university's remaining greenhouse gas emissions will come from three sources: 1) the combined heat and power plant (CHP), 2) commuter vehicles, and 3) air travel.

The CHP runs on natural gas and is a relatively stable source of emissions. As the campus reduces energy consumption by improving efficiency, most of the savings will come from purchasing less electricity produced by regional power plants instead of reducing output from the CHP. Therefore, the best opportunities to significantly decrease CHP emissions are increased plant efficiency and a shift to low/no-carbon fuel(s). Both options are being explored but neither is likely to be implemented in time to meet the 2020 CAP target.

On the transportation side, commuter emissions are expected to continue trending gradually downward as more student housing becomes available on/near campus and vehicles become more fuel efficient. However, in recent years, increases in air travel emissions have outweighed reductions in commuting emissions. As more faculty travel overseas for research, more students study abroad, and athletic teams travel farther for sporting events (all of which are also important university goals), the air travel footprint is expected to continue to grow. The Office of Sustainability will work with campus partners to implement programs to attempt to mitigate transportation emissions to the greatest extent possible, but some transportation is necessary to the mission of the institution, so offsets will be needed where emissions cannot feasibly be mitigated.

Work Group Objectives

The workgroup should develop recommendations for the University Sustainability Council that focus on the following objectives:

Objective 1: Develop procurement guidelines for registered carbon offsets to specify the types, sources, terms and uses that are acceptable within the university's carbon management strategy.

Objective 2: Develop a plan to offset unavoidable emissions from air travel for Education Abroad, athletic competitions, faculty research and other necessary business trips. The plan should include guidelines for structuring an offsets portfolio and options for financing offsets.

Objective 3: Consider how the university's participation in the carbon offset marketplace could create new opportunities for local and regional carbon offset projects and/or study abroad experiences for students.

Objective 4: Determine if and how the university can participate in the carbon offset marketplace through non-financial transactions including student implementation of offset projects, faculty/staff consultation on offset projects, and other in-kind contributions.