"Public, Great, and Global"

William & Mary and the American College and University Presidents Climate Commitment:
A Path for Leadership and Responsibility

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Acknowledgements

This proposal is the collaborative effort of graduate and undergraduate students and faculty at The College of William and Mary. A class project for a graduate-level course in Climate Change it has become much more than that. It has brought together the efforts of several groups across campus into a coherent product and a coherent message. Without the support of the people named below and many others, our efforts would have been insufficient.

Paramount to the creation, organization, and formulation of this proposal are the members of the Student Environmental Action Coalition (SEAC) at William and Mary who have been working on energy and climate projects around campus for several years. Their efforts paved the way for a systematic look at the evidence and a serious examination of the way to instigate substantial institutional change at William and Mary. Professor Timmons Roberts has been critical in facilitating student-faculty research in the field of environmental policy change on campus for a number of years and his 2006 class project in environmental sociology provided a basis for this proposal. The work of the 75 students in that class evaluating energy use on campus and student attitudes toward climate change was integral to our efforts to generate institutional momentum for change. Professor John Swaddle, Director of the Environmental Science and Policy Program, and Dan Patterson, the College's Energy Manager, were instrumental in providing necessary information and data. Jackson Sasser, Assistant to the President, and Fran Bradford, Associate Vice President for Government Relations, kindly provided feedback concerning the proposal in its formative stages so that it could be improved. Erin Morgan and Richael Faithful of the SEAC were instrumental in arranging that this report be delivered and presented to the President.

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We would like to thank Professor Maria Ivanova, in whose class this project was generated and brought to fruition, for her foresight, patience, and guidance. Lastly, we express our gratitude to President Nichol, Vice President Martin, and Vice President Sadler for being an open and receptive audience to this proposal.

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"If higher education is not relevant in the fight against global warming, it is not relevant, period." David Hales, President of the College of the Atlantic

Executive Summary

2007 has witnessed a great awakening in the American conscience to the issue of climate change. Academic journals and popular magazines ranging from Science and Time to Vanity Fair and Men's Journal are running whole issues on the problem. Local, state and national political leaders are passing legislation to curb emissions. Colleges and Universities across the country are also rising up to their leadership roles, reducing their environmental footprints, and incorporating environmental education into their curricula. Between 1 January and 1 May 2007, 202 institutions of higher education have signed the American College and University Presidents Climate Commitment (PCC), which commits them to adopting a long-term strategy of energy reduction and efficiency in order to achieve carbon neutrality (Appendices A and B). The College of William and Mary has yet to sign the PCC, but we should, and we can, as demonstrated by the following policy proposal.

The College prides itself on being great and public, but the measure for greatness in the 21st century is different than in centuries past. Greatness is increasingly going to be measured in terms of global impact. In order to continue to be great, William and Mary will have to be public, great and *global.* Signing the PCC is a matter of responsibility for The College, responsibility to its former, current, and future students as well to the residents of the Commonwealth, the citizens of the United States, and members of the global community.

This proposal is based on scientific data and intergovernmental consensus that clearly displays that human behavior is affecting our climate. The proposal identifies and explains how the global climate is changing, who will be affected by this change, and who should act.

Traditionally a leader among institutions of higher education, The College of William and Mary is currently lagging behind its peer group on the issue of climate change. Higher education holds a unique role in our society and has special privileges based on its obligation to serve the people and to help develop an improved and educated community. This proposal details some of what other Colleges and Universities are doing to address climate change and the costs and benefits of William and Mary choosing either action or inaction. Climate change represents the paramount problem facing the global community for the next 50 years, and as such, addressing climate change is indeed a fundamental part of our mission to serve others by addressing the problems of the world.

William and Mary has before it several choices on what to do about climate change. We could choose to do nothing, maintain the status quo, and accept the moral, social and media backlash that will accompany that decision. We could choose a leadership role in the manner

that Yale or Oberlin have chosen that could possibly require major and immediate infrastructure changes. Or, William and Mary can adopt a moderate approach that commits The College to reaching carbon neutrality in the years to come and requires a plan and a commitment. Where we have a significant task at hand, we at William and Mary also have the knowledge and the will to see it through. The students at The College are eager to see fundamental changes in the way we power our lives and in the way our lives adversely affect others. We have a strong tradition of being a school of service, as displayed by our numerous international projects to assist and learn. We can no longer support the irony of our service mission coupled with The College turning a blind eye to the problem of climate change. We believe that William and Mary can only be public, great, *and* global by serving and leading in environmental issues that affect our community and the world.

This proposal offers numerous opportunities for The College to reach the goal of carbon neutrality. Going green for William and Mary does not equate to going broke. Smart investments in reduced energy use and increased energy efficiency produce tangible economic benefits along with the ecological ones. Universities and Colleges across the United States have reduced emissions and saved money in the process, as we recommend The College of William and Mary do as well.

Achieving carbon neutrality is not only feasible, but necessary for The College to maintain the ethical principles within our mission. It is not the contention of this proposal that reaching carbon neutrality will be easy. However, with careful planning and implementation using the PCC to guide our efforts it is possible for William and Mary to achieve carbon neutrality in a least-cost manner and be a leader in the 21st century by being public, great, and global.

I. Introduction

Global climate change is likely to impact the vast majority of today's young people in their lifetimes. This impact may be felt indirectly, as insurance markets adapt to rising costs associated with increasing storm severity and regional water scarcity due to changing weather patterns threatens to destabilize international politics. Or it may be felt directly, as certain rivers experience more frequent flooding and infectious disease vectors spread to newly warmed areas. This emerging omnipresence requires that institutions, private and public, regardless of size, location or financial resources, respond to concerns over climate change. The College of William and Mary has a part to play in climate change both as a current contributor to greenhouse gas emissions and as a potential leader among higher education institutions for reducing their environmental footprint.

Annually, the College emits the equivalent of 61,853 metric tons of carbon dioxide. This number corresponds to a per capita use among students of about 8.02 tons. Eight tons is twice the per capita emissions of students at Tulane University and nearly seven times of students at University of Colorado – Boulder, but just under half of the per capita emissions of students at Oberlin College and a third of students at Yale University.[1] Comparing these figures on a national basis, the average William and Mary student produces significantly more carbon emissions than the average American, more that three times the amount of the average German and 82 times that of the average resident of Cambodia or Afghanistan.[2] The College generates more CO_2 from burning fossil fuels than the entire country of Chad, with its population of approximately 10 million, roughly 1,000 times that of William and Mary.

As a long-standing institution of service and excellence, however, William and Mary can rise to the challenge of not only reducing its impact but also leading other institutions. The College can and should commit to carbon neutrality, having zero net greenhouse gas emissions. This could be done by reducing total emissions as far as feasible and neutralizing residual emissions through "offsets". William and Mary can thus not only be public and great, it can be public, great and global. To begin working towards the achievement of this goal, President Gene Nichol should lead the institution in a direction of responsibility and sign the American College and University Presidents Climate Commitment to begin institutionalizing mechanisms and activities aimed at achieving carbon neutrality.

This paper addresses the foreseeable questions that the President and the Administration may have about the role of the College in climate change and social responsibility. The analysis proceeds in five steps. Section II explains the methodology used to obtain the results reported throughout this proposal that William and Mary emits almost 62,000 metric tons of CO_2 per year, or 8.02 ton per student. It is important to note that the methodology is limited by available data and the scope of this project and could certainly be improved when a full-fledged energy audit is carried out. The present flaws, however, do not warrant disregarding the facts.

Section III of this paper reviews scientific and economic facts about climate change. It paints a backdrop against which any commitments to energy-use reductions at William and Mary should be assessed and articulates the imperative for action to reduce greenhouse-gas emissions.

[1] http://environment.yale.edu/documents/downloads/v-z/wp_7_yale_ghg.pdf p 13
[2] http://cdiac.esd.ornl.gov/trends/emis/top2002.tot

Section IV analyses the social context of American institutions of higher education and the role that they should play in creating social change. This section reviews William and Mary's mission and identity and argues for a uniquely pronounced duty to climate change mitigation at the College. William and Mary possesses some characteristics that are unique among institutions of higher learning and this proposal presents a path to sustainability suited to the College. It is our goal, however, that other institutions might use the example set by the College of William and Mary, draw on our best practices, and chart their paths toward campus sustainability.

Section V identifies what measures the William and Mary community can take toward carbon neutrality. This section surveys potential courses of action and explains why the Presidents Climate Commitment is optimal. Section VI systematically addresses all of the elements of the PCC, explains how each requirement could be achieved and details the resources these actions would require. The proposal concludes with Section VII outlining some of the key findings and a path forward. Detailed appendices with supporting and additional data are included in Section VIII.

II. Methodology

Section 1Cii of the Presidents' Climate Commitment calls for a scientific audit of greenhouse gasses annually emitted through William and Mary's operation. Such a study will be essential for the intellectual and factual integrity of an attempt to reach carbon neutrality and the eventual claim to have reached that goal. However, in an attempt to make the case for such a study, we found it essential to offer an educated guess of what those findings might be. This number is rough and does not preempt a greenhouse-gas inventory. Rather, it approximates the amount and demonstrates the order of emissions we can expect to find upon completion of the audit while providing a yardstick with which to measure ourselves to other comparable entities. What we lose in the conversion to scientific data we gain in impetus to gather such data.

Our base data account for emissions produced from energy use in College facilities. This figure accounts for electricity purchased through the Commonwealth from Dominion Power and fuel burned on-campus in our two co-generation plants. Data express carbon dioxide equivalent emissions for these sources, the greenhouse insulation power of emissions in units of CO_2. The data and conversions, shown in Appendix C, have been courteously provided by Dan Patterson, Energy Manager for William and Mary. Initial estimates for 2006 come in at 54,431 metric tons of CO_2. This figure is accurate to the extent of the calculation from BTUs from each energy source into CO_2.

This figure accounts for most but not all of our emissions. Things like transportation of students, faculty, and staff to and from campus impact our carbon footprint but are not included in electricity emissions. The average share that electricity represents in total greenhouse gas inventories at two other schools that have completed full audits (Yale and Tulane)[3] is approximately 88%. Holding our electricity figure to be 88% of our overall sum we reach the rough total estimate of 61,853 tons.

When we use per-capita measures of this figure we refer to the division of this figure by the total number of students at the College (7,709). This number is not fully adequate as it fails

[3] http://environment.yale.edu/documents/downloads/v-z/wp_7_yale_ghg.pdf, 13
http://www.tulane.edu/~eaffairs/PDFs/ghg_inventory5282.PDF, p 9

to account for faculty and staff. But as noted shortly hereafter, it also excludes some very important emission sources. For our purposes, this per-capita figure is adequate.

We have used this methodology because it allowed us to estimate our total emissions and to do so in a way that renders a figure directly comparable to those produced by other schools. But we should be clear on what these figures measure. While accounting for a wide section of emissions directly produced by campus activity (on-campus boilers) and individuals not directly attributable to campus (faculty driving to work), these inventories do not, and arguably cannot, account for the entirety of campus life. For example, greenhouse gases produced by soil-to-plate emissions in the production of dining-hall meals are not included in the calculations. Electricity used by students who live on campus is accounted for, but electricity used in private off-campus residences is not. Our estimates do not include these measurements because we have no way of easily measuring them and because excluding them allows us to more appropriately compare our data to those of other schools. Due to this fact, the figure cited in this report as our "total CO_2 emissions" undershoots the actual total to an unknown degree.

This last shortcoming creates a difficulty in comparing our emissions to those of non-collegiate entities like countries. The figures listed as our "total emissions" do not account for things that are included in the carbon footprint of countries, where data exist for complete emissions tabulations.[4] A more appropriate set for comparison of our CO_2e is found in the total GHG emissions resulting from the combustion of fossil fuels, which is the source of the overwhelming majority of our emissions.[5] Given the approximate nature our current CO_2 footprint, the latter is as close a comparison as we need to make. Still, it is important to acknowledge that neither of these measurements renders an exact comparison to our institutional data.

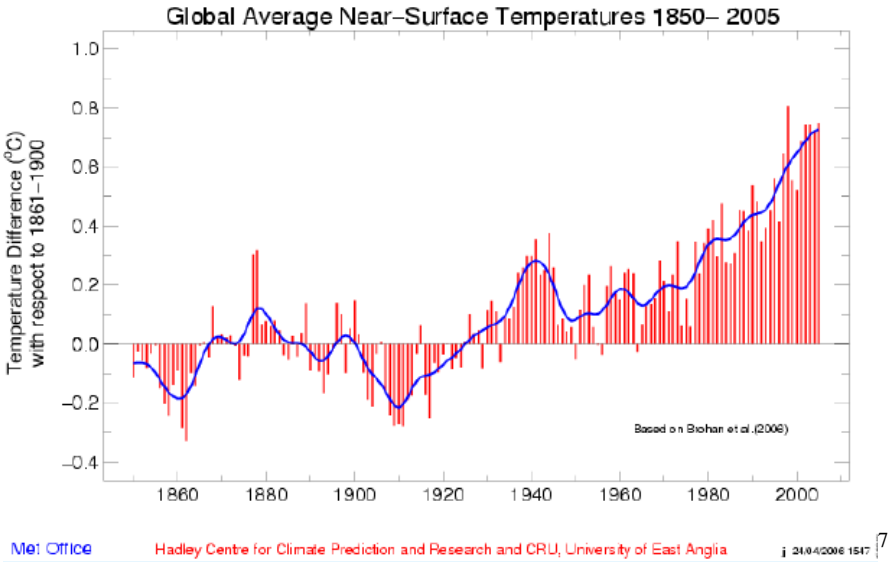
The methodology employed in this report is not perfect. It fails to account for differences in years represented by baseline data, has made an approximation of electricity as measure of total CO_2, and is generally unscientific. Though significant, these shortcomings do not constitute critical flaws in our report. Instead, they produce two things: a rough estimate of where we stand regarding greenhouse emissions and an initial model to be improved as William and Mary begins to take institutional practices related to climate change more seriously.

III. Climate Change and its Effects

A. Is the Climate Warming?

Climate change is a major global problem with economic, ethical, and governance implications that demand immediate attention. The last few decades have witnessed a distracting and paralyzing debate in the scientific and public spheres about the legitimacy of claims that the Earth's mean temperature is rising and that human activity caused this change. However, scientific consensus now exists that humans are changing the Earth's climate. Global warming is now held as an "unequivocal"[6] scientific fact, as the global mean temperature has increased by 0.7º C since 1900.

[4] http://mdgs.un.org/unsd/mdg/Data.aspx
[5] http://cdiac.esd.ornl.gov/trends/emis/top2002.tot
[6] IPCC Policy Summary P. 5.



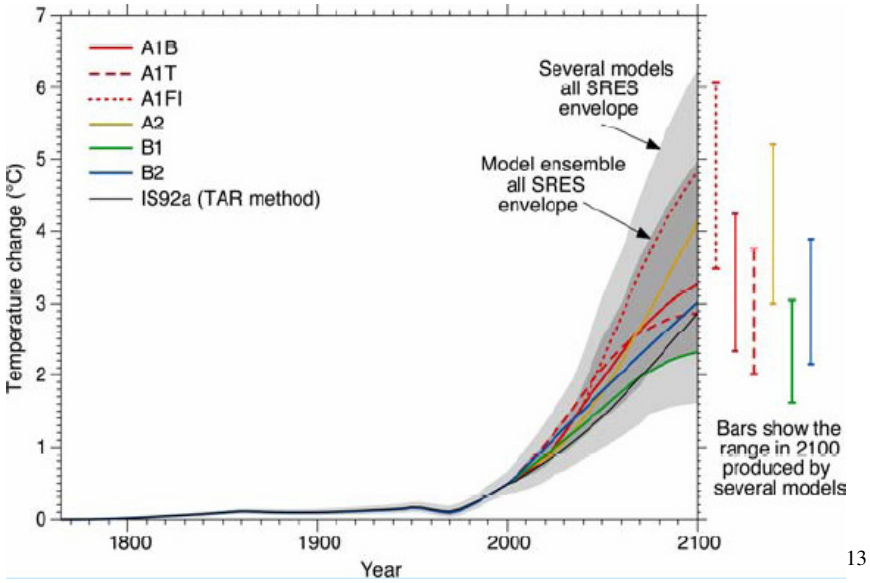
[7]

Further, this warming has been causally linked with "very high confidence,"[8] corresponding to a 95% confidence interval, to anthropogenic behavior. In layman's terms: human activity is virtually certain to be changing global climate. Increased concentrations of atmospheric greenhouse gases, named for their heat-trapping qualities, largely account for rising global temperatures. Scientists have identified carbon dioxide (CO_2), produced primarily by the burning of fossil fuels, as the anthropogenic greenhouse gas having the most impact on the observed warming.[9] The increase in atmospheric CO_2 levels has been shown to be the strongest driver in climate change and provides the causal link between human activity and a changing global climate.

Given that CO_2 remains in the atmosphere for 100 years, we are on an irreversible path set by the emissions that have already been produced. Maintaining current trends, the earth's temperature will reach levels between 2-3° Celsius above pre-industrial levels within the next half century.[10] Before the Industrial Revolution, the atmosphere contained 280 CO_2 parts per million (ppm). This level is now at 430 ppm, and by 2050 is expected to reach 550 ppm, nearly double pre-industrial levels, if current emission trends persist.[11] Such levels would lock the planet into a temperature increase between 2 and 5° C.[12] By comparison, the last Ice Age occurred at a temperature 5° C below current levels. We already know how this relatively small climatic shift, comparable to current warming predictions, altered the Earth and humanity.

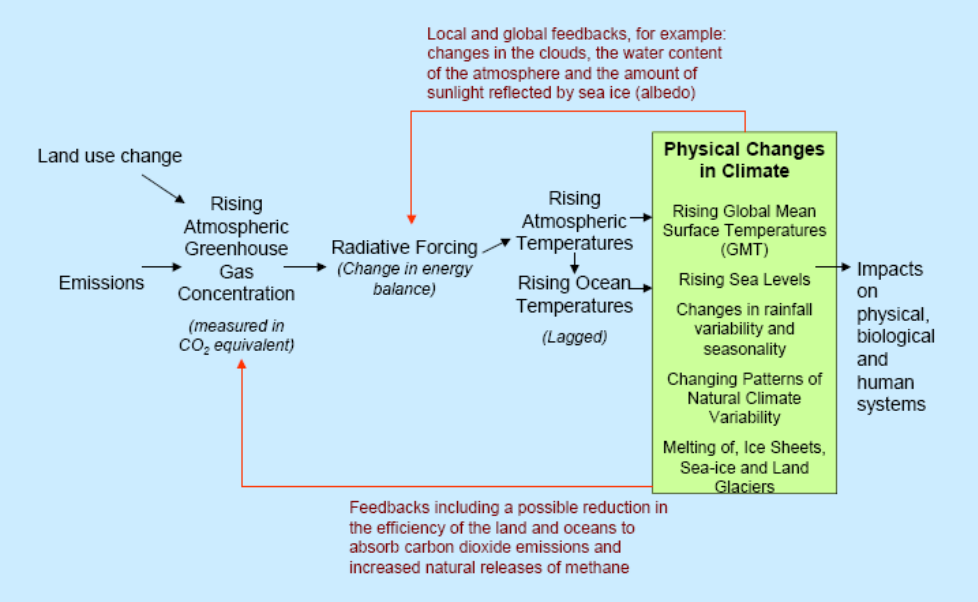
[7] Stern Review Ch 1 Pg. 4 http://www.hm-treasury.gov.uk/media/9A2/80/Ch_1__Science.pdf 4
[8] 4th IPCC Assessment Report Summary for Policy Makers, p3 http://www.ipcc.ch/WG1_SPM_17Apr07.pdf
[9] p 4
[10] http://www.hm-treasury.gov.uk/media/8AC/F7/Executive_Summary.pdf p 5
[11] Stern Review Ch 1 Pg 12
[12] ""

Temperature Projections for the 21st Century



[13]

The climate is influenced by changes in atmospheric composition. It depends on an intricate web of mutually dependant environmental processes such as the water, hydrogen, and carbon cycles, all of which are in turn affected by climate change. Further, the climate is composed of more than just temperature and climate change encompasses more than just warmer winters. Climate is also defined by air pressure, precipitation, wind, humidity, and cloud cover, to name a few. As temperatures change, so do these other climatic elements, which may result in devastating natural hazards and disasters. This is crucial in understanding why the climate stability is so vital and why rapid changes in the climate can have overwhelming effects on living species in a particular climatic zone.



[14]

[13] Stern Review Ch. 1 Pg. 3

B. Who Will be Affected by Climate Change?

The impacts of climate change will have severe negative consequences for many people around the world. The Stern Review, the most recent and comprehensive assessment of the economic costs of mitigation and adaptation to climate change compiled by Sir Nicholas Stern, economic advisor to the UK government, contends that "Climate change threatens the basic elements of life for people around the world – access to water, food, health, and use of land and the environment."[15] Proceeding from current conditions and accounting for additional warming equal to that experienced in the 20th century (1° C), glaciers in the Andes will disappear, threatening the water supply for 50 million people and crop yields in sensitive areas such as the Mediterranean will suffer.[16] An increased rise of two degrees would result in 40 to 60 million additional exposures to malaria in Africa, 10 million more people displaced by coastal flooding, and extinctions of broad samples of species.[17]

These effects will be distributed with pronounced unevenness. Part of the reason for this is environmental – climate change impacts different areas in different ways. For example, higher latitudes will experience significantly higher increases in temperature than the global mean and as precipitation patterns change, some localities will experience drought while others will experience flooding.[18] The impacts of climate change are, by nature, disparately distributed.

However, a large reason for the uneven effects of climate change amounts to inequity, as those least financially able to adapt to altered circumstances are most vulnerable. The poorest developing nations will be affected most acutely. At low levels of temperature increase, there will be a broad range of distributive effects. Some individuals, communities, municipalities, states, and regions may benefit from climate change while others will be adversely affected. In such a case, those who feel the most impact will be those who do not have the resources at their disposal to adapt to the threats introduced by a changing climate. This principle has already become reality. In 2000, for every million deaths in industrialized countries, 0-2 could be attributed to climate change whereas 80-120 could be attributed to climate change in most sub-Saharan African states.[19] Even within developed countries, the impacts of low-level climate change will fall disproportionately on the poor. Extreme weather events, like hurricanes fueled by warm oceanic temperatures, exemplify this trend. With Hurricane Katrina, 22% of people living in lower-lying flooded areas were below the poverty line compared with 15% in non-flooded areas.[20]

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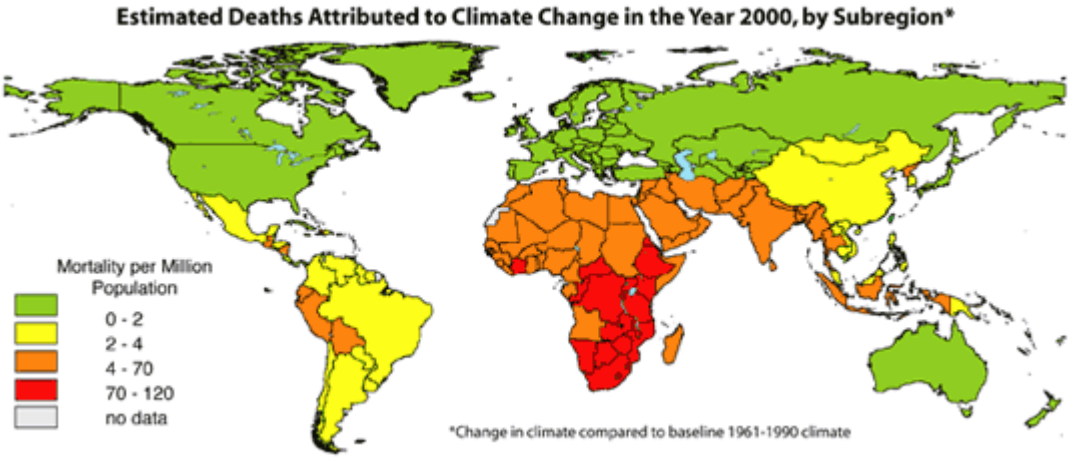
[14] Stern Review Ch 1 Pg 7
[15] Stern Review Ch 3 Pg 56
[16] Stern Review Ch 3 Pg 57
[17] ibid
[18] Stern Review Ch1 Pg 12
[19] Stern Review Pg 75
[20] Stern Review Pg 131



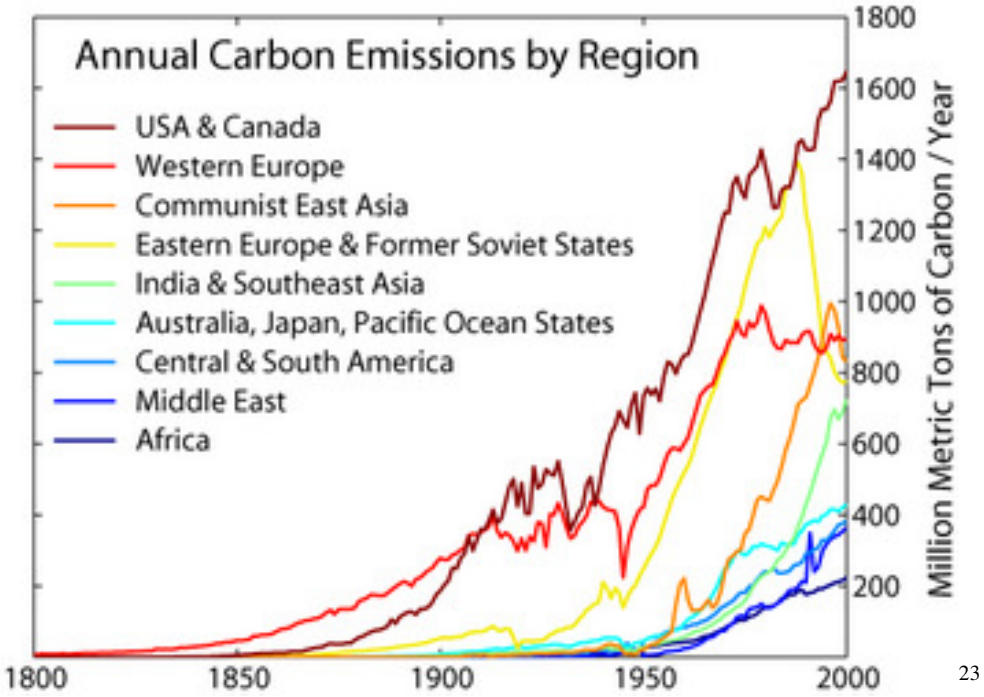
[21]

When faced with climatic drivers, change in human behavior is the inevitable alternative to death. There are two categories under which such change can occur: adaptation and mitigation. Adaptation entails change in response to climatic circumstances whereas mitigation efforts attempt to diminish the amount of change that occurs. In relation to future sea-level rise, an adaptive response might be to relocate from coastal marshes to higher ground that is less directly threatened by sea-level, whereas mitigation might call for efforts to keep the sea from rising in the first place by reducing greenhouse gases. Some combination of adaptation and mitigation are necessary to curb the greatest impacts of climate change. While mitigation is necessary to keep the world from adapting to climate change on the scale of the last Ice Age, it cannot provide shelter from those changes already necessitated by recent emissions. The comprehensive cost-benefit analysis referring to the proportion and equity of this balance is disputed, but the need for some balance follows from the fact of climate change. People's lifestyles globally will change as a result of climate change but some will be affected more than others.

C. Who Must Act?

Most people throughout history, even in modern times, have contributed virtually nothing to climate change. North America and Europe combined have contributed approximately 70% of the world's carbon emissions since 1850.[22] Over the past 150 years, citizens of these nations have caused the majority of anthropocentric climate change. The irony is that those nations who have emitted the most CO_2 over the last 150 years are not the nations who are most likely to be adversely affected by climate change. This disparity between the causal agents and impacted subjects of climate change creates a moral imperative for capable societies, particularly the large emission contributors, to act. While a global problem often requires a global solution, the largest historical emitters should reduce first and most.

[21] http://www.news.wisc.edu/11878.html
[22] Stern Exec Summary Pg 11



[23]

Within the American legal system and western ethical views, the causally significant agent of any action is responsible for its consequences. Under this fundamental logic, it is unjust for the effects of climate change to be imposed upon individuals who lead lives of virtually no carbon emissions and whose societies have not benefited from carbon-heavy industrialization. It is true that the intergenerational nature of atmospheric CO_2 complicates the notion of causality and moral responsibility at play since current residents of industrialized nations are hardly responsible for total cumulative emissions. This does not mean that current residents are not responsible for their part in today's emissions nor does it excuse them from acting in the global best interest. What is available today that was not available to industrialized nations in the past is knowledge. When one knows better, one must do better. If we accept that justice implores we not allow innocent lives to suffer from climate change then we must stabilize atmospheric CO_2 emissions and those with a disproportionate historical carbon footprint and the financial ability to do so must act.

There is still time to avoid the worst impacts of climate change if we act immediately and decisively to reduce global greenhouse gas emissions. Though there are many scientifically settled debates in the climate change arena, some uncertainties do persist and we want the President and administration to understand the whole picture. Climate systems rely on non-linear feedback loops, making it difficult to know what atmospheric greenhouse concentration might result in sudden drastic destabilization of the global climate. Though there is some debate within the scientific and economic communities, leading views hold that the costs of climate change adaptation increase far faster than those of mitigation.[24] This means that unless immediate and decisive action is taken to reduce the amount of CO_2 emitted into the atmosphere, the global climate will continue to change in significant and potentially catastrophic ways.

[23] http://ldesign.wordpress.com/2006/10/
[24] Stern Review Summary of Conclusions, P 2

IV. William and Mary and Climate Change

William and Mary has the prestigious position of being one of the nation's top institutions of higher education. Colleges and Universities have a unique role to play in our society and are granted special privileges in return. Higher Education is a $317 billion industry and enrollment is expected to increase by 23% between 2000 and 2013. The literature published within the industry of Higher Education is expanding rapidly with articles on the growing interest in sustainability and climate neutrality, with the Chronicle of Higher Education and University Business each devoting a special issue to the topic in 2007. The students of tomorrow are also voicing their concern for the environment and demanding action. There is reason to expect that this trend will continue and even increase as Higher Education addresses climate change through education, research, and concrete action. William and Mary must recognize the role of higher education in addressing climate change, but more specifically, we must embrace our responsibility to address climate change as a part of our mission and a critical factor in our competitiveness.

William and Mary has risen to prominence as one of the nation's top universities by "embracing the nobler of hypotheses" and working to "address specific problems confronting the Commonwealth of Virginia, the nation, and the world" as stated in our mission statement.[25] Our history and our mission as an institution mandates that William and Mary work to resolve problems confronting the people of the world, not exacerbate them. Therefore, William and Mary must take responsibility for the Tribe's carbon footprint and serve as a visionary leader in the Commonwealth and beyond. The College has the opportunity to serve its students, faculty, staff, alumni, prospective students and the state by taking action. It also takes the risk of disappointing that same constituency, the people who contribute and have contributed to making the College what it is today, by not taking action. Moreover, William and Mary risks losing its competitive edge to other institutions who embrace their role in addressing climate change and becoming pro-active global citizens.

A. How Does the Identity of William and Mary Relate to Climate Change?

The College of William and Mary has an extraordinary history as the second oldest institution of higher education in the country and a tradition of academic excellence that rivals any university in the nation. Originally founded in 1693 by British royal charter, William and Mary has proudly served as the Alma Mater for "generations of American patriots, leaders and public servants."[26] After more than 300 years of academic prominence and leadership, William and Mary continues to strive to be both public and great, which it has done remarkably well, named by Newsweek the "Hottest Small State School" and continuously ranked in the U.S. News & World Report Top 10 for all public universities.[27]

[25] President's State of the College Address, 2007
William and Mary Mission Statement
[26] William and Mary Mission Statement
[27] Newsweek August, 22, 2005; U.S. News & World Report, 2007

Over the course of its history, William and Mary has served as a leader in the Commonwealth and the nation. Most notably William and Mary was the first university to adopt an Honor Code, written by alumnus and Third President of the United States Thomas Jefferson. In more recent years, William and Mary alumni, faculty, and students have continued the tradition of leadership in the academic, public, and private sectors all the while bringing honor and prestige to the College. This leadership role is a responsibility that William and Mary has proudly accepted as a premier institution of higher learning.

In spite of the College's legacy, public status, and the resulting pressure to expand, William and Mary has made a commitment to remaining small and maintaining its emphasis on being a tightly-knit community. The emphasis on community is apparent in the interaction between administration, faculty, staff, and students. Moreover, William and Mary is known as the Tribe, symbolically attesting to its commitment to community. This is not something that the College takes lightly as evidenced by the struggle that William and Mary underwent to preserve its title as the Tribe in 2006.

The William and Mary community is not limited to the geographic confines of Old and New Campus. It spreads beyond the academic buildings and dormitories into Williamsburg, across Virginia, throughout the United States, and around the world. William and Mary students, faculty, and alumni have contributed to the greater good of humankind in concrete ways, including medical and educational service trips to a variety of developing countries such as Mexico, Nicaragua, Guatemala, the Dominican Republic, Peru, Ghana, Tanzania, and Kenya.[28]

Our impacts, however, can also be harmful. The greenhouse gases that the College emits into the atmosphere spread throughout the world contributing to the growing problem of global climate change. The College emits 62,000 metric tons of CO_2 annually to serve well under 10,000 people. These emissions are more than the emissions of at least six countries and potentially as many as 23 countries.[29] For example, William and Mary emits twice as much CO_2 per year as the island nation of Kiribati, which has a population of over 105,000 people.[30] By some estimates the Tribe's footprint is even larger than that of Chad's, which has a population of nearly 10 million people – 1,000 times more than William and Mary.[31] Regardless of international comparisons, the average member of the Tribe emits almost twice as much CO_2 as other Americans.

What is worse is that the nations who are currently emitting less than the College also bear no responsibility for the atmospheric stock of CO_2, and they are the most likely to be negatively affected by climate change. The small island nations in the Caribbean and South East Pacific will be flooded and destroyed by storm surges, and the countries in central Africa and Central America will be consumed in drought, disease, and conflict. Ironically, these regions are home to the countries where we send our students every year so that they may address the tragic realities of developing countries. It does not matter how many schools, homes, or medical clinics William and Mary students build if the countries are destroyed by flooding. It does not matter how many vaccinations are given on service mission trips if the people vaccinated starve to death or die of dehydration. The very people we are trying to help stand to have their entire

[28] http://www.wm.edu/studentactivities/osvs/ist.php

[29] http://millenniumindicators.un.org/unsd/mifre/mi_series_results.asp?rowID=749&fID=r15&cgID= http://cdiac.esd.ornl.gov/trends/emis/top2002.tot

[30] ibid

[31] http://cdiac.esd.ornl.gov/trends/emis/top2002.tot
CIA World Fact book - https://www.cia.gov/cia/publications/factbook/geos/cd.html

lives threatened as a result of the impending climate change to which the College is directly contributing.

The College would be derelict in its obligation "to instill in its students an appreciation for the human condition, [and] a concern for the public well-being" if it abdicated its responsibility to act on one of the single greatest problems facing the world this century.[32] In the last three centuries William and Mary has had a marked positive impact on the Commonwealth and the world. However, it would have an undesirable impact on the global climate unless appropriate actions are taken. William and Mary's tradition of honor and legacy demand that it mitigate its own contribution to climate change and prepare its students to address climate change on a larger scale.

Actions to reduce the College's carbon footprint would not in themselves be sufficient to minimize the effects of climate change; however, as an institution that prides itself in being great and public we must make the "conscious choice to live in the belief that we can make a difference in the quality of our private and public lives."[33]

B. How Does William and Mary Compare to other Institutions of Higher Education?

William and Mary must demonstrate environmental responsibility and leadership if we hope to remain competitive with our peer institutions. Schools across the country have assumed responsibility for their carbon footprint and some have taken on leadership roles in climate change through both scholarship and practical activities. It does not go unnoticed by the American public and in particular the students of tomorrow, that William and Mary has chosen inaction to date.

More than 17 million of future professionals, parents, and leaders are currently attending the more than 4,000 institutions of higher learning in the United States. They need and value new knowledge and skills that only higher education can provide on a broad scale. Polls show that prospective college students value environmental responsibility and global warming was recently reported as the number one environmental concern of teenagers.[34] As the youth concern grows, higher education expands and media attention increases, there is reason to expect that the public demand for action at the level of higher education will as well. And it is safe to say that the College is being monitored and graded on its action or inaction by every stakeholder in higher education.

The students of tomorrow are not the only ones to acknowledge the issue of climate change. Students of today are voicing these concerns as well by voting in universities around the country to encourage their administrations to represent their environmental concerns. For example, in February 2003, 75% of voting students at University of North Carolina-Chapel Hill supported a $4 *per semester* fee increase to fund the installation of renewable energy technologies on campus. The increase that went into effect in fall 2004 covers both undergraduate and graduate students and generates approximately $185,000 a year, administered by the Renewable Energy Special Projects Committee.[35] In January 2005, 91% of voting

[32] William and Mary Mission Statement
[33] President's State of the College Speech, 2007
[34] MTV Poll. Available at www.**mtv**.com/think**mtv**/about/pdfs/**mtv**_environment_**poll**.pdf
[35] http://www.aashe.org/resources/resource_center.php

students at Evergreen State College supported a $1 *per credit* fee increase (up to $20.00 maximum per quarter) to purchase renewable energy and fund the installation of renewable energy and energy conservation technologies on campus.[36] In February 2004, students at Harvard University's Kennedy School of Government voted to support a $5 *per semester* increase in student fees to purchase renewable energy, and students at Saint Mary's College of Maryland voted overwhelmingly (93%) to buy 100% clean energy through student fees.[37]

Hundreds of colleges and universities are already seeing health, economic, social and environmental benefits by implementing programs to address climate change and sustainability. For example, the University of Michigan completed energy efficiency projects in 123 campus buildings. The measures included lighting upgrades, efficient appliance procurement, adjustments to mechanical systems, and environmental control systems. Beginning in 2005, the school expects the improvements to produce $9.7 million in yearly energy cost savings.[38] The University of British Colombia has created a program of sustainability coordinators to influence student sustainability behaviors.[39] The coordinators promote conservation within the schools residencies and the program saves the school $78,000 annually.

William and Mary is currently a laggard in climate change among its peer group. The majority of the Top Public Universities has signed on to the Presidents Climate Commitment or has made sustainability efforts that exceed the PCC. In Virginia, six schools have already signed the PCC and three of them have become members of the Leadership Circle committed to an active leadership role.

Top Public Schools in the United States

Institution	***PCC Signatory***
1. University of California-Berkeley	✓
2. University of Virginia	
3. University of Michigan	✷
4. University of California-LA	✓
5. University of North Carolina	✓
6. **William and Mary**	**?**
7. University of Wisconsin- Madison	✷✷
8. University of California- San Diego	✓
9. Georgia Institute of Technology	✓
10. University of Illinois	
11. University of Washington	✓

✷The University of Michigan has already engaged in sustainability measures that exceed those suggested by the PCC;

[36] ibid
[37] http://www.smcm.edu/rivergazette/articles/07-7-2-6.pdf
[38] "UM earns award for Energy Efficiency". http://www.umich.edu/~urecord/0304/Mar08_04/01.shtml
[39] National Wildlife Federation.
http://www.nwf.org/campusEcology/files/UBC%20yearbook%20entry%203%2003-04.pdf

✶✶The University of Wisconsin-Madison is part of the larger University of Wisconsin system that currently has a majority of its branches as signatories of the PCC.

Virginia PCC Signatories

Institution	*President*	*Public/Private*	*Population*
Ferrum College	Jennifer L. Braaten	Private	941
Lynchburg College	Kenneth R. Garren*	Private	2,400
Norfolk State University	Carolyn Meyers	Public	6,238
Randolph College	Virginia Hill Worden	Private	760
Sweetbriar College	Elizabeth S. Muhlenfeld*	Private	750
Washington and Lee University	Kenneth P. Ruscio*	Private	2,161

* Member of Leadership Circle of the PCC

William and Mary still has the opportunity to define itself as a leader by signing the PCC before June 1, 2007 to be considered a charter signatory. By doing so, it would redefine itself amongst its peer groups. Standing on the sidelines is no longer acceptable. As climate change becomes more centrally located in the psyche of America with cities, corporations, the media and the general public taking notice and taking action, failure to act by those who have the expertise and the mandate of education and research will become increasingly objectionable. We do not want William and Mary to be seen as a laggard institution resistant or ignorant of the problem of climate change.

V. What William and Mary Can and Should Do About Climate Change

A. What are the Potential Options to Address Climate Change?

William and Mary's decision on a policy to address climate change will define it in the same way that its decision to adopt an Honor Code or its policy to allow women to enroll did. Given the level of gravity surrounding the situation there must be deliberation weighing the pros and cons of various options. Universities across the United States have adopted a variety of policies that can serve as a guide for William and Mary. Each option makes a particular

statement about the values of the universities which adopted them. It is important to realize that there are a few options in front of the College and that there will be a choice made on the Tribe's stance on climate change after this proposal.

One of those choices is to do nothing. This would mean moving forward in business as usual fashion, maintaining the status quo, and hoping that our community, our state, our nation and the world will not take notice as we fail to act on the global problem of climate change.

Another option is to define the College as an environmental leader, contribute major resources to this problem and choose to serve others with our energy research and environmental stewardship. Numerous schools have been so astounded by their significant contributions to global emissions and by the magnitude of the problem that they have built up their infrastructure and taken a leadership role in sustainability. For example, Yale University has set a sustainability roadmap for the university until 2020 with the goal to make it the "Greenest College in the Country." The school has adopted numerous programs and policies following up on an energy audit that reported the university polluted more than several small developing nations. Aware of their level of consumption, Yale embraced its ethical responsibility to act. Although there are differences between William and Mary and Yale in terms of financial capacities, there are also similarities. Both are great educational institutions with a long-standing history and with old, inefficient campuses. Similar in student body size, both universities have highly active and committed student communities aware and ready to act.

Yale is now committed to a level of investment in energy conservation and alternate energy sources that will lead to a reduction in its greenhouse gas emissions by 10% below 1990 levels by the year 2020. This is consistent with a similar commitment by the Connecticut State Legislature and the New England Governors and Eastern Canadian Premiers Climate Action Plan. By adopting this goal Yale is one of the first universities in the country to commit to a fifteen-year strategic energy plan. They intend to reach their goal through a combination of a strong energy conservation program, investing in alternative energy sources, purchasing Renewable Energy Certificates, and implementing on-site renewable and clean energy demonstration projects.

Effective conservation programs can free up funds within the university budget that will in turn be invested in renewable and non- CO_2 emitting forms of energy. Specifically, Yale is setting out to achieve the following conservation targets: a 15% reduction of energy use at residential colleges over a three-year period and a 10% reduction at all other facilities. Two student groups, New Haven Action and the Student Task Force for Environmental Partnership, similar to William and Mary's SEAC, will take the lead in engaging and educating students on how to participate in advancing Yale's goals for energy conservation. For every 5% of reduction at residential colleges Yale will allocate renewable energy certificates to offset 1/3rd of the electrical energy used by residential colleges. William and Mary has the option to emulate Yale in terms of leadership. William and Mary can serve as a leader among small, public schools by adopting sustainability measures that fit its own unique community.

Six schools in the state of Virginia have adopted the PCC and have taken steps to identify the steps they will take to become a sustainable university. For example, Washington and Lee has signed the PCC and has taken measures to reduce campus energy use. An energy performance contractor was hired to retrofit lights, water devices, boilers, and chillers during the fall of 2006. For most of the year, the University burns natural gas instead of diesel in its boilers, reducing greenhouse gas emissions. However, the University has not yet purchased or installed any renewable energy systems. Washington and Lee University's Environmental Planning and

Management Committee has been working to promote sustainability initiatives on campus. A full-time position for environmental sustainability has been established, and the University's efforts have made it the first institution of higher education to win Virginia's Environmental Enterprise designation. William and Mary has the human resources and intellectual capital to catch up to and surpass our Virginia competitors and become a leader among small public schools.

Our third option is to sign the American College and University Presidents Climate Commitment and take a flexible approach to addressing climate change adapted to our capabilities. Recognizing the existence of some resistance to taking a stance on climate change at William and Mary, we recommend that the President sign the Presidents Climate Commitment and commit to incrementally reaching carbon neutrality. This option allows the school sufficient time to make necessary changes and to build the energy reduction plan that is right for the Tribe. Moreover, if the PCC is signed by June 1, William and Mary will be considered a charter signatory and thus reach the level of leadership parallel to what the students, faculty, staff and alumni expect.

B. What is The American College and University Presidents Climate Commitment?

The most responsible and appropriate action for the College regarding climate change is to take full responsibility for its carbon footprint by moving toward carbon neutrality. Carbon neutrality does not mean that William and Mary will grind to a halt to reduce its emissions to zero. Zero total emissions is an infeasible proposition given the energy needs and current infrastructure of our university. What carbon neutrality would mean for William and Mary is: 1) reducing energy use and reliance on carbon based energy, 2) increasing efficiency, and 3) taking responsibility for the remainder of emissions by purchasing certified carbon offsets. Money spent on these offsets fund projects around the world that prevent emissions that would otherwise occur, such as clean energy production or efficiency upgrades. These prevented emissions create a negative stock of emissions "offsetting" existing emissions. Through this process a net total of zero greenhouse gas emissions can be achieved.

The American College and University Presidents Climate Commitment provides a structured framework consisting of stepping stones towards a carbon neutral university, allowing time for appropriate planning, assessment, and action. Moreover, the PCC offers sufficient flexibility in defining and attaining the intermediary actions towards carbon neutrality such that William and Mary could create the most appropriate path for our community.

However, there are several potential drawbacks to the PCC. The most fundamental question has to do with the reliance on carbon credits for offsetting the remainder of universities' carbon emissions. Currently there are a variety of not-for-profit organizations that sell carbon permits to individuals and organizations but some legitimate concern exists that the offsets purchased through these not-for-profits might not actually offset carbon emissions. This is a serious concern and must be taken into account by carefully researching the providers and relying on certified carbon offset mechanisms through well-established organizations.

Another concern about offsets is that they are a quick fix and that by focusing on them we lose track of the fundamental changes in consumption patterns and sources that reinforce climate change. By simply buying offsets we are saying that other people should use our money

to change their habits but that we are fine the way we are. While this concern is legitimate, we by no means need to fall victim to it because the flexibility of the PCC allows us to integrate the most effective and sensible emissions reductions into our overall long-term plan.

William and Mary could minimize its reliance on carbon credits by first reducing energy use and purchasing energy from renewable sources. Even with these efforts there would be a need for William and Mary to purchase some carbon credits to offset the remainder of its emissions under the PCC. Although there are current critiques of carbon credits many of these are likely to be resolved in the next several years as more and more individuals and organizations become interested in purchasing them and the market for this service develops. William and Mary will not need to take the step of purchasing of carbon permits for at least several years into the commitment, and upon that time the carbon permit system should be re-evaluated.

The potential drawbacks of carbon permits should not outweigh the much greater benefits associated with the PCC. The PCC is the optimal vehicle for William and Mary to attain sustainability and, ultimately, carbon neutrality. Through its structured, yet flexible framework, the PCC would allow William and Mary to define its own path in ways that maximize benefits and minimize costs for the institution. Undoubtedly there will be costs associated with going carbon neutral including the investment in more efficient technologies and some purchasing of carbon credits; however, these costs pale in comparison to those of inaction and can be minimized with appropriate planning. In fact, many schools are seeing a positive return from their energy reduction efforts, as mentioned in the previous section.

Ultimately, carbon neutrality is the direction we need to move. The PCC addresses in name, spirit, and structure the motivating factor for our policy changes. It is important that this message not be lost, as higher education must be vocal about its concern for climate stability. William and Mary should, and indeed must, sign the PCC, formally establishing its commitment to addressing climate change and taking responsibility for its carbon footprint. The students of yesterday, today and tomorrow need William and Mary to continue being an institution of responsibility and excellence.

VI. How William and Mary Can Go Carbon Neutral via the PCC

Broadly, William and Mary can become carbon neutral under the PCC by reducing energy consumption, increasing energy efficiency, purchasing clean energy, and offsetting the remainder of its emissions by purchasing carbon credits. Below is a more detailed description of the PCC and the ways in which William and Mary could address each aspect of the PCC in its path to carbon neutrality. There are three major sections of the PCC, each dealing with a specific phase or aspect of becoming carbon neutral. Section 1 of the commitment establishes general deadlines for signatories to begin and complete necessary tasks. Section 2 deals with tangible actions to reduce greenhouse gases that can be taken while a more comprehensive plan is being developed. These two sections contain the stepping stones of this framework and they include many items on which the faculty and students are already working and others which could be included into the curriculum to the benefit of the educational experience at William and Mary. Section 3 requires signatories to make compliance records accessible to the public so that the process is open and transparent and so that other schools can learn from each other's successes and difficulties. Descriptions of each section are included below; however, Appendices E and F

provide succinct summaries of the requirements of the PCC and the framework for ratifying and implementing the PCC.

A. Section 1: Develop a Plan

Initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible.

a. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.

Suggestion: Create Office of Sustainability
Cost: $100,000 – $150,000
Benefit: Fully integrate sustainability into function of College

The Landscape, Environment and Energy (LEE) campus-wide committee is the most sensible body to have purview over pursuing the goal of carbon neutrality within existing structures. "The mission of the Landscape, Environment, and Energy committee is to serve as a strong advocate for environmentally sound and energy efficient activities throughout William & Mary that are aesthetically pleasing and economically responsible,"[40] reads the body's mission statement. However, the LEE committee, in its current form comprising a few faculty, staff, and students, is not able to meet the challenge of coordinating actions toward carbon neutrality. This task would require the addition of at least one full-time staff position to oversee the carbon neutrality plan. Many Colleges and Universities have the administrative position of Sustainability Coordinator, which William and Mary should create if it hopes to achieve the commitments of the PCC. Estimates of salary and benefits for one such staff person hover around $100,000 and an operational budget would also be necessary.[41] Most Sustainability Coordinators oversee all the sustainability projects on campus, are involved with promoting green building practices, encourage sustainability education for students, and create a future action plan for a long-term sustainability program on campus. Student volunteers and/or interns would likely be available for the Office of Sustainability, but it would need a Coordinator.

An Office of Sustainability would link the academic mission and physical operation of the College reporting to both the Provost and the VP of Administration. Such a set-up could fully embody the link between academics and application that we value at William and Mary. Ideal job candidates for this preferred scenario would likely have PhDs in a discipline like Industrial Environmental Management and be able to teach a course.

Short of funding for the full Office, we could consider less costly options. The College could modestly fund a full-time "fifth-year internship" program for recent graduates with relevant experience, filling the position of sustainability coordinator, as seen at Carleton College.[42]

b. Within one year of signing this document, complete a comprehensive

[40] http://www.wm.edu/studentaffairs/committeedescr.php#lee
[41] Communication with College Energy Manager on File with authors.
[42] http://chronicle.com/weekly/v47/i30/30b00701.htm

inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) and update the inventory every other year thereafter.

Suggestion: Some curricular involvement
Cost: $0 to potential upward limit of a few thousand in further research grants
Benefit: Strengthen faculty-student research in Environmental Studies, encourage and actively support interdisciplinary work

This commitment is important because no comprehensive data collection currently exist on William and Mary's total carbon footprint. In order to achieve carbon neutrality, we must first measure the distance to that goal. Private corporations exist that can conduct greenhouse gas inventories. However, some schools have conducted such inventories through curricular means, which is also the methodology that we endorse for William and Mary. John Swaddle, Chair of the Environmental Science and Policy Program, has expressed interest in facilitating the inventory through the Program, and is currently seeking out a faculty member to oversee it. When conducted as a curricular activity, an audit can either be integrated into a preexisting class or added as a stand-alone course. Not only does a student audit save money for the College but it is an investment in the academic mission of the College, elaborated in Section 1, C, and iii. Joshua Wayland, a junior majoring in Economics and Environmental Studies, has been awarded a summer research grant from the Charles Center to begin work on a carbon audit for William and Mary (Research proposal attached as Appendix D).

c. Within two years of signing this document, develop an institutional action plan for becoming climate neutral, which will include:

i. A target date for achieving climate neutrality as soon as possible.

Suggestions: Adopt date around 2025
Cost: Varies greatly
Benefit: See sections III and IV of this paper

"As soon as possible," the target, by which PCC signatories commit to reaching carbon neutrality, is a flexible deadline. It would be difficult to insist upon a target date within the realm of possibility without first completing the previous sections of the Commitment. However, in deciding upon a target date, it is important to keep in mind the scientific realities motivating action on climate change, and the very signature of the PCC. 2020, thirteen years from the present, is a goal commonly adopted by institutions who have signed the PCC. The year 2020 should serve as a place-holder for purposes of assessing what PCC implementation might mean for William and Mary. However, we acknowledge that a later date might be more sensible if the College's internal planning process renders an action plan that depends upon steps with longer financial or practical time-horizons.

It is exceedingly difficult to determine the total cost of reaching carbon neutrality. The first difficulty is that there is more than one way to reach zero. We could leave current practices unaltered and simply buy offset credits indefinitely, which would currently cost an estimated $300,000 to $600,000 per year for the entire campus given the market rate for carbon is

approximately $5 – 10 per metric ton.[43] However, this route does not adequately address the fundamental flaw of carbon dependency. Presumably we would embark upon a comprehensive program that reduces carbon emissions in most meaningful and cost-effective ways. The make-up of such a plan cannot be predicted or proscribed here, nor is it intended to be.

The other difficulty is in predicting costs. Even with the comprehensive plan available it would be nearly impossible to predict the cost of its implementation. Thirteen years ago carbon markets did not exist, renewable energy on the industrial scale was a peculiarity of the future and energy conservation was a thing of the past. Costs for conventional sources of energy are difficult enough to predict, let alone the rapidly growing clean energy market. As the recent exponential rise in cost for natural gas was outside of projections for that fuel source, so too are significant decreases in the cost of renewable energy. It may even be that within our institutional timeline that renewable energy will cost less than traditional sources.

ii. Interim targets for goals and actions that will lead to climate neutrality.

Suggestion: Main project of Sustainability Director
Cost: Previously accounted staff time
Benefit: Quantifiable progress monitoring, engagement of students, staff, and faculty

The College would identify the most meaningful and cost effective means of reducing net carbon emissions and create short and mid-term goals for those projects. Please refer to Appendix G for a model timeline already being implemented at Oberlin College and a similar version could be adapted to William and Mary. Note that this timeline is merely one possible scenario, used to simply depict the general steps to carbon neutrality, and should not be construed to be a proposal of its own.

iii. Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students.

Suggestion: Implement existing orientation program and consider environmental curriculum requirement in long-term
Cost: Varies
Benefit: More fulfilling and holistic educational experience that is international and interdisciplinary

There are degrees to which a school can integrate these topics into the educational experience of every student. At the deepest level of commitment, William and Mary could join the EcoLeague by making its entire curriculum eco-centric, but this level of environmental focus is neither necessary for meeting this requirement nor suggested for optimizing sustainability within our curriculum or our broader educational mission. Some schools such as University of Georgia for example, have added the equivalent to a General Education Requirement for

[43] http://www.tufts.edu/tie/tci/carbonoffsets/price.htm

environmental literacy as far back as 1998.[44] Such a requirement could be integrated into the current GER structure at William and Mary, as was the case with the writing and departmental computer proficiency requirements. This would require four to five new full-time faculty members to provide all of the courses necessary for students to take the required GER. These professors could be employed through the Environmental Science and Policy Program or integrated into various departments such as Biology, Government, Philosophy, or Public Policy.

Expanding the environmental component of the College's undergraduate academic program is a significant commitment in both resources and ideas. Currently, most classes offered under the Environmental Science and Policy Program, and many outside of it, deal with information relevant to climate change but it would take a strengthened commitment to make this an inherent part of a William and Mary education**.** The proposal for an environmental GER is compelling as environmental considerations are unambiguously a factor in the life of every student, as is the case with and impetus for all GERs. Moreover, student interest is evidenced by the fact that in the Spring of 2006, 250 students took the climate change seminar speaker series that brought leading figures in global climate policy to campus.

Still, at a very basic level, this commitment will already have been met within the year. Freshmen in the Class of 2011 will be the first to have environmental issues addressed comprehensively in their orientation program at William and Mary, designed both to educate and instill behavioral changes in students (please see Appendix I for Program Outline). Resources are the major theme of the program and energy, within the frame of global warming, plays a dominant role. By 2011, every class at William and Mary will have received this baseline environmental education.

iv. Actions to expand research or other efforts necessary to achieve climate neutrality.

Suggestion: Emphasize student and faculty research grants in climate change

Cost: Small, potential for significant income

Benefit: Increased student-faculty research opportunities

It is understood that the major engineering innovations that make carbon neutrality a reality in American Society will not be made at William and Mary. Still, the meaningful research that exists here can fit into this goal in a way that fits the institution. At the very least the Environmental Science and Policy Program can and is willing to encourage climate issues and carbon neutrality as topics for student research projects, summer or otherwise. As previously mentioned, such research is being undertaken this summer. Through the Charles Center, the College could establish climate specific grants to build on the precedent of this summer's research with a stipend for a student and a faculty member to oversee the work. VIMS can also play an active role in this component of the Commitment as well, since climate change is vitally connected to marine science. This possibility could bring significant research funds to this commitment.

[44] http://bulletin.uga.edu/bulletin/prg/ELR_Req.html

v. Mechanisms for tracking progress on goals and actions.

Suggestion: Empower Sustainability Director to implement necessary mechanisms

Cost: Accounted for within Office of Sustainability

Benefit: Allows for determination of effectiveness of various efforts and projects

Tracking progress is a vital aspect of the PCC and one that requires centralization. This is a role that would ideally be filled by the Sustainability Coordinator. Short of hiring a Sustainability Coordinator, the LEE committee would be responsible for goal tracking, but given the percentage of overall time that each committee member can give to the committee, it is unlikely that they could oversee projects effectively. Therefore, it is crucially important that there be a Sustainability Director who directly oversees the progress.

B. Section 2: Initiate Tangible Actions

Initiate <u>two or more</u> of the following tangible actions to reduce greenhouse gases while the more comprehensive plan is being developed.

William and Mary already meets requirements "b" and "d" to or near an acceptable degree to consider Section 2 of the commitment to be virtually met. This is something to be proud of and to publicize. Still, the spirit of the commitment necessitates changing and improving our practices beyond the sheer compliance of current policy to initial requirements. The College most likely will and certainly should integrate all of these requirements into its long-term action plan for carbon neutrality since they all contribute to the ultimate goal of carbon neutrality.

a. Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent.

Suggestion: Adopt such a policy
Cost: 1.45% Increase in total building costs
Benefit: Financial return on the investment, decreased environmental impact, buildings embody environmental consciousness

The College's new Sustainability Policy commits all new campus construction to LEED Green Standards, due to the many environmental and economic benefits of efficient building design. Green is the baseline LEED standard, followed by Silver, Gold, and Platinum. The average marginal premium between LEED Green and Silver is about 1.45% of total building cost for offices and schools.[45] Although this cost is not insignificant, it is not so large as to be out of reach for the College.

Still, the benefits that this requirement brings to campus are meaningful. At an institution

[45] http://www.rexelarchive.com/drupal-4.4.2/node/view/215?PHPSESSID=8e77b5799af5016ec7e98e983a39288d

of learning it is important that material surroundings and administrative practices educate and inspire students and support the curricular understanding of the world, as has been well implemented in the new Recreational Sports Facility. This philosophy is at the heart of the design of William and Mary's physical campus, from the architecture of old campus to the land-use design of new campus.

b. *Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.*

Suggestion: Formalize current practices by implementing such a policy
Cost: Significant lifetime savings
Benefit: Reduced energy use, increased efficiency, reduction in energy costs

Energy Star appliances use an average of 10-15% less energy than non-certified appliances, creating real life-cycle savings financially and in terms of carbon footprint. Further, Energy Star appliances are often comparable in price to non-certified appliances, diminishing the capital burden of this policy. Such a policy is easily adopted, both as far as the administrative steps and the low resources that it would require to follow through with. Current practices mostly adhere to such a policy and can be strengthened and broadened through official policy status. The Office of Residence Life will implement such a policy for all new purchases this year.

c. *Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.*

Suggestion: Offset all such travel
Cost: Marginally Small - $1 – 5 per flight
Benefit: Reduce global impact of carbon emissions

One could make 11 round-trip flights from Williamsburg/Newport News to New York on one $10 offset through Terrapass, a carbon offset vender. One could make five round-trip flights to Chicago or just under two trips to San Francisco for the same $10. The cost of offsetting college travel is not prohibitive. The benefits, however, are meaningful. Each offset company has a different portfolio of carbon reducing project investments towards which one's fees go. Additionally, airlines have already begun to offer the option of offsetting emissions when you purchase your tickets, as is the case with Delta. [46]

d. *Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.*

Suggestion: Continue to promote the use of public transportation

[46] http://www.marketwatch.com/news/story/delta-launch-worldwide-carbon-offset/story.aspx?guid=%7B3ADDED73-1B01-4435-A627-16C1E1CC7666%7D&dist=TQP_Mod_pressN

Cost: Negligible
Benefit: Healthier individuals, campus community, and environment

At William and Mary, the hard part of this requirement has already been done. William and Mary is already a pedestrian friendly campus where people seldom drive from one point of campus to another and relatively few students drive to campus. However, access to and incentives for public transportation and self-powered transportation can improve. Given William and Mary's relationship with Williamsburg Area Transit in granting free ridership to students, faculty, and staff, compliance to this requirement would simply consist of identifying creative ways to promote and extend bus ridership. At the very least we could employ a strategic marketing campaign targeting students, as has been attempted previously and extend this campaign to faculty and staff.

e. *Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.*

Suggestion: Place in long-term plan and lobby Richmond for increased availability
Cost: Future markets will dictate
Benefit: Exercise increased autonomy from Richmond and/or influence state policy and contribute to availability throughout Virginia

It is safe to say that we will not be able to meet this requirement until the General Assembly and Governor change access to renewable energy by mandating it in a renewable portfolio standard (RPS). However, it is possible given Governor Tim Kaine's stance on sustainability and recent executive order for decreases in energy use that this could eventually become a reality (Appendices J and K). The College has limited energy purchasing options due to its status as a public institution. While Dominion Power remains the consumer's only electricity provider, clean energy can be purchased for about $0.10/kWh compared to $0.05/kWh for fossil fuel energy, or approximately double the current cost of energy.

Renewable energy credits are an alternative for consumers located in regions where renewable energy is not widely available. This option allows consumers to support increased production and distribution of clean energy even when they cannot purchase it directly through their provider. Purchasing these credits adds an increased amount of renewable energy into the regional or national electricity grid so that other consumers receive and use it. The net effect of these credits is equivalent to buying clean energy directly. The money goes towards increased production and distribution of electricity derived from renewable sources, thus leading to decreased burning of fossil fuels, less pollution, and less greenhouse gas emissions. These options cost about $0.005/kWh, [47] but are not available for the College to purchase due to our state affiliation.

[47] MyGreenFuture: http://www.carbonfund.org/site/

In successfully pursuing this option we will achieve one of two things. If we move state policy at the regulatory level we will increase the access that all Dominion customers have to clean energy. As the 12th most populous state, Virginia's energy policy has significant environmental implications.[48] However, advocating for autonomy granted under the Charter Initiative to purchase energy outside of state procurement would be a positive step for campus.

f. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution's endowment is invested.

Suggestion: Form campus-wide committee
Cost: Minimal
Benefit: Awareness on campus and influence in business community

Few institutions make their own shareholder proxy-votes in the companies in which they invest their assets, opting instead to allow their asset-management company to do so. However, some schools such as Swarthmore College and Columbia University have made advisory committees on shareholder responsibilities, as would William and Mary if we fulfilled this commitment. These committees could advise proxy votes and even engage directly with the companies in which the school holds shares by submitting resolutions for vote. Such resolutions could demand that resources be invested in efficiency upgrades or Clean Energy Funds. This commitment does not include any language about recourse to such behavior in the event that companies do not pass the proposed resolutions, so there is little to lose by adhering to it. The formation of this committee would follow an ethic of corporate responsibility in the Tribe's business practices constituted in the creation of the Licensing Committee, overseeing labor practices of Tribe apparel producers.

C. Section 3: Make Information Publicly Available

Make the action plan, inventory, and periodic progress reports publicly available by providing them to the Association for the Advancement of Sustainability in Higher Education (AASHE) for posting and dissemination.

It is important that we not only track progress but share this information. Campuses involved in the PCC can learn from each other as the Commitment matures and benefit from the best practices of all other campuses. William and Mary should welcome the opportunity to be a part of that community. This task could be done by either the LEE committee or the Office of Sustainability.

Additionally, the work completed by students and faculty could be posted on the websites of the departments in which the work was completed. William and Mary should be proud of signing the PCC and it should gain the recognition it deserves by prominently displaying its commitment to being a leader in the 21st century. The PCC is an opportunity for William and

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Clean Energy Partnership/Sterling Planet:
https://secure.cleanenergypartnership.org/buy_energy.html

[48] http://factfinder.census.gov/servlet/GCTTable?_bm=n&_lang=en&mt_name=DEC_2000_SF1_U_GCTPH1R_US9S&format=US-9S&_box_head_nbr=GCT-PH1-R&ds_name=DEC_2000_SF1_U&geo_id=01000US

Mary to establish itself as an environmentally responsible university and to show how we measure up to other schools.

VII. Conclusion

The argument of whether climate change is occurring has been scientifically resolved and no one, particularly not institutions of higher education, can feign ignorance or choose inaction anymore. Human consumption of fossil fuels and the subsequent emission of greenhouse gases, namely CO_2, is the primary cause of climate change, and therefore, human action also must be the driving force to correct it.

The earth is warming and the climate is changing, but some will be affected more than others. Inherent to the nature of global climate change is the unequal distribution of effects. Some may benefit from global warming initially, while others will experience draught, starvation, disease, and loss of home because of flooding. William and Mary has been compassionate to the plight of those who are less fortunate through service trips and a long history of global action; however, if William and Mary is to be public, great, and global we need to take action to reduce our environmental impacts and global climate change.

Somewhat ironically, the nations responsible for climate change would be least affected by climate change. The developed countries of the world have accumulated wealth while accumulating CO_2 in the atmosphere. Their economic wealth will allow them to adapt to climate change, whereas poor, developing countries who have no responsibility for the atmospheric stock of CO_2 will not have the resources necessary to adapt to climate change. Moreover, at no fault of their own, the poorest and least developed countries of the world are also the ones most likely to be physically affected by climate change because of their geographic location or demographic composition.

The developed countries responsible for climate change and capable of doing something about reversing climate change must act. The United States is one of the wealthiest countries and has the best established system of Higher Education in the world, but it also emits more CO_2 than any other country in the world. William and Mary has proudly served as a leader in paving the way towards progress in academia as well as improving the human condition. The opportunity to continue that leadership is now at our fingertips.

Nothing in William and Mary's mission, commitment to community, or desire to be a socially responsible global leader allows us to believe that William and Mary can turn away from this opportunity. To continue to emit CO_2 in the atmosphere with reckless disregard for the consequences, which are now undeniable, would be a direct contradiction to William and Mary's obligation "to instill in its students an appreciation for the human condition, [and] a concern for the public well-being."[49] The failure of the College to take responsibility for its carbon footprint would not only be a failure "to address specific problems confronting the Commonwealth of Virginia, the nation, and the world" but a failure to address one of the most critical problems facing the world to which the College has quantifiably contributed.[50]

Colleges and universities across the country are taking action because this is the right thing to do. These institutions are not limited to eco-based private colleges, but include

[49] William and Mary Mission Statement
[50] William and Mary Mission Statement

universities that are large and small, public and private. They are acting upon their social responsibility as institutions of learning, and refusing to join them would constitute a reneging on our social mission as The College of William and Mary. The faculty, staff, and students of today, yesterday, and tomorrow expect William and Mary to proudly accept its social responsibility as we have done time and time again.

If William and Mary appropriately elects to assume responsibility for its carbon footprint there are a variety of ways in which it could do so. However, among the potential options, the PCC is the most appropriate choice for the College. The PCC provides a structured, yet flexible framework, which would help guide William and Mary to socially responsible climate neutrality over the next 20 years in a way that allows for innovation and least cost solutions. It is clearly important to have this flexibility to minimize costs as technology improves, as it undoubtedly will between now and 2027. But having limited resources does not mean that we cannot make the "conscious choice to live in the belief that we can make a difference in the quality of our private and public lives" and it is that choice that we are asking you to make by signing the PCC.[51]

[51] President's State of College Speech, 2007

VIII. Appendices

A. Appendix A – The American College and University Presidents Climate Commitment

We, the undersigned presidents and chancellors of colleges and universities, are deeply concerned about the unprecedented scale and speed of global warming and its potential for large-scale, adverse health, social, economic and ecological effects. We recognize the scientific consensus that global warming is real and is largely being caused by humans. We further recognize the need to reduce the global emission of greenhouse gases by 80% by mid-century at the latest, in order to avert the worst impacts of global warming and to reestablish the more stable climatic conditions that have made human progress over the last 10,000 years possible.

While we understand that there might be short-term challenges associated with this effort, we believe that there will be great short-, medium-, and long-term economic, health, social and environmental benefits, including achieving energy independence for the U.S. as quickly as possible.

We believe colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality. Campuses that address the climate challenge by reducing global warming emissions and by integrating sustainability into their curriculum will better serve their students and meet their social mandate to help create a thriving, ethical and civil society. These colleges and universities will be providing students with the knowledge and skills needed to address the critical, systemic challenges faced by the world in this new century and enable them to benefit from the economic opportunities that will arise as a result of solutions they develop.

We further believe that colleges and universities that exert leadership in addressing climate change will stabilize and reduce their long-term energy costs, attract excellent students and faculty, attract new sources of funding, and increase the support of alumni and local communities.

Accordingly, we commit our institutions to taking the following steps in pursuit of climate neutrality:

1. Initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible.

    a. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.

    b. Within one year of signing this document, complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) and update the inventory every other year thereafter.

c. Within two years of signing this document, develop an institutional action plan for becoming climate neutral, which will include:

i. A target date for achieving climate neutrality as soon as possible.

ii. Interim targets for goals and actions that will lead to climate neutrality.

iii. Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students.

iv. Actions to expand research or other efforts necessary to achieve climate neutrality.

v. Mechanisms for tracking progress on goals and actions.

2. Initiate two or more of the following tangible actions to reduce greenhouse gases while the more comprehensive plan is being developed.

a. Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent.

b. Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.

c. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.

d. Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.

e. Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.

f. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution's endowment is invested.

3. Make the action plan, inventory, and periodic progress reports publicly available by providing them to the Association for the Advancement of Sustainability in Higher Education (AASHE) for posting and dissemination.

In recognition of the need to build support for this effort among college and university administrations across America, we will encourage other presidents to join this effort and become signatories to this commitment.

Signed,

_____
President/ Chancellor Signature

_____
President/ Chancellor Name

_____
College or University

_____
Date

Please send the signed commitment document to:

Mary Reilly
Second Nature
18 Tremont St., Suite 1120
Boston, MA 02108

or fax to: 320-451-1612
or scan & email to:
mreilly@secondnature.org

B. Appendix B – List of PCC Signatories by Institution

Alaska Pacific University, AK
Douglas M. North, President*

Allegheny College, PA
Richard J. Cook, President*

Antioch College, OH
Steven W. Lawry, President*

Arizona State University, AZ
Michael Crow, President*

Bainbridge Graduate Institute, WA
Gifford Pinchot, President*

Ball State University, IN
Jo Ann M. Gora, President*

Bates College, ME
Elaine Tuttle Hansen, President*

Bellevue Community College, WA
B. Jean Floten, President

Berea College, KY
Larry D. Shinn, President*

Berkshire Community College , MA
Paul E. Raverta, President*

Birmingham-Southern College, AL
G. David Pollick, President*

Boise State University, ID
Robert W. Kustra, President

Bridgewater State College, MA
Dana Mohler-Faria, President

Bristol Community College, MA
John J. Sbrega, President*

Bunker Hill Community College, MA
Mary L. Fifield, President*

Butte College, CA
Diana VanDerPloeg, President

California State Polytechnic University, Pomona, CA
J. Michael Ortiz, President*

California State University, Chico, CA
Paul J. Zingg, President*

California State University, Monterey Bay, CA
Dianne Harrison, President*

Cape Cod Community College, MA
Kathleen Schatzberg, President*

Carleton College, MN
Robert A. Oden Jr., President*

Cascadia Community College, WA
William Christopher, President*

Central Washington University, WA
Jerilyn S. McIntyre, President

Centralia College, WA
James Walton, President

Centre College, KY
John A. Roush, President*

Chandler-Gilbert Community College, AZ
Maria Hesse, President

Chatham College, PA
Esther L. Barazzone, President*

Clemson University, SC
James F. Barker, President

Coe College, IA
James R. Phifer, President

College of Marin, CA
Frances L. White, President

College of Saint Benedict, MN
MaryAnn Baenninger, President*

College of the Atlantic, ME
David Hales, President*

College of the Menominee Nation, WI
S. Verna Fowler, President*

College of the Sequoias, CA
William Scroggins, President

Colorado State University, CO
Larry Edward Penley, President

Columbus State Community College, OH
Valeriana Moeller, President

Community College of Denver, CO
Christine Johnson, President*

Concordia College—New York, NY
Viji George, President

Connecticut College, CT
Leo I. Higdon, President

Cornell College, IA
Leslie H. Garner Jr., President*

Cornell University, NY
David J. Skorton, President*

Delaware Valley College, PA
Thomas C. Leamer, President

Dickinson College, PA
William G. Durden, President*

Dillard University, LA
Marvalene Hughes, President

Drake University, IA
David Maxwell, President

Drury University, MO
John Sellars, President*

Eastern University, PA
David Black, President

Ferrum College, VA
Jennifer L. Braaten, President

Florida Gulf Coast University, FL
Richard Pegnetter, Interim President*

Foothill-De Anza Community College District, CA
Martha J. Kanter, Chancellor*

Fort Lewis College, CO
Brad Bartel, President

Franklin & Marshall College, PA
John A. Fry, President

Frostburg State University, MD
Jonathan C. Gibralter, President

Furman University, SC
David E. Shi, President*

Georgia Institute of Technology, GA
G. Wayne Clough, President

Goddard College, VT
Mark Schulman, President

Goshen College, IN
James E. Brenneman, President

Green Mountain College, VT
John F. Brennan, President*

Greenfield Community College, MA
Robert Pura, President*

Hocking College, OH
John Light, President

Holyoke Community College, MA
William Messner, President

Howard Community College, MD
Mary Ellen Duncan, President

Iowa Lakes Community College, IA
Harold Prior, President*

Ithaca College, NY
Peggy R. Williams, President

Juniata College, PA
Thomas R. Kepple Jr., President*

Keene State College, NH
Helen F. Giles-Gee, President

Kennesaw State University, GA
Daniel S. Papp, President

Keystone College, PA
Edward G. Boehm, Jr., President

LaGrange College, GA
F. Stuart Gulley, President

Lake Washington Technical College, WA
L. Michael Metke, President

Lane Community College, OR
Mary Spilde, President*

Lee College, TX
Martha Ellis, President

Lesley University, MA
Margaret A. McKenna, President

Lewis & Clark College, OR
Thomas J. Hochstettler, President

Life University, GA
Guy Riekeman, President*

Los Angeles Community College District, CA
Darroch F. Young, Chancellor*

Luther College, IA
Richard L. Torgerson, President*

Lynchburg College, VA
Kenneth R. Garren, President*

Macalester College, MN
Brian C. Rosenberg, President*

Massachusetts College of Art, MA
Katherine Sloan, President

Massachusetts College of Liberal Arts, MA
Mary K. Grant, President

Massachusetts Maritime Academy, MA
Richard G. Gurnon, President

Massasoit Community College, MA
Charles Wall, President

MassBay Community College, MA
Carole M. Berotte Joseph, President*

Mesa Community College, AZ
Larry K. Christiansen, President

Metropolitan State College of Denver, CO
Stephen M. Jordan, President*

Middlesex Community College, MA
Carole A. Cowan, President

Mount St. Mary's University, MD
Thomas H. Powell, President*

Mount Wachusett Community College, MA
Daniel E. Asquino, President*

National Graduate School, MA
Robert Battryn Gee, President

New College of California, CA
Martin Hamilton, President*

New York University, NY
John Edward Sexton, President*

Norfolk State University, VA
Carolyn Meyers, President

North Shore Community College, MA

Wayne M. Burton, President*

Northern Arizona University, AZ
John D. Haeger, President*

Northern Essex Community College, MA
David F. Hartleb, President*

Northern Kentucky University, KY
James C. Votruba, President

Northland College, WI
Karen I. Halbersleben, President*

Oberlin College, OH
Nancy S. Dye, President*

Ohio University, OH
Roderick J. McDavis, President*

Ohlone College, CA
Douglas Treadway, President*

Olympic College, WA
David C. Mitchell, President

Oregon State University, OR
Edward J. Ray, President

Pacific Lutheran University, WA
Loren J. Anderson, President*

Palo Verde College, CA
James W. Hottois, President

Park University, MO
Beverley Byers-Pevitts, President*

Paul Smith's College , NY
John W. Mills, President

Penn State Berks, PA
Susan Phillips Speece, Chancellor

Pitzer College, CA
Laura Skandera Trombley, President*

Plymouth State University, NH
Sara Jayne Steen, President*

Pomona College, CA
David W. Oxtoby, President

Portland State University, OR
Daniel O. Bernstine, President*

Pratt Institute, NY
Thomas F. Schutte, President*

Prescott College, AZ
Dan Garvey, President*

Presidio School of Management, CA
Steven L. Swig, President*

Quinsigamond Community College, MA
Gail E. Carberry, President

Randolph College, VA
Virginia Hill Worden, President

Rider University, NJ
Mordechai Rozanski, President

Rowan University, NJ
Donald J. Farish, President*

Roxbury Community College, MA
Terrence A. Gomes, President*

Seattle University , WA
Stephen V. Sundborg, President

Southern Polytechnic State University, GA
Lisa A. Rossbacher, President*

Springfield Technical Community College, MA
Ira Rubenzahl, President*

St. Lawrence University, NY
Daniel F. Sullivan, President*

State University of New York College at Cortland, NY
Erik J. Bitterbaum, President*

State University of New York at Oswego, NY
Deborah F. Stanley, President*

State University of New York College of Environmental Science and Forestry, NY
Cornelius B. Murphy Jr., President*

Stetson University, FL
H. Douglas Lee, President

Sweet Briar College, VA
Elisabeth S. Muhlenfeld, President*

Syracuse University, NY
Nancy Cantor, Chancellor

The Evergreen State College, WA
Thomas L. Purce, President*

Tiffin University, OH
Paul Marion, President

Unity College, ME
Mitchell S. Thomashow, President*

University at Buffalo, NY
John B. Simpson, President*

University of Alaska, Anchorage, AK
Elaine P. Maimon, Chancellor

University of Arkansas, AR
John A. White, Chancellor

University of Arizona, AZ
Robert N. Shelton, President

University of California (10 campuses), CA
Robert C. Dynes, President*

University of Central Florida, FL
John C. Hitt, President*

University of Colorado at Boulder, CO
G.P. "Bud" Peterson, Chancellor*

University of Colorado at Colorado Springs, CO
Pamela Shockley-Zalabak, Chancellor*

University of Colorado at Denver and Health Sciences Center, CO
M. Roy Wilson, Chancellor*

University of Florida, FL
Bernard Machen, President*

University of Hawai'i at Manoa, HI
Denise Eby Konan, Interim Chancellor*

University of Idaho, ID
Timothy P. White, President*

University of Maine, ME
Robert A. Kennedy, President

University of Maine at Farmington, ME
Theodora J. Kalikow, President*

University of Maine at Fort Kent, ME
Richard W. Cost, President

University of Maine at Machias, ME
Cynthia E. Huggins, President

University of Maine at Presque Isle, ME
Don N. Zillman, President*

University of Massachusetts Boston, MA
Michael F. Collins, Chancellor*

University of Massachusetts Dartmouth, MA
Jean F. MacCormack, Chancellor

University of Massachusetts Lowell, MA
David J. MacKenzie, Chancellor*

University of Memphis, TN
Shirley C. Raines, President

University of Miami, FL
Donna E. Shalala, President*

University of Minnesota, Morris, MN
Jacqueline Johnson, Chancellor*

University of Montana, MN
George M. Dennison, President

University of New Hampshire, NH
J. Bonnie Newman, Interim President*

University of North Carolina at Chapel Hill, NC
James Moeser, Chancellor*

University of Oklahoma, OK
David L. Boren, President

University of Oregon, OR
Dave Frohnmayer, President

University of Pennsylvania, PA
Amy Gutmann, President*

University of Pittsburgh at Titusville, PA
William A. Shields, President

University of Puget Sound, WA
Ronald R. Thomas, President*

University of Redlands, CA
Stuart Dorsey, President

University of Rhode Island, RI
Robert L. Carothers, President

University of Southern Maine, ME
Richard L. Pattenaude, President

University of Tennessee, Knoxville Campus, TN
Loren W. Crabtree, Chancellor*

University of the Arts, PA
Miguel Angel Corzo, President

University of Washington, WA
Mark A. Emmert, President*

University of Washington Bothell, WA
Steven G. Olswang, Interim Chancellor*

University of Washington Tacoma, WA
Patricia Spakes, Chancellor

University of West Florida, FL
John C. Cavanaugh, President

University of Wisconsin-Green Bay, WI
Bruce Shepard, Chancellor

University of Wisconsin-Oshkosh, WI
Richard H. Wells, Chancellor

University of Wisconsin-River Falls, WI
Donald Betz, Chancellor*

University of Wisconsin-Stevens Point, WI
Linda Bunnell, Chancellor

University of Wisconsin-Superior, WI
Julius Erlenbach, Chancellor

University of Wisconsin-Whitewater, WI
Martha Saunders, Chancellor

Utah State University, UT
Stan L. Albrecht, President

Wagner College, NY
Richard Guarasci, President

Warren Wilson College, NC
William Sanborn Pfeiffer, President*

Washington & Jefferson College, PA
Tori Haring-Smith, President*

Washington and Lee University, VA
Kenneth P. Ruscio, President*

Wesley College, MS
Scott D. Miller, President

Western Washington University, WA
Karen Morse, President*

Westfield State College, MA
Barry M. Maloney, Interim President

Westminster College, UT
Michael S. Bassis, President

Wheelock College, MA
Jackie Jenkins-Scott, President

Willamette University, OR
M. Lee Pelton, President

Wilson College, PA
Lorna Duphiney Edmundson, President

Winona State University, MN
Judith A. Ramaley, President*

*Leadership Circle

C. Appendix C – William and Mary Energy Summary

William and Mary Energy Summary

	1990		2005	Change	2006
Total Square Footage	2,700,000	(6)	3,126,774	16%	
Total Number Buildings	unknown		199		
ELECTRIC					
Cost ($)	2,099,786		3,251,288		3,125,641
Use (kwh)	52,494,650		66,735,202		68,306,552
$/kwh	0.040	(1)	0.049		0.046
$/sq ft			1.04		
MMBTU	179,112		227,701		233,062
CO2 (tons)	35,069		44,583		45,669
NATURAL GAS					
Cost ($)	605,745	(2)	2,352,894		2,860,484
Use (mcf)	178,686		257,061		230,978
$/MCF	3.39		9.15		12.38
MMBTU	184,940		266,058		239,062
$/MMBTU	3.28		8.84		11.97
CO2 (tons)	10,828		15,578		3,997
#2 FUEL OIL					
Cost ($)	See No. 6		90,884		72,679
Gallons	Assume oil		58,995		50,840
$/Gallon	is split		1.54		1.43
MMBTU	between		8,141		7,626
$/MMBTU	No.2		11.16		10
CO2 (tons)	and No.6		657		615
#6 FUEL OIL					
Cost	207,321	(3)	12,816		72,679
Gallons	334,929		11,928		50,840
$/Gal	0.62	(4)	1.07		1.43
MMBTU	47,895		1,789		7,626

$/MMBTU	4.33	7.16		9.53
CO2 (tons)	3,865	156		663
PROPANE				
Cost	Included	7,872		2,729
Gallons	with	4,737		1,425
$/Gallon	natural gas	1.66		1.92
MMBTU		433		130
$/MMBTU		18.16		21
CO2 (tons)		30		9
TOTAL				
Cost ($)	2,912,852	5,715,754	96%	6,134,212
MMBTU	411,946	504,123	22%	487,506
$/MMBTU	7.07	11.34	60%	12.58
MMBTU/sf	0.15	0.16	6%	
$/sf	1.08	1.83	69%	
CO2 (tons)	**49,762**	**61,003**	**23%**	**60,954**

(1) EIA Virginia industrial cost 1989/1990 $0.0.42/kwh
(2) EIA Virginia natural city gas cost $3.13/MCF+ current VNG trans cost of $0.31/MCF
(3) Assume that oil equally split between No.2 and No. 6 oil
(4) EIA Virginia winter 1989/1990 cost of $0.698/gal for No.2 oil and $0.540/gal for No. 6 oil
(5) Based on mix of PJM sales for 2005
(6) Rough estimate from Daina Henry, no verification available

(7) To reduce emissions to 1990 levels it would require that electrcity be reduced by:
55,864 MMBTU or 25% kwh or 1870 avg. kw.
or natural gas by:
189,339 MMBTU or 71% mcf .

Dominion Power Generation 2004	
Coal	41%
Nuclear	34%
Oil	5%
Purchased (PJM)	15%
Other (Natural Gas)	5%

Dominion Power Generation 2006	
Coal	38%
Nuclear	31%
Oil	1%
Purchased (PJM)	26%
Natural Gas	4%

Purchased Assume (5) -	
Coal	40%
Oil	9%
Natural Gas	27%
Nuclear	18%
Other	6%

Purchased Assume (5) -	
Coal	40%
Oil	9%
Natural Gas	27%
Nuclear	18%
Other	6%

Net-	
Coal	47.0%
Oil	6.4%
Natural Gas	9.1%
Nuclear, Hydro	37.5%

Net-	
Coal	48.4%
Oil	3.3%
Natural Gas	11.0%
Nuclear, Hydro	37.3%

D. Appendix D – Research Proposal for a Carbon Audit of William and Mary

Project Proposal by Josh Wayland

Background

Since the International Panel on climate change announced with virtual certainty that global warming is both occurring and is caused by human activity, colleges and universities across the United States are taking the initiative to combat climate change by decreasing their emission of greenhouse gas pollution. Well over 100 institutions have committed since the beginning of 2007 to moving towards zero net carbon emissions in the near future. If William and Mary is to continue in its role as a leader in higher education, it too must address its contribution to the problem. In order to do so, however, we must first know what our contribution is.

Purpose and Goals

The eventual purpose of this project is to compile a comprehensive inventory of all the greenhouse gas pollution emitted in association with the activities of the College. It will examine the "ecological footprint" of the school in terms of our contribution to global climate change and assess the possibility of achieving carbon neutrality in the foreseeable future. Although similar projects have been undertaken as coursework in past environmental studies classes and as volunteer research through student activist organizations, no inclusive account of all emissions has yet been compiled.

Methodology

In the completion of this research project, I will work closely with administrators at the College involved in energy policy, with other universities who have undertaken similar projects, and with outside organizations including the Association for the Advancement of Sustainability in Higher Education and the Chesapeake Climate Action Network. Through my studies and my extracurricular work, I already have available most of these expert resources. Indeed, the majority of the information which will make this project possible already exists in one form or another; what remain is to compile it into a standard and usable format.

As an Environmental Studies major, I have examined an abundance of literature on greenhouse gas pollution, and specifically the relationship between human activities and emissions. I have also conducted energy audits on a smaller scale by examining the use of electricity in dorm rooms. As a student activist, I have worked extensively on a campaign to reduce the contribution of William and Mary to global climate change. I have participated in a variety of workshops, conferences, and trainings on the topic of energy sustainability in higher education. I have organized educational and outreach events on the subject of climate change and individual energy use practices, designed campaign plans to move the College towards energy efficiency, and traveled to other universities to advise on energy policy. With such experiences and the help of administrators and faculty, I feel that I am qualified to undertake this ambitious project.

The first step will consist of examining the energy consumption of the College. Electricity usage likely contributes the largest portion of greenhouse gas emissions associated with institutional activities. Currently, we purchase electricity for a large variety of educational and infrastructural processes, from lighting and climate control in our academic and residential buildings, to computers and other technology, to the use of appliances in our dining facilities and elsewhere. I will investigate the amount of electricity consumed for each of these purposes, and the manner in which it is consumed. I will also study our supply of electricity in order to determine the equivalent amount of greenhouse gas pollution emitted for each process. Because greenhouse gas pollution is also produced in processes other than energy production, I will then examine the extent and variety of transportation and waste disposal directly associated with the activities of the College.

This research will be completed during the four weeks from June 4 through June 29, 2007. By the end of this period, I will be able to make publicly available a report on the current contribution of the College to global climate change in terms of the mass of greenhouse gas pollution emitted annually in association with institutional activities. The vast bulk of my research will be conducted on the campus of the College of William and Mary. I will examine reports on energy and other purchases of the College and solicit information from administrators involved in energy policy at the College. The Student Environmental Activist Coalition, of which I am a member, has worked hand in hand with these administrators and developed working relationships which will be instrumental in conducting my research. I will also have access to the previous research conducted by myself and other activists on this and related projects, and to the knowledge and experience of the faculty of the Environmental Studies department.

Significance

This project applies directly to the interdisciplinary coursework that I undertake as an Environmental Studies major. It will provide a unique opportunity to utilize the concepts and skills that I have learned as a student and as an activist in a serious and substantive undertaking. It is a multidimensional project which combines these concepts towards the betterment of my school and community. An essential and challenging task for the College, it is also an assignment which speaks to my commitment to my education, to activism, and to service.

E. Appendix E – Requirements of the PCC

Requirements of the American College and University Presidents Climate Commitment

1. Initiate the development of a ***comprehensive plan*** to achieve ***climate neutrality as soon as possible.***

a. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.

b. Within one year of signing this document, complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) and update the inventory every other year thereafter.

c. Within two years of signing this document, develop an institutional action plan for becoming climate neutral, which will include:

i. A target date for achieving climate neutrality as soon as possible.

ii. Interim targets for goals and actions that will lead to climate neutrality.

iii. Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students.

iv. Actions to expand research or other efforts necessary to achieve climate neutrality.

v. Mechanisms for tracking progress on goals and actions.

2. Initiate ***two or more*** of the following ***tangible actions*** to reduce greenhouse gases while the more comprehensive plan is being developed.

a. Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent.

b. Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.

c. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.

d. Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution

e. Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.

f. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution's endowment is invested.

3. Make the action plan, inventory, and periodic ***progress reports publicly available*** by providing them to the Association for the Advancement of Sustainability in Higher Education (AASHE) for posting and dissemination.

Goal One:
Instill climate stewardship into the intellectual and social tradition of the College

Strategy	Commitment
Encourage integration of climatic themes and global responsibility into liberal academic experience.	**Ici, iii**
Publicly reflect consciousness of climate impacts in institutional practices.	**Ia; Ici, ii; II a, b, d, e**
Deepen enrichment opportunities for interested parties.	**Ib; Ici, ii, iv; IIf**
Entwine causes of inequity into ethos of service at the College.	**IIc, f**

Goal Two:
Lessen impact of College community on climate change

Strategy	Commitment
Integrate comprehensive reforms within College's central plans.	**Ici, ii**
Instill personal practices of end-use reduction in students, faculty and staff.	**Ici, iii, v**
Mitigate greenhouse emissions from energy use.	**II c, e**

Goal Three:
Establish William and Mary as a leader on sustainability.

Strategy	Commitment
Lead higher education within state and nation to carbon responsibility.	**Charter Signatory, Leadership Circle?**
Promote clean energy availability and efficiency within Virginia.	**IIa, e**

F. Appendix F – Proposed Framework for PCC Ratification

Section			Commitment	Recommended Action	Additional Cost	Benefit
Section 1 – Make a Plan	**A** 2 mo		Institutional Structure	Create Office of Sustainability	$100,000 – $150,000	Fully integrate sustainability into function of College and oversee PCC implementation
	B 1 yr		Carbon Audit	Student/Faculty research initiative	$0 – few thousand in grants	Strengthen faculty-student research in ENST and support interdisciplinary work
	C 2 yrs	**i**	Target Date and Comprehensive Plan	Adopt date around 2025	Varies greatly but probably significant	Vast
		ii	Interim Goals	Handled by Office of Sustainability	Staff previously accounted for	Quantifiable progress monitoring, engagement of students, staff and faculty
		iii	Curricular Involvement	Implement preexisting orientation program and consider academic requirement long-term	Varies, baseline $0	More fulfilling and holistic, international, interdisciplinary educational experience
		iv	Research Opportunities	Emphasize topic for student research grants	None, opportunity for gain	Increase student/faculty research and deepen commitment to research
		v	Tracking Mechanisms	Empower sustainability manager	None	Determination of effectiveness of efforts and projects

Section 2 – Implement Tangible Actions (2 in 6 months)	**A**	LEED Silver Policy	Adopt policy for new construction	+ 1.45% in total building costs	Financial return on the investment, decreased environmental impact and matching practices to priorities
	B*	Energy Star Procurement	Formalize such a policy	Negligible	Lifecycle savings
	C	Flight Offsets	Adopt policy	Marginal: $1-5 per flight	Increased awareness and decreased emissions
	D*	Transportation	Continue to encourage use of public transportation	Negligible	Healthier individuals, campus community, and environment
	E	Clean Energy Purchase	Place in long-term plan and lobby Richmond for increased availability	Future markets will dictate	Exercise increased autonomy from Richmond and/or influence state policy and contribute to availability throughout Virginia
	F	Investment Tracking	Form campus-wide committee	Negligible	Awareness on campus and influence in business community
Section 3 – Make Information Publicly Available		Make Documentation Publicly Available	Utilize AASHE and W&M websites to make documentation publicly available	None	Allows W&M to publicize efforts and legitimizes efforts through transparency

G. Appendix G – The Oberlin 2020 Strategy for Achieving Carbon Neutrality

A suggested timeline for implementing the *Oberlin 2020* strategy

2002–2004: establish a separate capital fund for emission reduction projects and/or a revolving fund for such projects, to create a way to use energy cost savings to pay the capital costs of efficiency improvements.

2002–2006: reduce or eliminate CFC leakage from air-conditioning systems. Tighten CFC management program (required by US EPA) and begin replacement of R-12 and R-22 with HFC-134a and other substitutes.

2002–2017: deploy energy-efficiency measures in buildings whenever significant facility upgrades, building renovations, or equipment replacements are needed. Use an integrated design strategy combining cooling, ventilation, lighting, refrigeration, plug loads, appliances, and water heating. Some building envelope improvements will have to be retrofitted. Fix leaks and reduced thermal losses in steam distribution system.

2010–2012: decommission the coal-fired CHP

2012–2016: finance and install an advanced co-generation system on the Oberlin campus. Install a new generation system using fuel cells or combustion turbine and integrate waste heat boiler into the campus co-generation and steam distribution system. Use third-party financing via an IPP if needed to reduce financial risk.

2013: begin carbon offset portfolio purchases (or earlier, if call options appear attractive).

2013–2018: sell surplus carbon offsets from emission reductions already implemented

2019, or earlier: achieve an estimated net zero emissions.

2020: provide measured, monitored, verified, and approved climate neutrality.

2021: Celebrate Oberlin's success.

H. Appendix H – William and Mary Carbon Neutral by 2020: A Suggested Path

2007
Sign College and University President's Climate Commitment
Enact "low-hanging" fruit policies
Begin education/voluntary reductions campaign
Create oversight committee for energy policy

2008
Meter all buildings
Create greenhouse gas inventory

2009
Enact policy of LEED certification in all new buildings
Enact policy of Energy Star compliance wherever appropriate
Begin investigating on-site renewable energy generation

2010
Begin lighting retrofitting process
Begin heating/cooling retrofitting process
Begin producing and/or purchasing 10% renewable energy

2011
Continue lighting retrofitting process
Continue heating/cooling retrofitting process
Begin researching carbon offset/sequestration options

2012
Complete lighting retrofitting process
Complete heating/cooling retrofitting process
Establish separate funding mechanisms for renewable energy purchases

2013
Begin purchasing and/or producing 25% renewable energy

2014
Begin offsetting 25% of remaining emissions

2015
Begin purchasing and/or producing 50% renewable energy

2016
Begin offsetting 50% of remaining emissions

2017
Begin purchasing and/or producing 75% renewable energy

2018
Begin offsetting 75% of remaining emissions

2019
Begin producing/purchasing 90-100% renewable energy
Begin offsetting 100% of remaining carbon emissions

2020
Carbon Neutrality Reached in Sustainable Manner
Continue Efforts to Improve Efficiency

I. Appendix I – An Environmental Education for Orientation

It is impossible to talk about community standards at the College of William and Mary without addressing environmental responsibility. In order to remedy this lack of focus on the environment in the school's current orientation program for freshmen, we recommend that the following steps be taken:

1) Supplement "The Roadmap" with language discussing environmental responsibility. Mark Sikes will provide full funding for this. **SEE APPENDIX for the actual language that we will insert.**

2) Distribute CFL bulbs to all freshmen: William and Mary will purchase 1500 CFL light bulbs to give to freshmen during the orientation period. Residence Life (Deb Boykin) has committed to paying for the bulbs. There are two options for distribution. Dean Sikes has indicated a preference for Option #2. SEAC members will of course train the RAs and OAs for either option.

- Option #1- We leave a box at each of the check-in locations. RAs hand freshmen bulbs when they receive their keys. This would require only a few SEAC members to come back to campus early. It ensures that all freshmen receive a bulb and allows an opportunity for parents to appreciate the program. It would also be the easiest to coordinate logistically.

- Option #2- SEAC delivers boxes of light bulbs to the halls before orientation period. During one of the initial hall meetings, either the RAs or the OAs distribute the bulbs. A little bit harder than option #1 but still definitely possible.

As an addendum, SEAC will place a box outside of its Campus Center office where people can return the bulbs after they burn out (in eight or nine years…) so that the mercury in them can be properly recycled.

3) Create a 10-15 minute presentation as part of the community standards lecture. Ideally, this would consist of one or two comedic energy saving sketches followed by a short more serious presentation on environmental sustainability. The Bedfellows Comedy Group has volunteered their writing and acting skills for the sketches. The two sketches will focus on recycling and consumption respectively. The presentation will rehash some of the information in the road map and discuss what W&M does to preserve the environment as well as personal lifestyle choices that can save energy and reduce waste.

4) Add language to the Residence life website- coordinated through Chris Durden.

APPENDIX

(The publisher will format the following text to be in line with the style of the Road Map.)

The students are what make William and Mary an environmentally conscious college. As a member of this campus, we ask that you take a look at the following ways that you can reduce your impact on the community that we all share.

Remember to recycle

William and Mary recently reinstituted campus-wide recycling. Upon your arrival in August, you will receive a blue bin marked for recycling. Next to all trash dumpsters, you will notice a large blue recycling dumpster that you can empty these bins into; there are 31 scattered around campus. You can recycle all of the following things:

Non-waxed paper- including paper bags, post-its, envelopes with plastic windows
Cardboard- corrugated and non-corrugated including non greasy pizza box parts!!
Aluminum/tin/steel cans
Rinsed aluminum foil
Glass bottles (no caps)
Plastic bottles (labeled 1 or 2 at the bottom, no caps)

You don't even need to sort your recycling! If you take full advantage of the recycling program, you will end up recycling a lot more than you need to throw away!

Think green in what you bring to campus

Energy Star everything- Energy Star appliances are manufacture to high energy efficiency standards. Almost everything electronic that you might want or need for your room can be found in an Energy Star version: printers/scanners, lamps, room AC units, dehumidifiers, TVs, DVD players, VCRs, mini-fridges, microwaves, anything that uses an external charger, and light bulbs. It doesn't cost you anything extra and helps save energy; everyone wins!

Light bulbs: Already mentioned above but certainly worth repeating. This year, all incoming freshman will be given a compact fluorescent light bulb (the spirally ones) during the orientation program. CFLs are much more efficient than the old incandescent bulbs. They last longer, use 80% less energy, and significantly decrease the risk of fire. Even though we're going to be giving you a bulb, please purchase CFL bulbs for any additional lighting needs.

Detergents and Soap: There are many biodegradable soaps, detergents, and shower supplies available at almost any retailer. William and Mary is part of one the largest and most threatened watersheds in North America. Help protect the Chesapeake Bay by purchasing biodegradable liquids.

Printers: To reduce the amount of paper used, ensure that your printer has the ability to print on both sides of a page. Buy post-consumer recycled paper for all of your printer paper, notebook, and loose leaf needs.

Getting around: William and Mary is really bike-friendly with lots of paths and racks at all major buildings around campus. Even the local buses have racks so you can take your bike

anywhere! A bike (or skateboard or longboard or rollerblades- you get the idea) is an indispensable tool for getting around both William and Mary and Williamsburg, especially as freshmen and sophomores aren't allowed to bring cars to campus. While we're on the subject of transportation, consider using mass-transit to get to and from school over breaks. There is a train station less than a 5 minute walk from campus where you can buy a ticket to virtually anywhere in the United States.

Packing: Try to use suitcases and duffle bags whenever possible. Tons of waste is created each move-in day from packaging materials on everything from plastic wrap to Styrofoam to boxes. If you must bring disposable packaging, see above for easy ways to recycle it.

*Think green in what you **don't** bring to campus*

Many students bring way more to campus than they need. Every hall has its own kitchen complete with full-size (Energy Star certified) refrigerator and microwave. Your hall will also have a vacuum cleaner that you can check out when needed. A lot of personal fridges remain empty and microwaves unused. If you don't think that you'll be using these kitchen appliances every day, you can save space, money, and the environment by taking advantage of hall facilities.

J. Appendix J – Governor Kaine's Executive Order 48 Press Release

COMMONWEALTH OF VIRGINIA
Office of the Governor

Timothy M. Kaine FOR IMMEDIATE RELEASE
Governor April 9, 2007

GOVERNOR KAINE SIGNS EXECUTIVE ORDER TO IMPROVE ENERGY EFFICIENCY IN STATE GOVERNMENT

~Directs executive branch agencies to reduce energy consumption and costs, establishes process for coordinating energy policy development~

RICHMOND – Governor Timothy M. Kaine today issued Executive Order 48, setting a goal for executive branch agencies and institutions to reduce the annual cost of non-renewable energy purchases by at least 20 percent by fiscal year 2010.

"Reducing our energy consumption and costs and protecting our natural resources is a priority for my administration," Governor Kaine said. "Last year, Virginia state government spent over $290 million in energy costs to operate our facilities and travel on state business. To reduce the environmental consequences of that level of energy consumption and save taxpayer dollars, I am directing state government to use proven and innovative conservation technologies and energy procurement processes."

The Executive Order directs state organizations to construct new and renovate existing state facilities consistent with U.S. Green Building Council or U.S. EPA/DOE Energy Star ratings; to lease office space that is convenient to public transportation, energy efficient and pedestrian and bicycle accessible; to purchase fuel-efficient, low-emission state-owned vehicles and maximize use of alternative transportation fuels, minimize travel, implement transit and ridesharing incentive programs and telecommuting; and to purchase or lease Energy Star rated appliances and equipment, where possible, and use recycled paper-compatible office equipment.

Executive Order 48 also establishes the position of Senior Advisor for Energy Policy and the Governor's Energy Policy Advisory Council, a board comprised of energy producer, consumer and conservation groups. Governor Kaine has appointed Stephen A. Walz, most recently the Director of Administration for the Department of Mines, Minerals and Energy, to serve as Senior Advisor for Energy Policy.

"Virginia is faced with substantial challenges to use energy more efficiently," Governor Kaine said. "The Senior Advisor for Energy Policy and the Governor's Energy Policy Advisory Council will provide much needed coordination and focus for dealing with this critical issue."

Walz has worked on energy issues in Virginia government since 1980, managing the Department of Mines, Minerals and Energy's energy conservation and efficiency programs and directing Virginia's Energy Office. He has 30 years of experience with energy efficiency, renewable energy development, coal and mineral mining, gas and oil development, and low-income weatherization and fuel assistance services. Walz will chair the Governor's Energy Policy Advisory Council and continue to lead development of the Virginia Energy Plan.

Council members will be appointed by and serve at the pleasure of the Governor and will include representatives of Virginia's energy providers and producers, residential, commercial and industrial energy consumers, Virginia's conservation community, and the Secretaries of Natural Resources, Commerce and Trade, and Technology. The Council will review the recommendations set forth in the Virginia Energy Plan; evaluate strategies for implementing and monitoring the Plan; and identify additional energy policy options for the Commonwealth.

To view Executive Order 48 visit the Governor's website at:
http://www.governor.virginia.gov/Initiatives/ExecutiveOrders/2007/EO_48.cfm

# # #

K. Appendix K – Governor Kaine's Executive Order 48 (2007)

a) Energy Efficiency in State Government

(1) Importance of the Initiative

Commonwealth agencies and institutions spent over $290 million in fiscal year 2006 for facility and transportation energy. It is critical that the Commonwealth use energy in the most efficient manner possible to save taxpayer money and provide leadership to all Virginians in using our natural resources wisely. Improvements in energy efficiency and protection of our priceless natural resources are inseparable goals. Reducing the amount of energy we consume will reduce the emission of greenhouse gases that are largely responsible for global climate change. State government has the capacity and responsibility to save taxpayer money while protecting our climate and natural resources for future generations.

The Commonwealth's citizens, businesses, and governments are also faced with managing the effects of more costly and less reliable supplies of energy, as well as the environmental effects of energy production and consumption. In response, the General Assembly enacted into law in 2006 a state energy policy and directed the Department of Mines, Minerals and Energy to develop the Virginia Energy Plan. This requires coordination of energy activities among many private organizations and state agencies and institutions.

By the power vested in me by Article V of the Constitution of Virginia, and Section 2.2-103 of the Code of Virginia, and subject always to my continuing and ultimate authority and responsibility to act in such matters, I hereby direct the Governor's Secretaries and all executive branch agencies and institutions to reduce energy consumption and costs in state government operations in the executive branch. I also set forth a process for coordinating energy policy development within the executive branch.

(2) Agency Energy Management

All agencies and institutions shall provide adequate management support to their energy-savings activities. In order to ensure agencies have sufficient expertise in energy management, every Agency Energy Manager for an agency or institution with energy costs exceeding $1 million shall be certified as an energy manager by the Association of Energy Engineers by June 30, 2008.

(3) State Agency and Institutions Energy Savings Goal

I hereby set a goal for executive branch agencies and institutions to reduce the annual cost of non-renewable energy purchases by at least 20 percent of fiscal year 2006 expenditures by fiscal year 2010. Any agency or institution that can demonstrate to the Senior Advisor for Energy Policy that they met the 10 percent energy savings goal established for 2006 in Executive Order

54 (2003) shall reduce costs of non-renewable energy purchase by an additional 15 percent of fiscal year 2006 expenditures by fiscal year 2010.

In order to meet this goal, agencies and institutions shall aggressively pursue (i) all energy-savings activities whose costs are recoverable in one fiscal year, such as use of screw-in fluorescent and other high-efficiency lighting in place of incandescent bulbs and other less efficient lights; (ii) energy-savings performance contracts that are in compliance with Section 4-4.01v of the Appropriations Act; (iii) other funded capital energy-savings improvements; (iv) alternate procurement techniques for energy; (v) renovations of existing buildings consistent with LEED (including the use of Virginia forest products with alternate certifications) or Energy Star requirements as provided for in this executive order; (vi) the transportation energy use requirements provided for in this executive order; or (vii) purchases of renewable energy. Further, after having complied with requirements regarding roof repair or replacement and deferred maintenance projects in accordance with Section 4-4.01c of the Appropriations Act, agencies shall aggressively pursue maintenance reserve projects leading to energy conservation.

Agencies shall report their progress towards the energy-savings goals as part of the Governor's Management Scorecard, Resource Stewardship objective. Such progress shall also be reported to the public on the Department of Mines, Minerals and Energy's website.

(4) New and Renovated State-Owned Facilities

All agencies and institutions constructing state-owned facilities over 5,000 gross square feet in size, and renovations of such buildings valued at more than 50% of the assessed building value which have not advertised for architectural and engineering services by the effective date of this order shall be designed and constructed consistent with the energy performance standards at least as stringent as the U.S. Green Building Council's LEED rating system (including the use of Virginia forest products with alternate certifications) or the United States Environmental Protection Agency/Department of Energy's "Energy Star" rating.

The Senior Advisor for Energy Policy shall periodically assess the cost effectiveness of incorporating a photovoltaic power system or a green roof in any roof renovation for buildings over 5,000 gross square feet in size. If the Senior Advisor for Energy Policy finds that the projected energy savings over a 15-year period can pay for the additional cost of installing a photovoltaic or green roof system, then the Department of General Services shall require that any roof replacement design address that option. Agencies and institutions shall incorporate the option if it meets the 15-year payback limit for that replacement.

(5) Leased Facilities

When a Commonwealth agency or institution is to lease space in a metropolitan area where public transit is available, it shall seek to lease space within a quarter mile of a bus, trolley, Metro, or commuter rail stop. The Commonwealth shall encourage the private sector to adopt energy-efficient building standards by giving preference when leasing facilities for state use to facilities meeting the U.S. Green Building Council's LEED rating system (including the use of Virginia forest products with alternate certifications) or the United States Environmental

Protection Agency/Department of Energy's "Energy Star" rating. The Commonwealth shall also provide a preference when leasing facilities for state use to facilities that are pedestrian and bicycle accessible. The Division of Real Estate Services of the Department of General Services shall consider these preferences in approving new leases or extensions of current leases.

(6) Transportation Energy Use

The Department of General Services, by Executive Order 89 (2005), is responsible for developing a consistent, efficient, and cost-effective fleet management program for all vehicles owned by the Commonwealth. Therefore, the Department of General Services shall include in its policies and procedures requirements for the purchase of fuel-efficient, low-emission state-owned vehicles. In addition, the Department of General Services shall include in its policies and procedures for leasing vehicles requirements that give a preference to compact, fuel-efficient, and low-emission vehicles.

All agencies and institutions shall maximize biodiesel and ethanol use in state fleet vehicles except where use of biodiesel will void warranties or incur unreasonable additional costs to the agencies. The Department of General Services shall make available, at selected sites based upon the locations of state-owned flex-fuel and diesel vehicles, E85 and B20 fuels for agencies. Agencies and institutions that independently purchase fuel shall use E85 and B20 fuel sites to the maximum extent reasonably possible.

All agencies and institutions shall take necessary actions to minimize vehicle miles traveled related to state operations. All agencies and institutions shall implement transit and ridesharing incentive programs within the parameters of the Department of Human Resource Management's guidelines, and shall maximize the use of telecommuting consistent with the policies of the Office of Telework Promotion and Broadband Assistance.

State vehicles used for law enforcement and emergency response shall be exempt from the provisions of this section. Public safety agencies are expected to make all reasonable efforts to reduce transportation energy use when possible in ways that do not adversely impact their missions and ultimately the safety of our citizens.

(7) State Government Equipment and Supplies

Commonwealth agencies and institutions shall purchase or lease Energy Star rated appliances and equipment for all classifications for which an Energy Star designation is available. All new copiers, faxes, printers, and other such office equipment purchased or leased by the Commonwealth that uses paper shall be recycled paper-compatible. The Commonwealth shall purchase only recycled paper except where equipment limitations preclude the use of recycled paper.

(8) Senior Advisor for Energy Policy and Energy Policy Advisory Council

There is hereby established the position of Senior Advisor to the Governor for Energy Policy and the Governor's Energy Policy Advisory Council to provide expertise and advice to the Commonwealth on the Virginia Energy Plan and other energy matters. The Senior Advisor will serve as the Governor's principal advisor on energy-related issues, and is directed to coordinate energy policy across state agencies and institutions, including advising state institutions of higher education on coordinating energy research efforts.

The Senior Advisor shall develop and update the Virginia Energy Plan in conjunction with the Division of Energy of the Department of Mines, Minerals, and Energy, as provided for in Chapter 2 of Title 67 of the Code of Virginia, drawing upon expertise of other agencies and institutions and Virginia businesses as appropriate.

The Governor's Energy Policy Advisory Council shall be chaired by the Senior Advisor for Energy Policy. The Council shall consist of 15 members appointed by the Governor, to serve at his pleasure. Appointees shall include representatives of Virginia's energy providers and producers, residential, commercial and industrial energy consumers, Virginia's conservation community, and the Secretaries of Natural Resources, Commerce and Trade, and Technology. The Advisory Council shall make a report of its activities by December 1 of each year.

The Advisory Council's responsibilities shall include the following:

1. Review the recommendations set forth in the Virginia Energy Plan as well as other relevant reports and studies.
2. Evaluate strategies for implementing recommendations of the Virginia Energy Plan, including prioritization, approach, and timeline.
3. Monitor implementation of the Virginia Energy Plan.
4. Identify additional energy policy options for the Commonwealth to address energy issues.
5. Make other recommendations as may be appropriate.

(9) Responsibilities of the Department of Mines, Minerals and Energy

The Department of Mines, Minerals and Energy shall be responsible for providing technical assistance to state agencies and institutions in achieving energy savings. Specifically, the Department of Mines, Minerals and Energy shall:

1. Assist state agencies in their efforts to conserve energy to the maximum extent feasible;
2. Assist agencies and institutions with implementation of this Executive Order;
3. In cooperation with the Department of Environmental Quality, assist agencies with calculating the extent to which their energy savings result in a reduction in greenhouse gas emissions; and
4. Maintain a system to monitor and report on progress made by state agencies toward reducing from its 2006 baseline energy costs and consumption for state-owned facilities, and provide a report at least annually on its website.

This Executive Order shall become effective upon its signing and shall remain in full force and effect until June 30, 2011, unless amended or rescinded by further executive order.

Given under my hand and under the Seal of the Commonwealth of Virginia this Fifth day of April, 2007.

/s/ Timothy M. Kaine, Governor

Attest:

/s/ Secretary of the Commonwealth