ENVIRONMENTAL SUSTAINABILITY: A ROADMAP FOR CALVIN COLLEGE

Taskforce Members

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EXECUTIVE SUMMARY

The Sustainability Charter Taskforce (taskforce) worked for nine months reviewing Calvin College's sustainability goals and developing recommendations that will ensure their timely achievement. It divided the work among five groups focused on the Second Nature Carbon Commitment, organization and governance, curriculum, lifestyle choices, and messaging. Based on this work, the taskforce makes the following recommendations.

Recommendation 1: Define sustainability: The taskforce recommends that in Spring 2017, the Environmental and Energy Stewardship Committee review and recommend for campus-wide adoption the taskforce-recommended formal definition of sustainability. A concrete definition will bring clarity and focus to the broad range of sustainability activities going forward.

Recommendation 2: Sign the Second Nature Carbon Commitment (formerly the ACUPCC) and begin tracking Calvin's carbon reduction and financial savings: The taskforce recommends that President Le Roy sign the Second Nature Carbon Commitment by February 1, 2017, pledging Calvin College to act on the task-forcerecommended implementation plan to achieve net carbon neutrality within 40 years. By pledging to eliminate the college's direct carbon contributions to climate change, President Le Roy will affirm and deepen the college's commitment to creation care and social justice, as well as set in motion actions that will lead to long-term financial savings.

Recommendation 3: Appoint a Director of Sustainability: The taskforce recommends that the college appoint a Director of Sustainability to begin in budget year 2018 (July 1, 2017). A director will be able to advise and coordinate the work necessary to achieve the college's stated sustainability goals, and in so doing, assure that maximum cost savings, efficiency gains, and benefits are achieved. The taskforce also recommends that the Committee on Governance revise the mandate of the Environmental and Energy Sustainability Committee to give it the responsibility of advising the Director of Sustainability.

Recommendation 4: Commit to achieving sustainability literacy for all graduates and begin assessing sustainability literacy SLOs as part of the core curriculum in AY 2018-2019: The taskforce recommends, pursuant to Strategic Plan I.1.d, that the CCC and EPC review and adopt the taskforce-recommended SLOs and curriculum plan that will collectively guide sustainability literacy for all graduates, with implementation beginning in AY 2018-2019.

Recommendation 5: Expand incentives and awareness-building initiatives for lifestyle choices that align with the college's sustainability goals: The taskforce commends the Student Life Division for its robust support of student-led initiatives that promote sustainable lifestyle choices. The taskforce recommends that Student Life expand and formalize sustainable living as part of the co-curricular experience and include sustainable lifestyle choices as part of orientation programming beginning in Summer 2017. The committee recommends the college build on the success of these initiatives by expanding Healthy Habits to include sustainable lifestyle incentives and awareness programming for faculty and staff beginning Spring 2017, with further initiatives to be developed and carried forward by a Director of Sustainability.

Recommendation 6: Align campus messaging with a cohesive sustainability narrative: The taskforce recommends that in Summer 2017, the Brand Steward begin to reorganize and update the multiple, disparate venues for sustainability information on the college web pages and printed literature to convey a coherent and consistent message. The taskforce further recommends that the Brand Steward work with a Director of Sustainability in AY 2017-2018 to develop a messaging strategy to leverage the college's sustainability efforts and achievements in support of efforts to increase enrollment and expand advancement

INTRODUCTION

In January 2016, Calvin College President Michael Le Roy indicated an interest in the feasibility of signing the Second Nature Carbon Commitment. Consequently, Vice Presidents Todd Hubers and Sally Vanderploeg commissioned a charter taskforce 1) to advise President Le Roy on the feasibility and costs of achieving net carbon neutrality, 2) to recommend tools for achieving the sustainability goals outlined in the Strategic Plan, "Calvin 2019," and 3) to recommend organizational changes necessary to further institutionalize sustainability as a core college value across operating units.

The taskforce worked for nine months to fulfill its chartered goals. Given the taskforce's broad mandate, it divided work into five working groups to address more specific topic areas: Second Nature Carbon Commitment, organization and governance, curriculum, lifestyle choices, and messaging.

A. Guiding Documents

The taskforce's broad work was guided by several authoritative college documents, and its recommendations were shaped further by an external evaluation conducted by Second Nature. The first source of guidance was the "Statement on Sustainability," which the board of trustees approved in 2007. Key elements of that statement are summarized below in Table 1.1.

Table 1.1: "Statement on Sustainability" (2007)

Our purpose is to infuse Calvin's vigorous liberal arts education with thoughtful, Biblically based principles that lay a foundation for living in a way that honors the Creator and his beloved creation. The Reformed tradition recognizes the important role of creation as God's general revelation of goodness and grace. We also recognize our responsibility to interpret, wisely use, and compassionately care for God's creation. In doing so, we take seriously the Biblical mandate to be stewards of God's good earth.

Sustainable living is the daily working out of the stewardship mandate. We seek to live as part of the natural world in ways that mirror the care and love God has for the creation. To live in a sustainable fashion means our daily activities will be conducted in such a manner that they do not seriously jeopardize, but instead promote, the wellbeing of other people, other species, and the ability of future generations of all creatures to flourish. This statement is intended to challenge ourselves to lead lives of increased meaning and purpose, lives that promote healing and reconciliation within creation. We consider this response to be a divine calling, the working out of which will bear fruits of love and hope in our groaning world.

The statement goes on to suggest goals in thirteen distinct areas:

- a. Teaching and Research
- b. Purchasing and Administrative Services i. Campus Grounds and Land Use
- c. Waste Reduction and Recycling
- d. Energy Purchasing
- e. Water and Wastewater
- Hazardous Materials f.
- g. Transportation

- h. Food and Food Services
- j. Building Construction: New and Renovation
- k. Campus Site Planning
- I. Investment Polices
- m. Outreach

The taskforce also worked directly from the college's strategic plan, "Calvin 2019." The relevant excerpts are captured below in Table 1.2.

Table 1.2: "Calvin 2019"

Introduction:

The goal of this Strategic Plan is to build on this sustainability and envision and pursue new opportunities in the near future that will advance its historic mission. It assumes that we will continue to do what we are already doing well. It focuses on some specific new initiatives, several areas where the College will consider new programs and building projects, and the more effective and systematic measuring of how well we are doing these things, and doing all of these things in ways that are sustainable ecologically, communally, and financially.

I. Strengthen Calvin's Mission in Education

I.1.d The framework will ensure that cross-cutting educational components (e.g. diversity, sustainability, and others as approved by Faculty Senate) are integrated into the educational goals, outcomes, and assessment plans of the core curriculum, academic programs, and the co-curriculum.

1.3.d The provost will coordinate additional college-wide support for faculty and staff development (e.g., to develop faith-informed pedagogy; to deepen theological understanding in relation to disciplines or professions, to gain further competence in diversity, cultural competency, and global literacy; to integrate sustainability themes into the curriculum; to develop cross- or inter-disciplinary teaching skills).

III. Strengthen Calvin's Mission in Education

Sustainability in this mission refers specifically to the natural environment on campus and its material infrastructure, but the ideal also points to sustaining the health and welfare of the community of people who make up the College.

III.6.Embrace and enact environmental sustainability as a core value.

- a. Governing committees and boards with responsibilities relevant to sustainability will continue to align the college with the guidelines expressed in the Statement on Sustainability.
- b. Environmental sustainability will be developed as a valued theme in Calvin's educational framework, scholarly agenda, and operational practices.

V. Secure Calvin's Financial Future

Developing and implementing the campus master plan also involves sustainability in the specific ecological sense, in considering whether Calvin will become a signatory to the American College and University Presidents' Climate Commitment, in sustaining specific areas where our Physical Plant already meets or exceeds best practices in environmental sustainability, and in considering new ways to be better stewards of our resources.

V.4.b Calvin will complete a cost-implementation analysis to inform a decision on whether Calvin becomes a signatory of the American College and University President's Climate Commitment.

The taskforce's recommendations were further informed, but not dependent on, a 2015 external evaluation by Second Nature: "Calvin College Sustainability Assessment." The report identifies several institutional strengths in the area of sustainability, including the Environmental Stewardship Committee, the Statement on Sustainability, the Calvin Energy Recovery Fund (CERF), and the Calvin Environmental Assessment Program (CEAP). The report also highlights several weaknesses, particularly in organization and governance, which limit the college's ability to institutionalize sustainability and to coordinate sustainability work across operating units.

B. Data Sources

The taskforce utilized existing data from two sources. First, the taskforce relied on the college's "Sustainability Scorecard," which has tracked progress on sustainability goals for the past seven years, revealing trends in energy consumptions, waste production, and other important areas related to sustainability.

Second, the taskforce benefitted enormously from data gathered in the fall of 2015 for the Sustainability Tracking Assessment, and Rating System (STARS). STARS is a standardized, comprehensive reporting system developed by The Association for the Advancement of Sustainability in Higher Education (AASHE). It tracks an institution's work in academics, engagement, operations, planning and administration, and innovation, and it provides a rating system that allows for easy comparisons among colleges and universities. Completed in February 2016, Calvin College's first STARS assessment earned it a silver rating. The assessment highlighted areas of significant sustainability achievements (e.g. waste reduction, recycling, and composting) as well as areas in which the college has made little or no progress (e.g. investment policies).

C. Why Calvin College Should Deepen Its Commitment to Sustainability

As explained above, Calvin College has already made significant commitments to sustainability and meaningful progress towards its stated goals. In its deliberations, the taskforce repeatedly emphasized the need to deepen these commitments and accelerate progress. First, the college should do so as a principled expression of its Reformed Christian mission to train men and women to be agents of transformation and renewal in God's world. It should prioritize sustainability because doing so is a way to image God in the world and to live out God's love for the whole creation, both human and nonhuman. The "Statement on Sustainability" outlines this commitment eloquently.

Second, Calvin should pursue the goals of sustainability in order to maintain a strong recruiting position in the tight market of higher education. College students are increasingly concerned about sustainability issues, and this is influencing their college selection. The Princeton Review provides evidence of this in its annual "College Hopes and Worries Survey Report." In the 2016 report, the Princeton Review surveyed over 10,000 prospective students and parents from all 50 states and DC, as well as from over 20 countries. Out of those surveyed, 61% said that a college's "commitment to environmental issues (from academic offerings to practices concerning energy use, recycling, etc.)" affected their college decision. As Calvin struggles to meet its recruiting goals, then, it should work diligently to follow through on its existing commitments to sustainability and communicate these commitments more effectively.

Recommendation 1:

Adopt a formal definition of sustainability in Spring 2017

In approving the "Statement on Sustainability," the Calvin College board of trustees indicated its commitment to sustainability as a guiding value and principle, and "Calvin 2019" sets several specific sustainability goals. The taskforce recommends that Calvin College sharpen its formal definition of sustainability to better guide its work and to more clearly communicate its intentions to prospective students, alumni, and donors. Specifically, the taskforce recommends that the Environmental and Energy Stewardship Committee recommend a formal definition of sustainability for campus-wide adoption in Spring 2017. For the committee's work, the taskforce offers the following draft commitment and definition as a starting point.

A. Commitment:

Calvin College equips students to think deeply, to act justly, and to live wholeheartedly as Christ's agents of renewal in God's entire creation. The work of renewal, which includes wise stewardship of creation, means restoring and sustaining the integrity of the natural world as well as protecting and advancing the flourishing of all members of the human community, present and future, while at the same time minding the capital resources and viability of the economy and the institutions it supports.

B. Formal Definition:

For Calvin College, sustainability is the commitment to practices that do not deplete human and natural resources at unacceptable rates nor harm social and natural environments in unacceptable ways.

C. Explanation

The word "sustainability" made its official debut in western environmental discussions with the 1980 report produced by the International Union for the Conservation of Nature. It was advanced in the Brundtland Report of 1987 when it was attached, in its adjectival form, to the concept of development in an attempt to reconcile the apparent conflict between the need for the economic activity in developing countries and concerns about the environment impact of such activity. "Sustainable development" became the name for a way of meeting the economic needs of the world's poor while at the same time preserving the integrity and capacities of the natural environment. In the words of the Brundtland Report: "Sustainable development is development that meets the needs of current generations without compromising the ability of future generations to meet their own needs." Since then, the word "sustainability" has gone into wide circulation, acquiring additional meanings in a variety of contexts. We have attempted to construct a formal definition of sustainability that is both precise and generous, covering the various contexts in which it is used but at the same time capturing its univocal sense. To make progress in this direction, we propose to take the concept of sustainability out of the air of abstraction and focus on the characteristics of a sustainable practice. Those characteristics will then fill out what we mean when we use the abstract noun "sustainability."

We can take our point of departure from the Brundtland Report. What is it about a sustainable practice that enables it to meet the needs of the present without compromising the ability of future generations to meet their own needs? To answer this question, we need to take the definition one step further. At its simplest and most formal level, a sustainable practice is a practice that does not deplete the resources it depends on at an unacceptable rate. As such, the concept of sustainability can be applied to a number of contexts. A business that consistently pays out more money than it takes in is unsustainable. It will go bankrupt. A method of farming that removes the nutrients of the soil without replacing them is unsustainable. The soil will become depleted. A work schedule of long hours that uses up more energy than can be restored by the few hours given to sleep is unsustainable. The worker will burn out. A global transportation system that daily consumes enormous amount of oil is unsustainable. Oil is a finite resource and will eventually dry up. There is a second, related, and equally important sense of sustainability. It has to do with the effects of the output of a practice on the environment in which that practice takes place and on which it depends. Burning huge amounts oil on a daily basis will not only use up the world's oil supply at an unacceptable rate, it will also pump tons of hydrocarbons into the atmosphere that eventually promise cataclysmic climate change. Here we would say that the practice is unsustainable because the output of the practice threatens to destroy or severely compromise the conditions of its own existence. A certain kind of unrestrained capitalism, one that fuels an extreme polarization between the few rich and the many poor, is unsustainable in this sense. As both Plato and Aristotle (and Karl Marx, for that matter) predicted, a society undergoing this process will become so unstable that the economy itself will falter as a result. Likewise, the use of crops genetically modified to withstand "weed" killers is unsustainable if it leads to the destruction of collateral plants crucial to the life of the pollinators that the entire eco-system depends on.

So: two kinds of sustainability. One does not deplete the resources it depends on at an unacceptable rate; the other does not spoil the environment in which it operates at an unacceptable rate. Call the one "resource sustainability" and the other "commons sustainability." They will often overlap for any given practice; but they are nonetheless distinct. A sustainable practice, then, neither drains the tank nor fouls the nest. Put positively, a sustainable practice recognizes, honors, and maintains the integrity of creation from both its point of input and its point of output. This understanding explains the formal definition of sustainability offered above.

Determining what is or is not an acceptable rate of depletion of resources or harm to the environment requires additional framing for Calvin College to operationalize. Whether resources are being depleting at an unacceptable rate will depend on a number of factors, and will inevitably be the source of controversy. The rate of depletion will depend on the volume and frequency of consumption. Again, whether the rate of spoilage of the commons is unacceptable will depend on volume and frequency. Our judgment concerning the sustainability or unsustainability of a practice, then, will depend on our estimation of a threshold. This estimation demands meaningful metrics and will be relevant to the prohibition and regulation of our own practices as well as the development of public policy.

It is important to emphasize that sustainability is not simply an ecological concept. Indeed, for Calvin College to pursue sustainability, it must pursue goals in several areas which at times conflict. Therefore the taskforce offers an expanded statement of commitment that draws on a second popular explanation of sustainability: John Elkington's accounting framework, known as the Triple Bottom Line. Elkington argues that three areas or aspects of sustainability must be simultaneously considered: people, planet, and profits; or: equity, ecology, and economy. Elkington here recognizes that sustainability has multiple, interdependent dimensions, and he argues that pursuing only one at the expense of the other two will yield short term success but long term failure. All three must be realized. One value of this economic perspective on sustainability is that it recognizes the irreducible reality of tradeoffs. All three dimensions of sustainability should be realized simultaneously, and often this is possible through careful planning. But in a world of scarcity, tradeoffs are at times unavoidable. For example, capital intensive investment in green building construction may advance ecological sustainability and yet be economically unsustainable for a business enterprise if the additional building debt assumed will not be offset by the payback in a reasonable amount of time. And if the enterprise goes bankrupt, it cannot continue the work of ecological sustainability into the future. The taskforce commends Elkington's framework to the college both as an encouragement to pursue all three dimensions of sustainability and as a source of accountability for the irreducible tradeoffs that must be made.

While the term "sustainability" is relatively new, the moral values it represents are embedded firmly in the college's Reformed heritage. In particular, the meaning of sustainability outlined above reflects the traditional virtues of frugality and justice. Frugality, Christian social ethicist James Nash explains, "denotes moderation, temperance, thrift, cost-effectiveness, efficient usage, and a satisfaction with material sufficiency—similar to the

"contentment" celebrated in the first Pauline letter to Timothy."¹ Justice, Nash goes on to write, "demands provisions for the basic needs and rights of all, including a 'preferential option' for the economically vulnerable and powerless" as expressed throughout the Old and New Testaments.² Sustainability reframes and expands these traditional virtues in light of our contemporary scientific understanding of creation and the reality of a globalized market economy. Frugality and justice are not narrowly individualistic or economic virtues; they are also collective virtues for Calvin College to express with full recognition of the way that humans are inextricably embedded in the nonhuman creation.

"What does the Lord require of you," the prophet Micah asks rhetorically, "to act justly, to love mercy, and to walk humbly with your God." The three dimensions of sustainability—ecology, equity, and economy—are part and parcel of this command. Consequently, they are part and parcel of the college mission to train men and women to be agents of renewal in God's world.

¹ James A. Nash, "Toward the Rivival and Reform of the Subversive Virtue: Frugality," in *Consumption, Population, and Sustainability: Perspectives from Science and Religion*, ed. Audrey R. Chapman, Rodney L. Peterson, and Barbara Smith-Moran (Washington: Island Press, 2000), 173.

² Ibid., 179.

Recommendation 2:

Sign the Second Nature Carbon Commitment in February 2017 and begin tracking Calvin's carbon reductions and financial savings

The Strategic Plan (V.4.b.) states: "Calvin will complete a cost-implementation analysis to inform a decision on whether Calvin becomes a signatory of the American College and University President's Climate Commitment," now referred to as the Second Nature Climate Leadership Commitments. Upon completion of this analysis, **the taskforce recommends that President Le Roy accepts the cost implementation analysis and signs the Second Nature Carbon Commitment.** By pledging to eliminate the college's direct carbon contributions to climate change within 40 years, President Le Roy will affirm and deepen the college's commitment to creation care and social justice and set in motion long-term financial savings.

The taskforce recommends that the Director of Institutional Effectiveness and Analytics create a dashboard to track carbon reductions and financial savings, the management of which will be under a Director of Sustainability.

The taskforce recommends that the college commits to implement the first three years of proposed projects and reinvest the financial savings for further carbon reduction. After three years, the next phase of the implementation plan will be evaluated and modified based on the current energy and technological context.

A. The Second Nature Climate Leadership Commitments

Second Nature's Climate Leadership Commitments, formerly known as the American College and University President's Climate Commitment, provide colleges and university presidents with a high-visibility platform to articulate their institutions' commitments to addressing global climate change. Hundreds of college and university presidents have already signed one of three commitments: the Carbon Commitment, the Resilience Commitment, and the Climate Commitment. The Carbon Commitment requires the signatory institution to achieve net carbon neutrality—emitting no more carbon than it can sequester—by a self-determined date. The Resilience Commitment requires the signatory institution to increase its community's resilience to the impacts of climate change. The Climate Commitment is a comprehensive pledge to achieve both carbon and resilience goals. **The taskforce believes that President Le Roy should sign the Carbon Commitment**.

B. Calvin College and the Carbon Commitment

Calvin College's mission is rooted in and continues to be shaped by the Reformed tradition of Christian faith; it is a confessional mission, informed by the ministry of the Christian Reformed Church of North America. The college mission—equipping students to think deeply, to act justly, and to live wholeheartedly as Christ's agents of renewal in the world—reflects the transformational emphasis of the Reformed tradition.

Living as Christ's agents of renewal requires knowledge of God, an understanding of the structures and integrity of God's creation, and concern about the impacts of sin on the world. As stated in the "Expanded Statement of Mission" (2004), we must cultivate "a joyful trust in the triune God, an attachment to a Christian worldview, a strong desire to connect theoretical understanding with Christian conduct, a readiness to contend against evil and oppression, a willingness to work for the common good and the Body of Christ, and a dedication to the cause of Christ's renewal of the earth and human life" (28).

The Christian Reformed Church of North America has identified climate change as a pressing moral, ethical, and religious issue, where Christians are called to the vital work of renewal. In 2012, the church approved a

report from the Creation Stewardship Taskforce Report, which provides direction to churches and people of good will in addressing climate change. The taskforce warned that "human-induced climate change poses a significant threat to future generations, the poor, and the vulnerable," and it called for immediate action that includes the reduction of carbon emissions. The church's statement draws from broad scientific consensus on the mechanisms and potential impacts of anthropogenic climate change.

For Calvin College to fulfill its mission, we must address climate change in our educational curriculum, our co-curriculum, and our campus operations. We must, in other words, provide students with the necessary knowledge, concern, and competency to be agents of renewal in a world threated by anthropogenic climate change. And we must demonstrate acts of renewal through our campus operations. The Carbon Commitment provides a framework for these practical acts of renewal.

C. Achieving Carbon Neutrality

Net carbon neutrality means that carbon emissions are equal to carbon sequestration, whether direct sequestration by the college or indirect sequestration through the purchase of carbon offsets. The taskforce prepared a carbon budget that identifies the college's current emissions and sequestration rates and proposes projects that will bring these two figures into closer alignment, ultimately achieving net carbon neutrality within 40 years.

As shown in Table 2.1 below, Calvin College's carbon emissions total 27,385 tons/yr. The taskforce is pleased to note that the college has already been reducing its carbon emissions through the ongoing work of the Physical Plant staff and the Calvin Energy Recovery Fund (CERF).

Year	Carbon Emissions (mtce)						
2009	29,616						
2010	28.974						
2011	28,915						
2012	28,151						
2013	28,149						
2014	26,792						
2015	27,385						
Carbon emissions in fact decreased between 2014 and 2015. The apparent increase comes from adding commuting carbon emissions, which were not reported before 2015. Following the previous methodology, the 2015 number would be 26 675 tons							

Table 2.1 Calvin	College annual	carhon	emissions
Table 2.1 Calvill	College annual	Carbon	ennissions

The college already sequesters some of its carbon through its vegetated land holdings (Table 2.2).

Table 2.2 Calvin College land holdings, forested acreage, and carbon sequestration

Parcel	Estimated Acreage	Estimated Forested Acreage	Estimated Annual Sequestration (@5mtce/acre)
Campus	300	50	250
Ecosystem Preserve	100	100	500
Flat Iron Lake	70	35	175
Camp Waltman Lake	319	300	1595
Total	789	485	2425

Appendix 1 provides a list of specific carbon-reduction projects through which Calvin College could reduce its carbon emissions by 65%. The first 50% reductions could be achieved over the next 26 years, largely self-funded by savings that the college realizes from these projects (Table 2.3).



Table 2.3: Cumulative Cost/Savings Chart

Cummulative Cost / Savings Table

Year of Date	Compounded Saving	In Year Request - Additional Funds	Running Total - Additional Funds	Bottom Line
Null				
2017	46,086	0	0	46,086
2018	118,108	0	0	118,108
2019	220,760	0	0	220,760
2020	348,336	0	0	348,336
2021	557,161	700,000	700,000	-142,839
2022	789,613	0	700,000	89,613
2023	1,105,691	700,000	1,400,000	-294,309
2024	1,480,454	400,000	1,800,000	-319,546
2025	1,901,902	200,000	2,000,000	-98,098
2026	2,406,034	700,000	2,700,000	-293,966
2027	2,992,851	700,000	3,400,000	-407,149
2028	3,671,199	755,000	4,155,000	-483,801
2029	4,435,925	800,000	4,955,000	-519,075
2030	5,287,029	800,000	5,755,000	-467,971
2031	6,200,511	500,000	6,255,000	-54,489
2032	7,182,371	585,000	6,840,000	342,371
2033	8,276,955	1,035,000	7,875,000	401,955
2034	9,509,059	1,500,000	9,375,000	134,059
2035	10,887,541	1,500,000	10,875,000	12,541
2036	12,389,568	1,420,000	12,295,000	94,568
2037	14,024,651	1,720,000	14,015,000	9,651
2038	15,690,202	1,050,000	15,065,000	625,202
2039	17,390,976	1,200,000	16,265,000	1,125,976
2040	19,136,485	1,500,000	17,765,000	1,371,485
2041	20,929,063	2,000,000	19,765,000	1,164,063
2042	22,768,710	2,000,000	21,765,000	1,003,710
2043	24,648,693	2,000,000	23,765,000	883,693

Calvin could reduce its carbon emissions by another 15% by installing a geothermal system. As indicated in Appendix 1, this project would require significant capital investment beyond the college's operating budget. However, the cost of geothermal will undoubtedly change over the next 25 years, so the taskforce recommends reevaluating geothermal costs in the future.

With existing sequestration and the proposed carbon reduction projects, the college would, at the end of 40 years, still have a carbon balance of 7,529 tons/year. If new technologies do not allow for further carbon reductions, and the college does not increase its carbon sequestration capacity, the college could still achieve net carbon neutrality by purchasing carbon offsets. This essentially means paying a third party to undertake projects which sequester carbon on Calvin's behalf. Given the current costs of carbon offsets, this would require less than \$100,000 per year, which is only a fraction of the ongoing annual savings that the college will have realized by reducing its energy needs.

The objective of generating this plan is to show that once President LeRoy signs the Carbon Commitment, it is reasonable to expect that within 40 years Calvin College would become carbon neutral. Given the dynamic nature of energy systems and ongoing technological developments, there will undoubtedly be new options appearing in the future that are either currently unknown or prohibitively expensive. With that caveat the 40-year plan is an indication that today, at this particular point in time, such a commitment is not only a hopeful symbol, but also an implementable and achievable undertaking. Furthermore, as we become engaged in this campaign we will educate and inspire behavior changes in our staff, students, and faculty.

To be clear, the initiatives proposed in this report are all realizable projects we feel can be implemented at Calvin. There are other potential projects we have not included but that may be added in the future (like the solar gardens that St. Olaf and GVSU are developing – see http://wp.stolaf.edu/blog/st-olaf-celebrates-carbon-neutrality/ and http://wp.stolaf.edu/blog/st-olaf-celebrates-carbon-neutrality/ and http://www.gvsu.edu/ens/solargardens). In addition, the cost of some of these projects may decrease, and the price of fossil fuels may increase in the future, either of which would accelerate the timeframe we propose and could make viable projects we currently assess as unrealistic (such as a large geothermal array. Because of improving efficiencies and the non-renewable nature of fossil fuels, it is highly unlikely our proposed 40-year timeframe will need to be extended.

We begin this plan with projects that will need to be done regardless of the Carbon Commitment, and that can be done with a sustainability alternative that moves us in the direction of climate neutrality. These projects do not require capital expenditures up front beyond normal operating budget expenses. Because they afford savings to the college (both in terms of carbon emissions and financial expenditures), we propose to use those savings to subsequently fund projects that would not typically be covered by the normal operating budget. This is essentially an expanded Green Revolving Fund (GRF) model (<u>http://greenbillion.org/wp-content/uploads/2013/01/GRF_Implementation_Guide.pdf</u>), which has been implemented at many other colleges and universities (<u>http://www.aashe.org/resources/campus-sustainability-revolving-loan-funds/all/</u>) and which we have been doing here at Calvin on a smaller scale with the Calvin Energy Recovery Fund (CERF).

Although this plan does foresee periods where the commitment to carbon neutrality will temporarily necessitate a negative financial balance to the college (note especially years 8-15), the long-term outlook is that this plan will save the college money. Furthermore, the plan as currently proposed will reduce Calvin's annual carbon emissions from 27385 mtce to 7529 mtce. Our proposal to achieve this final balance would be to purchase carbon offsets, which we will have more than enough money to do with the savings accrued over time.

(http://agb.org/trusteeship/2015/mayjune/the-virtuous-cycle-of-green-revolving-funds)

One final note – a possible strategy for addressing climate change at a national or state level is the imposition of a carbon tax. Countries such as Sweden and Ireland have already done this, as has the province of British Columbia (with Canada as a whole set to follow suit in 2018). If a carbon tax becomes instituted in our state or at the federal level, which may happen at some point in the future, efforts we undertake today to reduce our carbon emissions will necessarily have direct financial benefits.

The key findings from the taskforce's work and its carbon plan are as follows:

- 1. Calvin College carbon emissions are currently estimated to be 27,385 metric tons (mtce) per year.
- 2. The college's carbon emissions are already decreasing year to year, thanks to ongoing work by the Physical Plant and the Calvin Energy Recovery Fund (CERF).
- 3. Calvin College already sequesters an estimated 9% of its carbon emissions. Carbon sequestration is a measure of carbon that becomes stored into plant biomass (and eventually into soil organic material). Sequestration calculations are primarily based on acreage of forested land, and we have chosen to use a relatively conservative value of 5 mtce sequestered per acre of forest land. The property around Waltman Lake is the single largest provider of sequestration.
- 4. The college could reduce its current carbon emissions by roughly 50% over the next 40 years without substantial budgetary increases if it follows the model of CERF and reallocates energy savings year to year to fund energy-related projects.
 - a. Estimated costs for the first 50% carbon reductions total \$34 million over 40 years.
 - b. Estimated energy cost savings total \$49 million over 40 years.
- 5. The college could reduce its carbon emissions by another 15% through the installation of geothermal systems. Unless costs decrease significantly over the next few decades, these systems will require a significant capital outlay.
- 6. The remaining 26% of the college's carbon emissions could be further reduced through low-carbon sources of electricity that will become more readily available during the life of the commitment, purchasing carbon offsets, or purchasing additional property that sequesters carbon. For perspective, using a conservative current rate to buy carbon offsets (\$13/mtce), the college could offset the remaining 26% of its carbon emission for an estimated \$100,000 annually. This is a small fraction of the \$1.8 million annually that the college will save as a result of its energy reduction projects.

To conclude, the committee emphasizes that there is currently a limited number of Christian colleges that are signatories on the Second Nature Carbon Commitment, affording Calvin an opportunity to take a leading role in this type of expression of Christian environmental stewardship. Such a commitment would be consistent with Calvin's long standing devotion to faith-based creation care. Moreover, this commitment may also benefit current college shared goals of recruitment and retention by creating a differentiating distinctive feature and a "center of excellence" benefit for Calvin College.

Recommendation 3:

Appoint a Director of Sustainability

In the "Calvin College Sustainability Assessment," authors from Second Nature congratulate the college for its significant work in the area of sustainability. But, they write, "the excellent work to date is primarily driven by dedicated faculty, staff, and students who emerge as leaders in sustainability through personal interest in and dedication to the ideals of sustainability." Over and against this strength, the authors argue that the college lacks adequate institutionalization, integration, coordination, and strategic communication of sustainability efforts and principles. **Indeed, they identify lack of institutional integration as the number one obstacle to reaching its sustainability goals.** The taskforce concurs with this assessment, and it recommends that the college build the organizational capacity needed to institutionalize and coordinate its sustainability work, beginning with the appointment of a Director of Sustainability to begin work on July 1, 2017. A list of duties to be performed by the Director are found in Appendix II. The taskforce also recommends that the Committee on Governance revised the Environmental and Energy Stewardship Committee's mandate, making it an advisory committee to the Director of Sustainability.

A. Organizational Models

The task force conducted a survey of governance models at forty of Calvin's peer institutions, identified eight potential models that emerged from that analysis, and evaluated each of those models as possible governance structures for Calvin. The wide range of governance structures, summarized in supporting documentation, was revealing. Commitments ranged from no visible structure to executive-level positions working out of the Office of the President. For those institutions with visible governance structures, we categorized them in eight organizing models (Executive, Sustainability Institute, Office of Sustainability, Director of Sustainability Coordinators, Housed in Academic Department, Sustainability Committee, and Sustainability Cabinet) (Link to Eight Organizing Models in OneNote). All eight models essentially provide a way of assigning responsibility for coordinating sustainability work across operating areas, which, in turn, makes accountability possible. This is precisely what Second Nature and the taskforce believe that Calvin College needs to development.

B. Recommendation

The taskforce worked to determine the best model for Calvin College, accounting for its overarching organization, its institutional culture, and its resources. Where would an individual or committee need to exist within the college's organizational structure in order to have a clear view of the diverse sustainability efforts already underway and to adequately inform the appropriate decision-makers?

After evaluating how effectively each of the eight models used at other institutions would service Calvin College, the taskforce identified three distinct options, or tiers, for sustainability coordination. All three tiers are feasible within Calvin's cultural context; they range primarily in terms of resource commitments and efficacy. Table 3.1 summarizes the recommendations. Tier 1 would require little additional investment, but it would also yield the lowest return on investment; **Tier 2 is our recommended option**; and Tier 3 is aspirational. No matter which tier the college selects, the recommendations in this report can provide initial priorities for sustainability coordination. Moving forward, the taskforce recommends that the responsible party use the STARS certification process to establish annual, measurable sustainability goals.

Table 3.1 Sustainability Governance Options.

Tier 1 : Re-purpose the Environmental and Energy Sustainability Faculty Governance Committee (EESC) to be an advising body to the President's Council and make the Chair of EESC a member of the President's Council.

Tier 2: Create a Director of Sustainability position with EESC as its advising committee. Either keep EESC in faculty COG or move it from Faculty Governance to an advisory committee (like ISC).

Tier 3: Create an Office of Sustainability, with a Director and supplemental support.

Tier 1: The Tier 1 option would re-purpose a faculty governance committee to act as an advisory committee to the President's Council. It would require a significant change to this Faculty Governance Committee's Mandate, or even a change to a different type of committee, such as the IT Advisory Committee. While this option requires the fewest resources, it would require that the Chair of EESC be given appropriate release time from teaching or staff responsibilities to effectively undertake the significant amount of new responsibilities required for this role. The responsibilities as the Chair of this committee would be an order of magnitude larger than those of a chair of a regular faculty governance committee. This role would take on a minimal subset of the activities expected of a Director of Sustainability, as laid out in the description in Tier 2.

Tier 2: The Tier 2 recommendation would create a separate position of Director of Sustainability that serves on the President's Council and re-frame the EESC mandate to include serving as a steering committee. The Director of Sustainability would be charged with articulating the vision for sustainability efforts across the college as well as coordinating, communicating, tracking, reporting, and monitoring sustainability activities for the Strategic Plan.

The college has clear need of a Director of Sustainability. The sheer diversity and scope of the college's existing efforts in this area are impressive and should be celebrated. Yet this diversity and scope rests largely on the passion of individual faculty and staff members rather than any coordinated institutional effort. As a result, responsibilities such as gather and reporting STARS data is handled on an ad hoc basis without any promise of consistent revision; offices such as Communications and Market, Alumni Relations, Development, and Admissions do not have a coherent picture of sustainability efforts to utilize in their work; and information remains siloed across the college. The complexity of the college's good work in sustainability requires some coordination, and a Director of Sustainability fits with the current direction of administrative organization that the college is pursuing.

This position could be created within the People, Strategies, and Technology Division and report directly to VP of PST, or created within the Administration and Finance Division and report directly to VP of Admin and Finance. A full-time Director of Sustainability would greatly increase the visibility and effectiveness of sustainability efforts at Calvin going forward. While this would require some initial investment by the college, a full-time Director of Sustainability would be positioned to ensure cost-savings and revenue-generation that a part-time EESC chair could not produce.

The taskforce recognizes that any recommendation with budget ramifications faces a significant hurdle in the college's current enrollment and financial situation, so we add the following recommendations to address the budgetary implications. First, the taskforce recommends that the college appoint the first Director of Sustainability to serve a 3-year pilot term, during which time the Director and his or her supervisor will further clarify the job description and make necessary adjustments to the organizational model. Second, during this 3-year pilot period, the taskforce recommends that the position be funded through a combination of sources that would spread the cost as broadly as the director's responsibilities. Here are possible avenues of funding:

- The college could repurpose revenue from Cargill funds, which are currently allocated to the sustainability major initiative, beginning in 2018-2019. The revenue from these funds, using the college's current endowment projections of 4.5%, is roughly \$23,000 per year.
- Select the first Director of Sustainability from the current faculty. By replacing this faculty member with an entry-level, term appointee or adjunct faculty person, the college would realize significant savings that could be allocated to the Director of Sustainability's salary.
- Distribute the position's remaining cost across the college's operating divisions. Each division would then need to reallocate \$10,000 or less.

Third, during the 3-year pilot period, the taskforce recommends that the Director of Sustainability craft a long-term funding model that combines cost-savings from energy reduction projects, overhead funds from various grants, and a small campaign for an endowment.

Tier 3: The Tier 3 option would not only appoint a Director of Sustainability, but create an Office of Sustainability that would house some additional administrative resources for the Director to coordinate and support the campus-wide sustainability activities. Calvin College is a leader in Sustainability along may dimensions, such as: performance, research, community engagement, student engagement, and in service-learning. As the college reaches its stride in its campus-wide sustainability efforts, an Office of Sustainability could further leverage these inter-related efforts into a more visible narrative and have the resources to deepen academic and co-curricular possibilities for students and faculty.

C. Relationship to Other Taskforce Recommendations

It is difficult to overstate the need for better sustainability coordination at Calvin College to truly institutionalize this commitment. Indeed, several of the recommendations in this report depend on it. The Second Nature Carbon Commitment, achieving sustainability literacy as a joint venture in the curriculum and cocurriculum, educating and incentivizing sustainable lifestyle choices, and coordinating sustainability messaging all require substantial levels of coordination across operating areas of the college. Without a Director of Sustainability or some other overarching model of leadership, further progress on reaching the college's sustainability goals will be limited.

Recommendation 4:

Commit to achieving sustainability literacy for all graduates and adopt sustainability literacy SLOs for the core curriculum beginning AY 2018-2019

The Strategic Plan commits Calvin College to "ensur[ing] that cross-cutting educational components (e.g. diversity, sustainability, and others as approved by Faculty Senate) are integrated into the educational goals, outcomes, and assessment plans of the core curriculum, academic programs, and the co-curriculum." Fulfilling this commitment would mean teaching the concepts of sustainability within the academic division, shaping students' character and moral intuitions with respect to sustainability, and honing students' skills through sustainability projects and practices. It would, indeed, require a coordinated effort across several operational areas.

The taskforce recommends that the Education Policy Committee and the Core Curriculum Committee achieve the strategic plan goal through two interrelated actions. First, the taskforce recommends that the committees recommend and that Faculty Senate approve *sustainability literacy* as an educational goal for all Calvin College graduates. Environmental studies professor David Orr has been a leading proponent of sustainability literacy in higher education, calling for colleges and universities to cultivating "knowing, caring, and practical competence" around sustainability.³ Second, the taskforce recommends that EPC and CCC support and that Faculty Senate approve student learning outcomes (SLOs) for the core curriculum that will guide sustainability literacy.

SLO's for Sustainability Literacy

To adopt sustainability literacy, the college must begin with a clear sense of the necessary student outcomes, both so that the college can develop the tools needed to achieve these outcomes and so that it can develop an appropriate assessment plan to measure progress. In Table 4.1 below, the taskforce recommends the following student learning outcomes that together would constitute sustainability literacy. Table 4.1 also contains broad recommendations for assessment.

While these SLO's and assessment tools require effort from a number of operating areas of the college, responsibility falls heavily, though not exclusively, on the academic division. The taskforce recommends that the academic division take the lead initially on formalizing sustainability literacy goals and assessment plans. The new Director of Sustainability, should the college choose to appoint one, would work to coordinate these plans with those of Student Life and other relevant divisions.

³ David Orr, *Ecological Literacy: Education and the Transition to a Postmodern World* (Albany, NY: University of New York Press, 1992), 92.

Table 4.1. Calvin College Sustainability SLOs and Assessment Framework

Each Student Will Be Able to:	Dimensions	Possible Assessment Methods:
1. Define sustainability.	 Students will be able to definition sustainability in a way that links ecological, social, and economic dimensions. 	 Basic comprehension assessments that ask students to remember knowledge content related to sustainability. Use tools such as surveys, tests, and questionnaires.
 Provide theological grounding for sustainability commitments. 	 Explain sustainability as a vocational calling within the Christian narrative of creation, fall, and redemption. Identify core Christian virtues and explain how they advance sustainability. 	 Comprehension assessments that ask students to relate theological concepts to sustainability. Assess with tests and essays.
3. Explain how human and nonhuman systems are interrelated.	 Demonstrate the ability to explain and apply systems analysis. Identify the natural resources and ecological services that meet basic human needs. Identify basic economic and political institutions and actions through which we advance or undermine sustainability. Explain how leading environmental problems and solutions emerge from the interaction between human 	 Basic comprehension assessments that ask students to remember knowledge content related to the interactions of human and natural systems. Use tools such as surveys, tests, and questionnaires. Advanced comprehension assessments based on research papers and projects.
 Apply sustainability to personal, campus, and community life. 	 Explain how individual choices contribute to increased/decreased environmental degradation or stewardship. Participate in programs and initiatives designed to cultivate sustainability skills and virtues. 	 E-Portfolios, potentially consisting of written essays and reflections, research projects, and presentations. Activity Portfolio, including service learning activities, campus lifestyle challenges, and other extracurricular activities. Assessment in this category would be a quantitative assessment of <i>participation</i> in sustainability activities rather than an assessment of knowledge or values gained from those activities.

A. Curriculum Plan

If the college adopts the taskforce's recommendation to make sustainability literacy a goal for all graduates, it will need to make some meaningful changes to the current curriculum in order to track each student's engagement with sustainability education. The following three models for tracking sustainability SLOs provide a range of alternatives to achieving the same end. They can be understood as moving progressively toward a more consistent learning experience for all students. The taskforce recommends that the college adopt Tier 1 in the near future and consider Tiers 2 and 3 as it makes more significant changes to the overall core curriculum.

Tier 1: Tagged System

Tier 2: Introduce a Separate Core Category

Tier 3: Add a new Sustainability Core Course

Tier 1: In order to fulfill the four new SLOs, students must fulfill a "Sustainability Knowledge" requirement and a "Sustainability Practice" requirement. The taskforce recommends that the college allows instructors to apply for "Sustainability Knowledge" and/or "Sustainability Practice" tags for their courses. To obtain a "Sustainability Knowledge" designation, the instructor would need to demonstrate how students would meet the first three sustainability SLOs: SLO 1 (Definition), SLO 2 (Theological Foundation) and SLO 3 (Knowledge of Social and Natural Systems Interactions). To obtain a "Sustainability SLO 4 in the course, through academically-based servicelearning, for example. Several core courses and courses within major programs currently meet the criteria for Sustainability Knowledge, Sustainable Practice, or both, making it feasible to achieve desired sustainability literacy goals. Courses that participate in CEAP (Calvin Environmental Assessment Program) would automatically be tagged as both "Sustainability Knowledge" and "Sustainable Practice", for example. Several DCM courses would meet one or both of the sustainability tags, and more could be added.

Additionally, students could satisfy the "Sustainable Practice" requirement through a variety of cocurricular activities as well, such as participating in a standalone service-learning opportunity, a Spring Break service trip, attending a Plaster Creek Stewards workday, or participating in on of the opportunities provided by Student Life, for example by adopting sustainable living choices during Kill-a-Watt or serving as a Sustainability Coordinator for on-campus residences.

In addition to minimal impact on students' schedules and core requirements, another benefit of this tagged systems is that it would provide a means for faculty to increase the demand for their courses by including sustainability-related units in their SLOs. A wide variety of courses across the curriculum already do this, as evidenced by the Sustainability Course Inventory compiled in Fall 2015. These courses would require moderate, if any changes, but would simply need to be listed as a course that meets the appropriate Sustainability requirements.

Once these changes to Calvin's program requirements are approved by the appropriate process, implementing and overseeing the start-up of the tagged system would be one of the primary responsibilities of a Director of Sustainability. The first step would be to identify and tag the courses that currently exist. Second, a clear and efficient system to approve courses for the tagged system would be set up and faculty would be invited to submit current or slightly modified courses for tags. The tagged system would also require additional resources from Academic Services upon start-up to incorporate these requirements into the catalog, transcript, AERs.

The taskforce also recommends that SLOs 1 (Definition) and 2 (Theological Foundation) be included in the First Year Seminar, so that the definitions of sustainability, diversity and inclusion are identified early on as integral to the college's mission. Likewise, Developing a Christian Mind courses would include an application of the college's theological grounding to sustainability, diversity and inclusion even if they do not focus on these particular areas in the overall theme of the section.

This task force highly recommends implementing the tagged system, with an evaluation at the end of each of the first three years to recommend fine-tuning and adjustments, as necessary.

Tiers 2 and 3: For Tier 2, if and when the Core Curriculum is re-examined, the taskforce recommends adding a separate core category for sustainability. Similar to other core categories, this would require students to choose from a list of specific courses that include sustainability SLOs. For Tier 3, a course or set of courses that directly incorporate the sustainability SLOs could be created and added to the Calvin curriculum overall, or within each of the major programs.

B. Assessment

To assess the Sustainability SLOs at the college level, the task force also recommends that assessment of sustainability SLOs be implemented through a pre-test and a post-test of sustainability literacy. A sustainability literacy pre-test could be included as part of DCM and a sustainability literacy post-test could be included as part of an ongoing, regularly conducted senior survey, or as part of any course that fulfills the Integrated Studies core requirement. These data, merged with the sustainability transcript for the participants, would be examined and discussed by the Director of Sustainability and EESC on an annual basis during the start-up years, and then on a bi-annual basis. Recommendations to the Provost, EPC, Student Life, and Academic Services for modifications to the curricular plan would be the responsibility of the Director of Sustainability.

Recommendation 5:

Expand incentives and awareness-building initiatives for lifestyle choices that align with the college's sustainability goals

The taskforce commends the Student Life Division for its robust support of student-led initiatives that promote sustainable lifestyle choices. The taskforce recommends that Student Life expand and formalize sustainable living as part of the co-curricular experience and include sustainable lifestyle choices as part of orientation programming beginning in Summer 2017. The committee recommends the college build on the success of these initiatives by expanding Healthy Habits to include sustainable lifestyle incentives and awareness programming for faculty and staff beginning Spring 2017, with further initiatives to be developed and carried forward by a Director of Sustainability.

An important component of an institutional commitment to environmental sustainability is a coordinated community commitment to sustainability, particularly to the goal of carbon neutrality. While lifestyle commitments alone will not achieve the same impact as larger systemic changes and investments in carbon neutrality, they foster an awareness of the issues, create a call to action, and provide some measured reduction in campus carbon emissions.

For example, faculty and staff commuting contributes up to 710 mtce annually to the college's carbon budget. Walking and biking to work, or taking public transportation, would reduce this number significantly. The single largest sources of carbon emissions at Calvin College are natural gas heating and electricity. Consolidating night classes in one building, rather than heating and lighting all academic buildings, could significantly reduce carbon emissions and utility expenses; eliminating unnecessary office appliances would do the same. What is more, individual choices about diet and other consumer patterns, could advance the college's other sustainability goals on and off campus.

The taskforce reviewed existing initiatives to encourage sustainable lifestyle choices and discovered that these initiatives exist primarily for students, rather than faculty and staff. The taskforce commends Student Life for these initiatives: sustainability coordinators on the dorm floors, Kill-A-Watt during interim, dorm room sustainability certification, Mad Farmer Food Fest, etc. Certainly many faculty and staff have made personal commitments to sustainability, but the college has few formal initiatives designed to shape the overall culture of Calvin faculty and staff through their individual lifestyle choices.

The taskforce recommends that the college continue and expand student initiatives and work quickly to build comparable initiatives for faculty and staff. Some of these initiatives could be absorbed by the Healthy Habits program, particularly where these initiatives have benefits for personal health. For example, Healthy Habits already has programs that focus on active commuting and healthy eating. These programs could be expanded to emphasize reduced carbon forms of commuting and eating practices that combine concerns for personal and ecological health. Other initiatives could be run by a new Director of Sustainability. Green office audits could encourage faculty and staff to reduce their overall energy consumption; short-term challenges during interim or summer could encourage faculty and staff to test new practices, whether it is eating a vegan diet or reducing waste in their homes and offices.

It is important to emphasize that initiatives to promote sustainable lifestyle choices by faculty and staff would produce benefits both on and off campus. They would enlist faculty and staff in efforts to meet the college's specific sustainability goals, such as achieving net carbon neutrality and diverting waste from landfills.

They would also equip faculty and staff to live out their stewardship commitments at home, expanding the college's influence in the project of renewing society.

Appendix 2 provides an annotated list of specific suggestions that the college could pursue. Collectively, these recommendations achieve two broad outcomes:

First, they create greater consistency across student, faculty, and staff efforts in the area of environmentally sustainable personal actions. As noted elsewhere in this report, there has been a variety of grassroots efforts surrounding personal actions that reduce carbon footprints, however the analysis of this committee reveals that they are not coordinated, and as such, their impact and effect are difficult to measure.

Second, they create parity and potentially integrate sustainability goals with other accountability goals across the campus – efforts like "healthy habits" or a stronger commitment to diversity and inclusion.

The list is by no means exhaustive, and the taskforce recommends that a new Director of Sustainability, if the college chooses to create this position, take a leading role in identifying and coordinating new initiatives.

Recommendation 6:

Align campus messaging with a cohesive sustainability narrative

The taskforce recommends that in Summer 2017, the Brand Steward begin to reorganize and update the multiple, disparate venues for sustainability information on the college web pages and printed literature to convey a coherent and consistent message. The taskforce further recommends that the Brand Steward work with a Director of Sustainability in AY 2017-2018 to develop an messaging strategy to leverage the college's sustainability efforts and achievements in support of efforts to increase enrollment and expand advancement.

The committee undertook a comprehensive analysis of the existing manner and method of communication around environmental efforts and sustainability practices that contribute to carbon neutrality efforts. The current communications profile reflects the disparate nature of the efforts at the college. There exist a variety of websites, pamphlets, documents and reports that promote environmental sustainability, as well as student organizations, clubs, governance and quasi governance groups, and administrative departments which purport to represent these actions at the College. There is no single office or evidence of a comprehensive plan for coordinating a "call to action" or clearly explaining a commitment to sustainability.

A. Messaging Recommendations

The taskforce recommends a concerted effort to make sustainability messaging more prominent, coherent, and consistent. This will require a number of separate actions:

- 1. For clarity in its messaging, settle on and adopt a particular definition of environmental sustainability. This is definition is articulated in the introduction to this report.
- 2. Create a sanctioned web location that outlines the colleges commitment to and progress on achieving net carbon neutrality and that provides a gateway to other environmental sustainability efforts on campus.
- 3. Develop a consistent, recognizable illustration, graphic, or logo kit for use across the College on sustainability initiatives and marketing.

B. Messaging Responsibility

Sustainability messaging is embedded in a wide range of college activities, so responsibility for messaging will remain diffuse. If the college chooses to appoint a Director of Sustainability, he or she should take responsibility for coordinating this work across the college. The director should work closely with Communications and Marketing on website management, taking primary responsibility for the specific content of the sustainability gateway location. The director should also coordinate with other offices on campus to avoid duplicated and conflicting messaging.

Appendix 1: Carbon Neutrality Plan⁴

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Calvin College Carbon Ne	utrality Projects	Cu	rrent Net	t Emissions*:	24,960	,960 MTCE/yr		
Sorted by Carbon Reduce	ed per \$1 Spent							
				Annu	al Saving	s		
			MTCE					
			Savings					
			per \$1				% of	
Projects	Sub Project	Investment	spent	Utility Bills	MTCE	Energy	Total	Notes
Consolidate Night Classes/Close Buildin	DV,HH,SC ELECTRICAL	\$0	206.07	\$30,500	206	elec	0.8%	Behavioral changes only
Consolidate Night Classes/Close Buildin	DV,HH,SC NAT GAS	\$0	78.48	\$7,000	78	gas	0.3%	Behavioral changes only
Computers		\$0	64.66	\$9,570	65	elec	0.3%	Expected efficiency increases
Coordinate Reservations with Open Buil	ELECTRICAL	\$0	13.51	\$2,000	14	elec	0.1%	Behavioral changes only
Coordinate Reservations with Open Buil	NAT GAS	\$0	13.45	\$1,200	13	gas	0.1%	Behavioral changes only
Campus Lighting to LED	Streetlights	\$146,550	1.02	\$9,310	149	elec	0.6%	Energy Savings (Night only)
Steam Boilers to Hot Water	KDH	\$550,000	0.88	\$43,000	482	gas	1.9%	ENGR333 2015 Report
Campus Lighting to LED	Occupancy Sensors	\$30,940	0.68	\$3,130	21	elec	0.1%	Energy Savings
Steam Boilers to Hot Water	Commons	\$885,000	0.54	\$49,000	482	gas	1.9%	ENGR333 2015 Report
Steam Boilers to Hot Water	3 Dorms convert Domestic	\$185,000	0.52	\$6,000	95	gas	0.4%	ENGR333 2015 Report
Campus Lighting to LED	Campus bldgs (LED)	\$2,900,000	0.47	\$203,066	1372	elec	5.5%	Energy Savings
Campus Lighting to LED	Van Noord Arena	\$225,000	0.44	\$14,768	100	elec	0.4%	Energy Savings
Air Compressors		\$58,750	0.43	\$3,770	25	elec	0.1%	Energy Savings
Campus Rooftop Solar Additions	Several \$.5-1 m projects	\$15,104,010	0.37	\$1,200,000	5606	elec	22.5%	This is Generated Electricty
Campus Windows Replacement	Campus	\$7,478,580	0.36	\$237,795	2666	gas	10.7%	ACUPCC 2012 Report
Pneumatic to Electric Controls		\$1,375,000	0.22	\$44,883	303	elec	1.2%	Reduced energy usage
Campus Lighting to LED	Dorm Task Lamps	\$106,960	0.18	\$1,226	20	elec	0.1%	Energy Savings
Campus Roofs / insulation	Campus	\$4,861,425	0.05	\$23,335	262	gas	1.0%	ACUPCC 2012 Report
Geothermal	Rest of Campus	\$93,156,276	0.04	\$336,116	3768	gas	15.1%	ACUPCC 2012 Report
Geothermal	KDH and Dorms	\$27,752,000	0.01	\$26,332	295	gas	1.2%	ACUPCC 2012 Report
Renewable Electricty	Purchased from Consumers	\$0	0.00	\$0	1407	elec	5.6%	Provider uses 10% renewable
	Total:	\$154,815,491		\$2,252,001	17,431		70 %	
	Re	emaining Annu	ual Carbor	n emissions:	7,529			
Current Net Emissions: Total MTCE from all campus operations in 2015 less carbon sequestered by Calvin property.								

⁴ A more complete implementation plan and analysis is available in the supporting documents.

Table A1.2

Calvin College Carbon Ne	utrality Projects	Cu	irrent Net	t Emissions*:	24,960	,960 MCTE/yr			
Sorted by Years to	Payback								
-				Annu	al Saving	s			
			Yrs to		Ť		% of		
Projects	Sub Project	Investment	Payback	Utilities	mtce	Energy	Total	Notes	
Consolidate Night Classes/Close Buildin	DV,HH,SC ELECTRICAL	\$0	0	\$30,500	206	elec	0.8%	Behavioral changes only	
Consolidate Night Classes/Close Buildin	DV,HH,SC NAT GAS	\$0	0	\$7,000	78	gas	0.3%	Behavioral changes only	
Coordinate Reservations with Open Buil	ELECTRICAL	\$0	0	\$2,000	14	elec	0.1%	Behavioral changes only	
Coordinate Reservations with Open Buil	NAT GAS	\$0	0	\$1,200	13	gas	0.1%	Behavioral changes only	
Computers		\$0	0	\$9,570	65	elec	0.3%	Expected efficiency increases	
Renewable Electricty	Purchased from Consumers	\$0	0	\$0	1407	elec	5.6%	Provider uses 10% renewable	
Campus Lighting to LED	Occupancy Sensors	\$30,940	10	\$3,130	21	elec	0.1%	Energy Savings	
Campus Rooftop Solar Additions	Several \$.5-1 m projects	\$15,104,010	13	\$1,200,000	5606	elec	22.5%	Self-Generated Electricity	
Steam Boilers to Hot Water	KDH	\$550,000	13	\$43,000	482	gas	1.9%	ENGR333 2015 Report	
Campus Lighting to LED	Campus bldgs (LED)	\$2,900,000	14	\$203,066	1372	elec	5.5%	Energy Savings	
Campus Lighting to LED	Van Noord Arena	\$225,000	15	\$14,768	100	elec	0.4%	Energy Savings	
Air Compressors		\$58,750	16	\$3,770	25	elec	0.1%	Energy Savings	
Campus Lighting to LED	Streetlights	\$146,550	16	\$9,310	149	elec	0.6%	Energy Savings (Night only)	
Steam Boilers to Hot Water	Commons	\$885,000	18	\$49,000	482	gas	1.9%	ENGR333 2015 Report	
Pneumatic to Electric Controls		\$1,375,000	31	\$44,883	303	elec	1.2%	Reduced energy usage	
Steam Boilers to Hot Water	3 Dorms convert Domestic	\$185,000	31	\$6,000	95	gas	0.4%	ENGR333 2015 Report	
Campus Windows Replacement	Campus	\$7,478,580	31	\$237,795	2666	gas	10.7%	ACUPCC 2012 Report	
Campus Lighting to LED	Dorm Task Lamps	\$106,960	87	\$1,226	20	elec	0.1%	Energy Savings	
Campus Roofs / insulation	Campus	\$4,861,425	208	\$23,335	262	gas	1.0%	ACUPCC 2012 Report	
Geothermal	Rest of Campus	\$93,156,276	277	\$336,116	3768	gas	15.1%	ACUPCC 2012 Report	
Geothermal	KDH and Dorms	\$27,752,000	1054	\$26,332	295	gas	1.2%	ACUPCC 2012 Report	
	Total:	\$154,815,491		\$2,252,001	17,431		70%		
	Re	maining Ann	ual Carbor	n emissions:	7,529				
*Current Net Emissions: Total MTCE from	*Current Net Emissions: Total MTCE from all campus operations in 2015 less carbon sequestered by Calvin property.								

Table A1.3

Calvin College Carbon Neu	trality Projects	Cu	rrent Net	Emissions*:	24,960	MTCE/y	r	
Sorted by Energy Savings	per \$ Invested							
				Annua	al Saving	s		
			Cost					
			Savings					
			per \$1				% of	
Projects	Sub Project	Investment	spent	Utility Bills	MTCE	Energy	Total	Notes
Consolidate Night Classes/Close Buildi	DV,HH,SC ELECTRICAL	\$0	30,500	\$30,500	206	elec	0.8%	Behavioral changes only
Computers		\$0	9,570	\$9,570	65	elec	0.3%	Expected efficiency increases
Consolidate Night Classes/Close Buildi	DV,HH,SC NAT GAS	\$0	7,000	\$7,000	78	gas	0.3%	Behavioral changes only
Coordinate Reservations with Open Bui	ELECTRICAL	\$0	2,000	\$2,000	14	elec	0.1%	Behavioral changes only
Coordinate Reservations with Open Bui	NAT GAS	\$0	1,200	\$1,200	13	gas	0.1%	Behavioral changes only
Campus Lighting to LED	Occupancy Sensors	\$30,940	0.10	\$3,130	21	elec	0.1%	Energy Savings
Campus Rooftop Solar Additions	Several \$.5-1 m projects	\$15,104,010	0.08	\$1,200,000	5606	elec	22.5%	Self-generated Electricity
Steam Boilers to Hot Water	KDH	\$550,000	0.08	\$43,000	482	gas	1.9%	ENGR333 2015 Report Estimates
Campus Lighting to LED	Campus bldgs (LED)	\$2,900,000	0.07	\$203,066	1372	elec	5.5%	Energy Savings
Campus Lighting to LED	Van Noord Arena	\$225,000	0.07	\$14,768	100	elec	0.4%	Energy Savings
Air Compressors		\$58,750	0.06	\$3,770	25	elec	0.1%	Energy Savings
Campus Lighting to LED	Streetlights	\$146,550	0.06	\$9,310	149	elec	0.6%	Energy Savings (Night only)
Steam Boilers to Hot Water	Commons	\$885,000	0.06	\$49,000	482	gas	1.9%	ENGR333 2015 Report Estimates
Pneumatic to Electric Controls		\$1,375,000	0.03	\$44,883	303	elec	1.2%	Reduced energy usage
Steam Boilers to Hot Water	3 Dorms convert Domest	\$185,000	0.03	\$6,000	95	gas	0.4%	ENGR333 2015 Report Estimates
Campus Windows Replacement	Campus	\$7,478,580	0.03	\$237,795	2666	gas	10.7%	ACUPCC 2012 Report Estimates
Campus Lighting to LED	Dorm Task Lamps	\$106,960	0.01	\$1,226	20	elec	0.1%	Energy Savings
Campus Roofs / insulation	Campus	\$4,861,425	0.00	\$23,335	262	gas	1.0%	ACUPCC 2012 Report Estimates
Geothermal	Rest of Campus	\$93,156,276	0.00	\$336,116	3768	gas	15.1%	ACUPCC 2012 Report Estimates
Geothermal	KDH and Dorms	\$27,752,000	0.00	\$26,332	295	gas	1.2%	ACUPCC 2012 Report Estimates
Renewable Electricty	Utility Provider	\$0	0.00	\$0	1407	elec	5.6%	Provider uses 10% renewable
	Total:	\$154,815,491		\$2,252,001	17,431		70%	
	Re	emaining Annu	ual Carbor	emissions:	7,529			
*Current Net Emissions: Total MTCE fro	m all campus operations	in 2015 less ca	rbon seaue	stered by Calvi	n propert	v.		

Table A1.4

Calvin College Carbon Ne	utrality Projects	Current Net	: Emissions*:	ns*: 24,960 MTCE/y		ſ	
Sorted by Upfro	ont Cost						
			Annı	ual Savings	·	% of	
Projects	Sub Project	Investment	Utilities	mtce	Energy	Total	Notes
Consolidate Night Classes/Close Buildin	DV,HH,SC ELECTRICAL	\$0	\$30,500	206	elec	0.8%	Behavioral changes only
Consolidate Night Classes/Close Buildin	DV,HH,SC NAT GAS	\$0	\$7,000	78	gas	0.3%	Behavioral changes only
Coordinate Reservations with Open Buil	ELECTRICAL	\$0	\$2,000	14	elec	0.1%	Behavioral changes only
Coordinate Reservations with Open Buil	NAT GAS	\$0	\$1,200	13	gas	0.1%	Behavioral changes only
Computers		\$0	\$9,570	65	elec	0.3%	Expected efficiency increases
Renewable Electricty	Purchased from Consumers	\$0	\$0	1407	elec	5.6%	Provider uses 10% renewable
Campus Lighting to LED	Occupancy Sensors	\$30,940	\$3,130	21	elec	0.1%	Energy Savings
Air Compressors		\$58,750	\$3,770	25	elec	0.1%	Energy Savings
Campus Lighting to LED	Dorm Task Lamps	\$106,960	\$1,226	20	elec	0.1%	Energy Savings
Campus Lighting to LED	Streetlights	\$146,550	\$9,310	149	elec	0.6%	Energy Savings (Night only)
Steam Boilers to Hot Water	3 Dorms convert Domestic	\$185,000	\$6,000	95	gas	0.4%	ENGR333 2015 Report
Campus Lighting to LED	Van Noord Arena	\$225,000	\$14,768	100	elec	0.4%	Energy Savings
Steam Boilers to Hot Water	KDH	\$550,000	\$43,000	482	gas	1.9%	ENGR333 2015 Report
Steam Boilers to Hot Water	Commons	\$885,000	\$49,000	482	gas	1.9%	ENGR333 2015 Report
Pneumatic to Electric Controls		\$1,375,000	\$44,883	303	elec	1.2%	Reduced energy usage
Campus Lighting to LED	Campus bldgs (LED)	\$2,900,000	\$203,066	1372	elec	5.5%	Energy Savings
Campus Roofs / insulation	Campus	\$4,861,425	\$23,335	262	gas	1.0%	ACUPCC 2012 Report
Campus Windows Replacement	Campus	\$7,478,580	\$237,795	2666	gas	10.7%	ACUPCC 2012 Report
Campus Rooftop Solar Additions	Several \$.5-1 m projects	\$15,104,010	\$1,200,000	5606	elec	22.5%	Self-Generated Electricity
Geothermal	KDH and Dorms	\$27,752,000	\$26,332	295	gas	1.2%	ACUPCC 2012 Report
Geothermal	Rest of Campus	\$93,156,276	\$336,116	3768	gas	15.1%	ACUPCC 2012 Report
	Total:	\$154,815,491	\$2,252,001	17,431		70%	
	Remaining A	Annual Carbor	emissions:	7,529			
*Current Net Emissions: Total MTCE fron	n all campus operations in 20)15 less carbon	sequestered by	Calvin prop	perty.		

	%	%		Operating Budget Normal	Capital Cost	NEW	Running Toral	Compounded	College Accumulated
Project	Project	Complete	Year	Expense	Amount	(Year)	Savings (Year)	to Year	Running Total
Renewable Electricty			0	\$0.00	\$0.00	\$0.00	\$0.00		
Consolidate Night Classes/Close Buildings	100.00%	100.00%	1	\$0.00	\$0.00	\$37,500.00	\$37,500.00		
Coordinate Reservations with Open Buildings	100.00%	100.00%	1	\$0.00	\$0.00	\$3,200.00	\$40,700.00		
Pneumatic to Electric Controls	12.00%	12.00%	1	\$165,000.00	\$0.00	\$5,386.00	\$46,086.00		
Year Total			1			\$46,086.00			
Year Start			2				\$46,086.00	\$46,086.00	\$46,086.00
Occupancy Sensors	100.00%	100.00%	2	\$30,940.00	\$0.00	\$3,130.18	\$49,216.18		
Streetlights (Partial)	50.00%	50.00%	2	\$73,275.00	\$0.00	\$4,654.89	\$53,871.07		
Van Noord Arena (Partial)	50.00%	50.00%	2	\$112,500.00	\$0.00	\$7,384.00	\$61,255.07		
Campus bldgs (LED) (Partial)	5.00%	5.00%	2	\$145,000.00	\$0.00	\$10,153.28	\$71,408.35		
Dorm Task Lamps (Partial)	50.00%	50.00%	2	\$53,480.00	\$0.00	\$613.20	\$72,021.55		
Year Total			2			\$25,935.55			
Year Start			3				\$118,107.55	\$72,021.55	\$118,107.55
Streetlights (Partial)	25.00%	75.00%	3	\$36,637.50	\$0.00	\$2,327.44	\$120,434.99		
Van Noord Arena (Partial)	50.00%	100.00%	3	\$112,500.00	\$0.00	\$7,384.00	\$127,818.99		
Campus bldgs (LED) (Partial)	10.00%	15.00%	3	\$290,000.00	\$0.00	\$20,306.56	\$148,125.55		
Dorm Task Lamps (Partial)	50.00%	100.00%	3	\$53,480.00	\$0.00	\$613.20	\$148,738.75		
Year Total			3			\$30,631.21			
Year Start			4				\$220,760.30	\$102,652.76	\$220,760.30
Streetlights (Partial)	25.00%	100.00%	4	\$36,637.50	\$0.00	\$2,327.44	\$223,087.75		
Campus bldgs (LED) (Partial)	10.00%	25.00%	4	\$290,000.00	\$0.00	\$20,306.56	\$243,394.31		
Air Compressors (Partial)	25.00%	25.00%	4	\$14,687.50	\$0.00	\$942.47	\$244,336.78		
Pneumatic to Electric Controls	3.00%	15.00%	4	\$41,250.00	\$0.00	\$1,346.50	\$245,683.28		
Year Total			4			\$24,922.97			

	%	%		Operating Budget Normal	Capital Cost	NEW	Running Toral	Compounded	College
Project	Project	Complete	Year	Expense	Amount	(Year)	Savings (Year)	to Year	Running Total
Year Start			5				\$348,336.03	\$127,575.73	\$348,336.03
Campus bldgs (LED) (Partial)	10.00%	35.00%	5	\$290,000.00	\$0.00	\$20,306.56	\$368,642.60		
Air Compressors (Partial)	25.00%	50.00%	5	\$14,687.50	\$0.00	\$942.47	\$369,585.06		
Campus Rooftop Solar Additions	5.00%	5.00%	5	\$55,200.50	\$700,000.00	\$60,000.00	\$429,585.06		
Year Total			5			\$81,249.03			
Year Start			6				\$557,160.79	\$208,824.76	-\$142,839.21
Campus bldgs (LED) (Partial)	10.00%	45.00%	6	\$290,000.00	\$0.00	\$20,306.56	\$577,467.35		
Air Compressors (Partial)	25.00%	75.00%	6	\$14,687.50	\$0.00	\$942.47	\$578,409.82		
Campus Windows Replacement	1.00%	1.00%	6	\$74,785.80	\$0.00	\$2,377.95	\$580,787.77		
Year Total			6			\$23,626.98			
Year Start			7				\$789,612.53	\$232,451.74	\$89,612.53
Campus bldgs (LED) (Partial)	10.00%	55.00%	7	\$290,000.00	\$0.00	\$20,306.56	\$809,919.09		
Air Compressors (Partial)	25.00%	100.00%	7	\$14,687.50	\$0.00	\$942.47	\$810,861.56		
Campus Rooftop Solar Additions	5.00%	10.00%	7	\$55,200.50	\$700,000.00	\$60,000.00	\$870,861.56		
Campus Windows Replacement	1.00%	2.00%	7	\$74,785.80	\$0.00	\$2,377.95	\$873,239.51		
Year Total			7			\$83,626.98			
Year Start			8				\$1,105,691.24	\$316,078.72	-\$294,308.76
Campus bldgs (LED) (Partial)	10.00%	65.00%	8	\$290,000.00	\$0.00	\$20,306.56	\$1,125,997.81		
Campus Rooftop Solar Additions	3.00%	13.00%	8	\$53,120.30	\$400,000.00	\$36,000.00	\$1,161,997.81		
Campus Windows Replacement	1.00%	3.00%	8	\$74,785.80	\$0.00	\$2,377.95	\$1,164,375.76		
Year Total			8			\$58,684.51			
Year Start			9				\$1,480,454.47	\$374,763.23	-\$319,545.53
Campus bldgs (LED) (Partial)	10.00%	75.00%	9	\$290,000.00	\$0.00	\$20,306.56	\$1,500,761.03		
Campus Rooftop Solar Additions	2.00%	15.00%	9	\$102,080.20	\$200,000.00	\$24,000.00	\$1,524,761.03		
Campus Windows Replacement	1.00%	4.00%	9	\$74,785.80	\$0.00	\$2,377.95	\$1,527,138.98		
Year Total			9			\$46,684.51			

	%	%		Operating Budget Normal	Capital Cost	NEW Savings	Running Toral	Compounded	College
Project	Project	Complete	Year	Expense	Amount	(Year)	Savings (Year)	to Year	Running Total
Campus bldgs (LED) (Partial)	10.00%	85.00%	10	\$290,000.00	\$0.00	\$20,306.56	\$1,922,208.77		
Campus Rooftop Solar Additions	5.00%	20.00%	10	\$55,200.50	\$700,000.00	\$60,000.00	\$1,982,208.77		
Campus Windows Replacement	1.00%	5.00%	10	\$74,785.80	\$0.00	\$2,377.95	\$1,984,586.72		
Year Total			10			\$82,684.51			
Year Start			11				\$2,406,034.46	\$504,132.25	-\$293,965.54
Campus bldgs (LED) (Partial)	10.00%	95.00%	11	\$290,000.00	\$0.00	\$20,306.56	\$2,426,341.03		
Campus Rooftop Solar Additions	5.00%	25.00%	11	\$55,200.50	\$700,000.00	\$60,000.00	\$2,486,341.03		
Campus Windows Replacement	1.00%	6.00%	11	\$74,785.80	\$0.00	\$2,377.95	\$2,488,718.98		
Year Total			11			\$82,684.51			
Year Start			12				\$2,992,851.23	\$586,816.76	-\$407,148.77
Campus bldgs (LED) (Partial)	5.00%	100.00%	12	\$145,000.00	\$0.00	\$10,153.28	\$3,003,004.51		
Campus Rooftop Solar Additions	3.00%	28.00%	12	\$53,120.30	\$400,000.00	\$36,000.00	\$3,039,004.51		
Steam Boilers to Hot Water KDH	100.00%	100.00%	12	\$195,000.00	\$355,000.00	\$43,000.00	\$3,082,004.51		
Campus Windows Replacement	1.00%	7.00%	12	\$74,785.80	\$0.00	\$2,377.95	\$3,084,382.46		
Year Total			12			\$91,531.23			
Year Start			13				\$3,671,199.22	\$678,348.00	-\$483,800.78
Campus Rooftop Solar Additions	7.00%	35.00%	13	\$257,280.70	\$800,000.00	\$84,000.00	\$3,755,199.22		
Campus Windows Replacement	1.00%	8.00%	13	\$74,785.80	\$0.00	\$2,377.95	\$3,757,577.17		
Year Total			13			\$86,377.95			
Year Start			14				\$4,435,925.17	\$764,725.95	-\$519,074.83
Campus Rooftop Solar Additions	7.00%	42.00%	14	\$257,280.70	\$800,000.00	\$84,000.00	\$4,519,925.17		
Campus Windows Replacement	1.00%	9.00%	14	\$74,785.80	\$0.00	\$2,377.95	\$4,522,303.12		
Year Total			14			\$86,377.95			
Year Start			15				\$5,287,029.06	\$851,103.90	-\$467,970.94
Campus Rooftop Solar Additions	5.00%	47.00%	15	\$255,200.50	\$500,000.00	\$60,000.00	\$5,347,029.06		
Campus Windows Replacement	1.00%	10.00%	15	\$74,785.80	\$0.00	\$2,377.95	\$5,349,407.01		

Year Total			15			\$62,377.95			
Project	% Project	% Complete	Year	Operating Budget Normal Expense	Capital Cost Current Year Amount	NEW Savings (Year)	Running Toral Savings (Year)	Compounded Savings Year to Year	College Accumulated Running Total
Year Start			16				\$6,200,510.91	\$913,481.85	-\$54,489.09
Campus Rooftop Solar Additions	5.00%	52.00%	16	\$270,200.50	\$485,000.00	\$60,000.00	\$6,260,510.91		
Steam Boilers to Hot Water 3 Dorms	100.00%	100.00%	16	\$85,000.00	\$100,000.00	\$6,000.00	\$6,266,510.91		
Campus Windows Replacement	1.00%	11.00%	16	\$74,785.80	\$0.00	\$2,377.95	\$6,268,888.86		
Year Total			16			\$68,377.95			
Year Start			17				\$7,182,370.70	\$981,859.80	\$342,370.70
Campus Rooftop Solar Additions	5.00%	57.00%	17	\$270,200.50	\$485,000.00	\$60,000.00	\$7,242,370.70		
Steam Boilers to Hot Water Commons	100.00%	100.00%	17	\$335,000.00	\$550,000.00	\$49,000.00	\$7,291,370.70		
Pneumatic to Electric Controls	3.00%	18.00%	17	\$41,250.00	\$0.00	\$1,346.50	\$7,292,717.20		
Campus Windows Replacement	1.00%	12.00%	17	\$74,785.80	\$0.00	\$2,377.95	\$7,295,095.15		
Year Total			17			\$112,724.45			
Year Start			18				\$8,276,954.95	\$1,094,584.24	\$401,954.95
Campus Rooftop Solar Additions	11.00%	68.00%	18	\$161,441.10	\$1,500,000.00	\$132,000.00	\$8,408,954.95		
Pneumatic to Electric Controls	7.00%	25.00%	18	\$96,250.00	\$0.00	\$3,141.83	\$8,412,096.78		
Campus Windows Replacement	1.00%	13.00%	18	\$74,785.80	\$0.00	\$2,377.95	\$8,414,474.73		
Year Total			18			\$137,519.78			
Year Start			19				\$9,509,058.98	\$1,232,104.03	\$134,058.98
Campus Rooftop Solar Additions	12.00%	80.00%	19	\$312,481.20	\$1,500,000.00	\$144,000.00	\$9,653,058.98		
Campus Windows Replacement	1.00%	14.00%	19	\$74,785.80	\$0.00	\$2,377.95	\$9,655,436.93		
Year Total			19			\$146,377.95			
Year Start			20				\$10,887,540.95	\$1,378,481.98	\$12,540.95
Campus Rooftop Solar Additions	10.00%	90.00%	20	\$330,401.00	\$1,180,000.00	\$120,000.00	\$11,007,540.95		
Campus Windows Replacement	1.00%	15.00%	20	\$74,785.80	\$0.00	\$2,377.95	\$11,009,918.90		
Campus Roofs / insulation	5.00%	5.00%	20	\$3,071.25	\$240,000.00	\$1,166.75	\$11,011,085.65		
Year Total			20			\$123,544.70			

Project	% Project	% Complete	Year	Operating Budget Normal Expense	Capital Cost Current Year Amount	NEW Savings (Year)	Running Toral Savings (Year)	Compounded Savings Year to Year	College Accumulated Running Total
Campus Rooftop Solar Additions	10.00%	100.00%	21	\$330,401.00	\$1,180,000.00	\$120,000.00	\$12,509,567.63		
Campus Windows Replacement	5.00%	20.00%	21	\$73,929.00	\$300,000.00	\$11,889.75	\$12,521,457.38		
Campus Roofs / insulation	5.00%	10.00%	21	\$3,071.25	\$240,000.00	\$1,166.75	\$12,522,624.13		
Year Total			21			\$133,056.50			
Year Start			22				\$14,024,650.81	\$1,635,083.18	\$9,650.81
Pneumatic to Electric Controls	15.00%	40.00%	22	\$206,250.00	\$0.00	\$6,732.50	\$14,031,383.31		
Campus Windows Replacement	9.00%	29.00%	22	\$73,072.20	\$600,000.00	\$21,401.55	\$14,052,784.86		
Campus Roofs / insulation	10.00%	20.00%	22	\$36,142.50	\$450,000.00	\$2,333.50	\$14,055,118.36		
Year Total			22			\$30,467.55			
Year Start			23				\$15,690,201.53	\$1,665,550.73	\$625,201.53
Pneumatic to Electric Controls	15.00%	55.00%	23	\$206,250.00	\$0.00	\$6,732.50	\$15,696,934.03		
Campus Windows Replacement	11.00%	40.00%	23	\$72,643.80	\$750,000.00	\$26,157.45	\$15,723,091.48		
Campus Roofs / insulation	10.00%	30.00%	23	\$36,142.50	\$450,000.00	\$2,333.50	\$15,725,424.98		
Year Total			23			\$35,223.45			
Year Start			24				\$17,390,975.71	\$1,700,774.17	\$1,125,975.71
Pneumatic to Electric Controls	15.00%	70.00%	24	\$206,250.00	\$0.00	\$6,732.50	\$17,397,708.21		
Campus Windows Replacement	15.00%	55.00%	24	\$71,787.00	\$1,050,000.00	\$35,669.25	\$17,433,377.46		
Campus Roofs / insulation	10.00%	40.00%	24	\$36,142.50	\$450,000.00	\$2,333.50	\$17,435,710.96		
Year Total			24			\$44,735.25			
Year Start			25				\$19,136,485.13	\$1,745,509.42	\$1,371,485.13
Pneumatic to Electric Controls	15.00%	85.00%	25	\$206,250.00	\$0.00	\$6,732.50	\$19,143,217.63		
Campus Windows Replacement	15.00%	70.00%	25	\$71,787.00	\$1,050,000.00	\$35,669.25	\$19,178,886.88		
Campus Roofs / insulation	20.00%	60.00%	25	\$22,285.00	\$950,000.00	\$4,667.00	\$19,183,553.88		
Year Total			25			\$47,068.75			

	%	%		Operating Budget Normal	Capital Cost Current Year	NEW Savings	Running Toral	Compounded Savings Year	College Accumulated
Project	Project	Complete	Year	Expense	Amount	(Year)	Savings (Year)	to Year	Running Total
Year Start			26				\$20,929,063.30	\$1,792,578.17	\$1,164,063.30
Pneumatic to Electric Controls	15.00%	100.00%	26	\$206,250.00	\$0.00	\$6,732.50	\$20,935,795.80		
Campus Windows Replacement	15.00%	85.00%	26	\$71,787.00	\$1,050,000.00	\$35,669.25	\$20,971,465.05		
Campus Roofs / insulation	20.00%	80.00%	26	\$22,285.00	\$950,000.00	\$4,667.00	\$20,976,132.05		
Year Total			26			\$47,068.75			
Year Start			27				\$22,768,710.22	\$1,839,646.92	\$1,003,710.22
Campus Windows Replacement	15.00%	100.00%	27	\$71,787.00	\$1,050,000.00	\$35,669.25	\$22,804,379.47		
Campus Roofs / insulation	20.00%	100.00%	27	\$22,285.00	\$950,000.00	\$4,667.00	\$22,809,046.47		

Appendix II: Director of Sustainability Responsibilities

The taskforce recommends that Calvin College appoint a Director of Sustainability to coordinate and direct sustainability activities across operating units. The college has already done a significant amount of work on sustainability, driven largely by the passion and commitment of individual employees. A Director of Sustainability will institutionalize this work and ensure that this works is greater than the sum of its parts.

To assist the administration in crafting a job description for a new Director of Sustainability, the taskforce has created a list of responsibilities appropriate to the position. A significant number of the responsibilities listed below reflect commitments that the college has made without a long range plan allocating resources to ensure their completion. Indeed, the taskforce believes that creating a new position, Director of Sustainability, is critical to the college's sustainability success.

1. Develop and implement the Carbon Neutrality plan

- Manage the revolving investment fund
- Prioritize projects
- Track and report on projects (carbon reduction, savings, costs)
- Pursue and manage additional grant and donor funds for projects
- 2. Inventory, coordinate and streamline all sustainability activities at the college
 - Establish effective partnerships between, and work collaboratively with, sustainability actors across the college, including those in the following areas:
 - Curriculum
 - o Research & Scholarship
 - o Service-Learning
 - o Student Life
 - Creation Care Curriculum
 - o Faith Formation
 - Community Engagement
 - Physical Plant
 - o Energy
 - $\circ \quad \text{Vendor selection} \quad$
 - Food Services
 - Waste Management
 - o Master Plan
 - o Investment
 - o Health & Well-being
 - o Affordability
 - o Diversity
 - Enrollment & Retention
 - Advancement
 - Technology
 - Transportation
 - o Other
- 3. Develop cross-divisional Sustainability Steering Committee and mandate
 - Work with Environmental and Energy Sustainability Committee (EESC) to define scope and responsibilities

4. Advise college leaders

- Develop plan to incorporate sustainability goals and targets into Strategic Plan
- Develop and oversee strategies to meet Strategic Plan sustainability goals
- Work with IE&A to develop institutionally aligned dashboards and KPIs for sustainability
- Create college-wide culture of sustainability
- Guide and inform the college in adopting best practices
- Work with College Chaplains and faith formation programs around creation care curriculum and liturgy
- 5. Oversee STARS (tracking and implementation) and Sustainability Reporting
 - Work cross-divisionally to integrate STARS into organizational behavior and decision making
 - Build systems and processes for data collection and management
 - Manage reporting for annual STARS submission
- 6. Implement Sustainability Literacy Assessment across the Curriculum
 - Integrate with Core Assessment and Educational Framework
 - Coordinate with other assessment experts on campus to ensure integrated model
 - Assess sustainability literacy
 - Advise departments on sustainability-related program and course learning objectives
- 7. Develop a consistent narrative and message regarding sustainability for college-wide **marketing and communication**
 - Develop and maintain web resources that report work completed and serve as a source of information for individuals on campus.
- 8. Find permanent funding and determine formal organizational model
 - Seek grant funding for particular projects
 - Explore energy rebates and incentives to recommend optimal timing for implementation
- 9. Maintain professional expertise, staying current in the field and participating in ongoing professional development.
- 10. Represent the college externally in networks related to sustainability.
 - Coordinate faithful practices and advocacy efforts with the CRCNA Office of Social Justice Climate Witness Project
 - Coordinate and communicate best practices with peer institutions
 - Represent the college at AASHE meetings

Appendix III: Lifestyle Choices and Initiatives

It will be clear in the suggestions below that the success of the sustainable lifestyle suggestions below depends on coordinate and support. A Director of Sustainability will play a central role in promoting and coordinating these new initiatives.

Many of the student initiatives can be expanded to include faculty and staff, though the taskforce recommends developing an incentive system that differs significantly from that used to encourage students. Based on conversations with the sustainability director at Elon College and internal deliberation, the taskforce believes that individual incentives tend to be more effective in motivating faculty and staff, while team-based incentives and contests tend to work well among students.

Current Practice	Proposed Improvement	Impact
DREAM certification for students: Each Interim around 25% of our students who live in residence halls p (425 of 1700 students) "DREAM certify" their rooms by taking an online assessment which evaluates the sustainability of their residence hall room and living routines. The DREAM certification form can found online: calvin.edu/go/kill-a-watt	Green Office Audit & Certification for faculty/staff: We propose adapting this program to serve faculty and staff in the form of a Green Office Audit. This "audit" would create a process for faculty and staff members to review the impact their daily work has on the environment, and explore new ways to live more sustainable daily work lives. A Director of Sustainability would coordinate this program. Possible Incentives for the Green Office Audit * Window cling which denotes their achieved certification level. * Free meal pass to the dining hall. * List of participants published in the Academic Bulletin. See the following websites for examples of "Green Office Audit" forms and processes: • Bates College http://www.bates.edu/sustainability/get-involved/get- involved-for-faculty-and-staff/green-certification-program-for-offices/ • Duke University http://sustainability.duke.edu/action/certifications/greenworkplace/ • University of California Riverside http://sustainability.ucr.edu/certification/greenofficeprogram.html	Various practices would reduce overall energy use. For example, each person who decides to turn her office lights off for half the day, would save the college 48 kWhr/day, or 12,480 kWhr/year. This calculation is based on the assumption there are 260 working days in one calendar year.
Lifestyle Challenges for students: Each January, about 35% of residence hall students try out new sustainable lifestyle habits as part of Kill-A-Watt. Students choose from a menu of several lifestyle challenge options, such as becoming vegan or vegetarian, going carless, taking shorter showers, giving up plastic bottles, unplugging appliances when not in use, or using cold water for laundry. On average, a student	Lifestyle Challenges for faculty/staff: We propose to expand these Lifestyle Challenges to include the entire campus. Faculty, staff, and students would sign up online to try out new sustainable Lifestyle Habits during interim, including riding bus, carpooling, using paper/plastic products, community involvement, home energy audit, replacing lightbulbs with LED lights at home, dietary changes, etc. Participants could qualify for various incentives such as the following: * A small button with a green leaf that says "Taking the challenge." * Bonus bucks	Challenges would contribute to energy and resource reductions, such as faculty committing to reduce their printer/copier use by a set percentage.

who signs up for Lifestyle Challenges, will take on 6-8 new lifestyle challenges for interim. See www.calvin.edu/go/kill-a-watt)	* Drawing for grand prize: a home energy audit and money to complete sustainability upgrades at home.	
Transportation and Parking: The college currently has an Active Commute Week to encourage biking and walking to work. The college also provides Rapid discount cards for students, staff, and faculty to use on public transportation.	 Expand sustainable transportation programs and incentives: * Increase student parking fee and encourage alternate vehicle sharing: Ridesharing, Enterprise car-sharing program, public transportation, etc. * Charge an annual fee for faculty/staff parking pass and use this money from this fee for sustainability initiatives and incentives. Offer a discounted pass for carpool vehicles. * Establish "prime" parking spaces for carpool and low-emission vehicles. Example program: Elon College <a href="http://www.elon.edu/e-
web/bft/sustainability/ci-transport.xhtml">http://www.elon.edu/e- web/bft/sustainability/ci-transport.xhtml * Explore the possibility of adding bike lanes to campus roads and sidewalks. * Offer bike lockers or bike racks under awnings, to create weather- protected parking for bikes * Add dividers or curtains to showers on staff locker rooms, so there are individual shower stalls. This will remove one barrier to biking to work, as many people would feel more comfortable using a private shower. * Offer free athletic complex lockers to any staff/faculty who commit to biking or walking to work for at least 50 days of the year. * Add campus showers in key campus locations, other than the fieldhouse. * Calvin van shuttle routes for staff (morning and evening). 	Encouraging carpooling and low emission vehicles would contribute directly to Calvin's carbon reductions.
Sustainable Dining: Dining Services participates the Real Food Challenge, a program that promotes the purchase and use of more local food. Calvin also has an active Food Recovery Network program, in which student volunteers transport leftover dining hall food to community food pantries and shelters. In addition, the dining hall currently works to support local organic farms, provides vegetarian and vegan options, minimizes use of disposable dinnerware, used compostable disposable, composts food waste, and implements a reusable mug program.	 Expand sustainable practices in collaboration with Dining Services: Some ideas include: * Educating students and staff members about current initiatives through consistent signage Dining Services locations. * Increased vegan entrees and signage; meatless Mondays; and educational material about vegan sources of protein. * Expand composting throughout campus, where feasible. * Promote staff/faculty dining plans as a tie to carbon neutrality and environmental sustainability (so staff don't drive off-campus for lunch) 	Some of these programs would contribute directly to food waste reductions. Many would not affect the college's carbon budget or measured goals, but they would build a culture of sustainability.

Community Gardens: Calvin currently maintains two community gardens: a small garden in which students can rent garden plots, and a larger garden that produces market-quality food used by Dining Services. Students are employed to work in the garden, organizing volunteers, acquiring seeds, planting, weeding, harvesting, and cleaning. Several faculty convene classes in the garden for anything from expressing creative ideas about food in art, to science investigations studying lead in food, to introductory classes becoming aware of healthful characteristics of soils. Community education events are held at the garden, and the house next to the garden is home to a small living-learning community of students, who have faculty mentors. The GEO Department also maintains beehives in the larger community garden.	 Expand participation and learning through the use of our campus gardens: *Invite community organizations, Dining Services, Healthy Habits, Culinary Club, student organizations, and Garden House living-learning students to facilitate community education events. *Add signage that explains the vision and purpose of the garden. *Create a new, well-tended herb garden in a more visible location near Knollcrest Dining Hall. *Building a gazebo in the garden for educational programs. *Offer produce benefits for faculty and staff who volunteer in the gardens. *Work with Calvin's commercial composting company to determine the feasibility of 1) returning compost to campus and 2) selling compost to faculty/staff for home use. *Expand the larger community garden on Hampshire into the neighboring yard in order to add a small orchard. Possible Community Education seminar topic ideas: * How to compost in your backyard * Make rain barrels (through WMEAC) * Bee keeping lessons 	The community gardens serve both as educational tools and as centers of community on campus.
	 Expand Healthy Habits to promote sustainable lifestyle choices: Roy Zuidema, who oversees the Healthy Habits program at Calvin, eager to collaborate and promote the lifestyle initiatives listed in this document. Ideas include: * Offer more seminars on sustainability topics such as vegetarianism, gardening, reading food labels, eating locally * Host a book discussion group on health and sustainability. * Host a fall wellness related event, in connection with AASHE Sustainability Month in October. * Provide additional resources and incentives for biking to work. * Collaborate with Human Resources to offer recognition to staff members who consistently bike to work * Partner with Outdoor Recreation to offer bike maintenance workshops through Healthy Habits * Promote and expand the Active Commute Week * Work towards creating more infrastructure to support biking to work (such as bike lockers, bike lanes, showers in other locations, etc.) 	

	* Expand the responsibilities of the Healthy Habits ambassadors to include sustainability issues. Healthy Habits ambassadors could work to promote both health and sustainability in their departments.	
Sustainability Coordinator: Calvin has a residence hall-based leadership position called "sustainability coordinator." There are a few sustainability coordinators in each residence hall who promote sustainable practices and events in their own communities, and this team also works together on centralized programs for the broader community, such as Kill-a-watt and Mad Farmer Food Fest	Create sustainability ambassadors in faculty/staff departments at Calvin: This could be structured somewhat similarly to the current Healthy Habits Ambassador program, where one representative from each department works towards connecting their department to the campus's sustainability initiatives. Alternatively, the current director of Healthy Habits (Roy Zuidema) also suggested that the Healthy Habits Ambassadors could potentially include sustainability initiatives as part of their role. Example program: Elon College has a Sustainability Ambassadors program, which could potentially serve as a model or starting point. Their sustainability director invites representatives from throughout the staff departments of the college to join together for a special lunch meeting once	
	per semester. During this meeting, staff bring feedback to the director of sustainability. This time is also used to brainstorm new sustainability initiatives and report back on progress from past goals and initiatives.	
	Campus Ministries Partnership: Campus Ministries Currently our Campus Ministries office occasionally organizes chapel services that are focused on creation-care. This office also partners with the residence hall sustainability coordinators to plan a collaborative dorm worship night and to offer creation-care bible studies during Interim. One additional idea would be for the Campus Ministries office to encourage the pursuit of a sustainable practice for lent, such as fasting from meat on certain days.	