

Climate Action Plan

Loyola University Maryland

Prepared by Loyola Sustainability Committee 2018

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Introduction

Loyola University Maryland is committed to “environmental sustainability on our campus and as an academic component of undergraduate education”¹. Loyola recognizes the important role of higher education institutions to shape a sustainable future for all. President Brian F. Linnane, S.J. demonstrated this commitment by signing the President’s Carbon Commitment in December 2015. As a signatory, Loyola committed to developing institutional structures and long term strategies to reduce our carbon footprint to achieve carbon neutrality as soon as possible².

The Sustainability Committee of the Loyola Conference is responsible for developing the Climate Action Plan and will oversee the implementation of all climate action initiatives. The Climate Action Plan is intended to set the university on a path to reduce our carbon footprint, achieve carbon neutrality and engage the university in mission driven action on climate change.

Development Process

Fall 2015	Loyola signs President’s Carbon Commitment Sustainability Committee approved by the Loyola Conference Loyola commits to 15% renewable energy
Spring 2016	Sustainability Committee formed Working groups and subcommittees formed Climate Action Plan research begins
Fall 2017	Climate Action Plan priorities identified Structure draft developed
Spring 2018	Feedback and brainstorm sessions (faculty, staff and students)
Fall 2018	Plan revisions and additions Governance Review

¹ “The Ignatian Compass, Guiding Loyola University Maryland to Ever Greater Excellence: Strategic Plan 2017-2022,” Loyola University Maryland, <file:///C:/Users/tmryan/Downloads/The-Ignatian-Compass-Strategic-Plan.pdf>.

² Second Nature. *Definitions of Commitment Terms*. (n.d.) <http://secondnature.org/climate-guidance/frequently-asked-questions/>

Loyola's Carbon Footprint

Baseline 2015 Green House Gas Inventory

The university began tracking annual carbon emissions in 2007 with the assistance of an external analyst. The university's carbon emissions and contributions to climate change have remained relatively consistent over the past decade. In order to achieve carbon neutrality the university must reduce annual carbon emissions and utilize carbon offsets to reduce annual emissions to net zero.

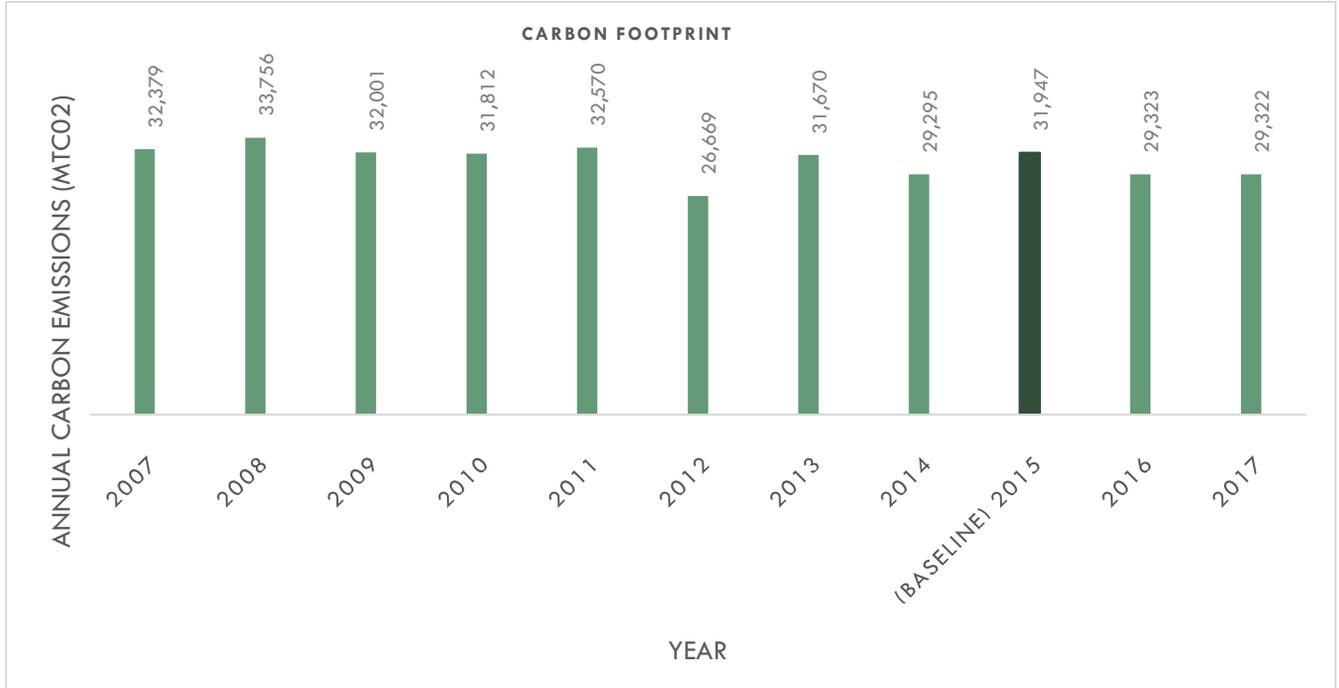


Figure 1

Emissions by Source

Campus energy consumption is the most significant driver of annual carbon emissions. Energy consumption generates emissions from multiple sources, including purchased electricity, natural gas, refrigerants and transportation and distribution losses (natural losses from gas consumption). Maryland's electric portfolio relies heavily on coal, natural gas and nuclear, with just 7.2% of its electricity generated by renewables³. Loyola consumes over 32 million kWh of electricity annually, which generates 47% of the university's carbon emissions. Energy for heating and cooling generates another 15% and 4% of emissions generated by gas consumption and refrigerant consumption respectively.

Air travel generates 16% of annual carbon emissions. These emissions are generated by the hundreds of flights financed by the university and purchased by students to study abroad each year.

³ U.S. Energy Information Administration - EIA - Independent Statistics and Analysis. (n.d.). Retrieved March 08, 2017, from <https://www.eia.gov/state/?sid=MD#tabs-4>

Campus commuting generates 11% of Loyola's total annual emissions as faculty, staff and students are traveling to and from the Evergreen campus primarily alone in the car.

Other minimal sources of emissions include paper purchasing, waste water, fertilizers and solid waste.

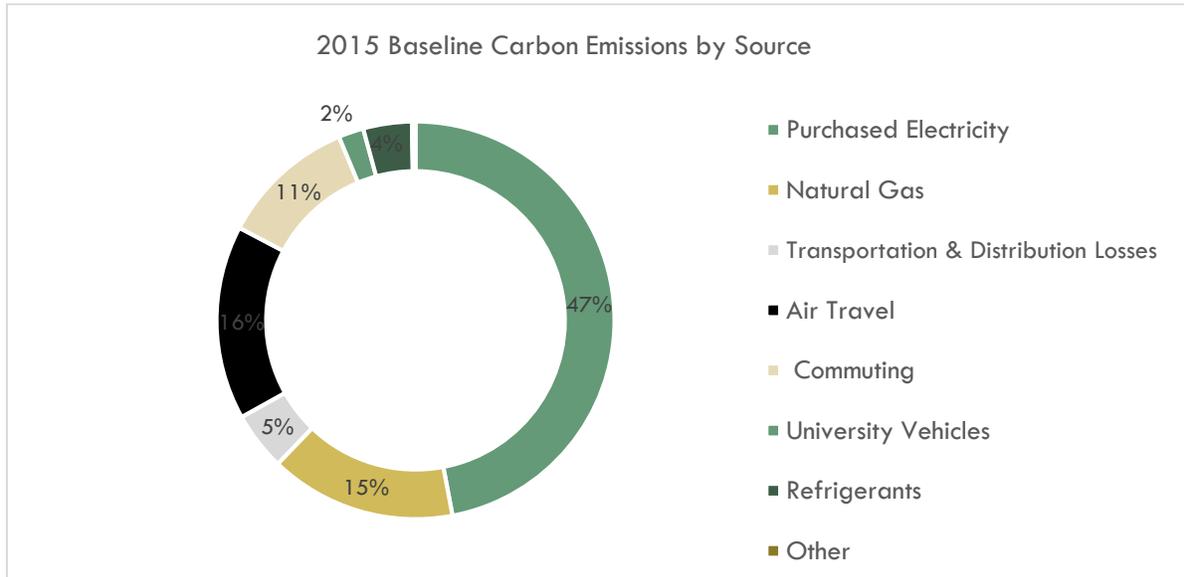


Figure 2

Emissions by Scope

Scope describes the university's level of control on the generation of emissions for that source and the impact of emission reduction strategies. Certain emission sources are driven by external factors that are difficult for the university to influence.

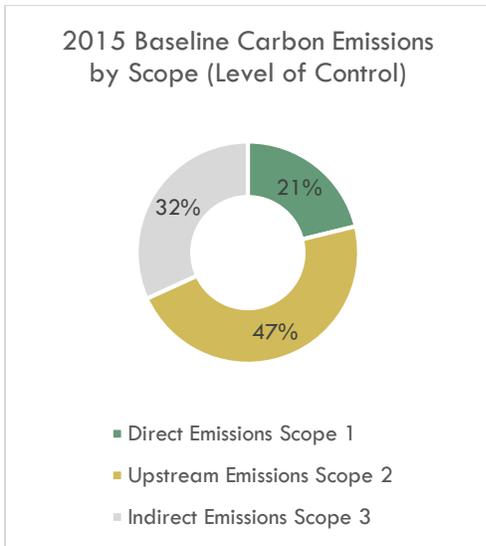


Figure 3

Scope 1 emission sources are produced directly on campus, so although the activities may be an integral component of campus operations, the university has significant opportunities for reduction.

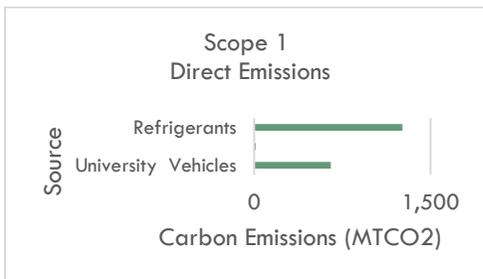


Figure 4

Scope 2 emissions are generated off campus, but internal emission reduction strategies can influence and reduce these sources.

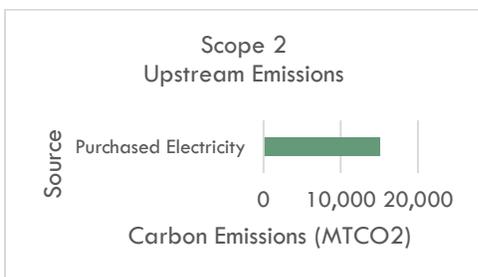


Figure 5

Scope 3 sources can be reduced through internal initiatives, but are significantly influenced by external factors. Scope 3 emissions often require the purchase or development of carbon offsets to reduce to zero and achieve carbon neutrality.

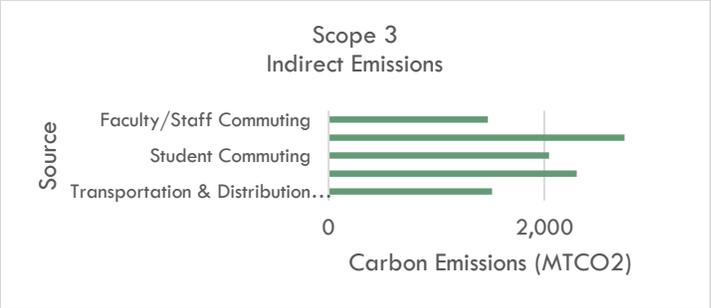


Figure 6

Climate Action Plan: Goals and Strategies

Carbon Neutrality

Goal 1: Save Energy

Strategy A: Improve Our Buildings

Strategy B: Invest in Renewable Energy

Strategy C: Energy Engagement

Goal 2: Travel Lighter

Strategy A: Green Our Commutes

Strategy B: Offset Flights

Strategy C: Purchase Alternative Vehicles

Climate Change Education

Goal 3: Engage All Levels of the University

Strategy A: Teach Sustainability Across the Curriculum

Strategy B: Reimagine the Campus Landscape

Strategy C: Reduce Waste

Strategy D: Sustainable Purchasing

Implementation

Goal 4: Sustain Climate Action

Strategy A: Finance Climate Action

Strategy B: Communicate Climate Action

Strategy C: Track and Update Progress

Carbon Neutrality

Loyola University Maryland is committed to achieving carbon neutrality by 2050. The university has set the interim target to reduce carbon emissions 30% by 2030. The university will initially focus on reducing scope 1 and 2 emissions by reducing energy consumption, securing sources of renewable energy and implementing behavior change programs. After 2030, the university must shift focus to scope 3 emissions by developing carbon offset programs and securing affordable and ethical carbon offsets.

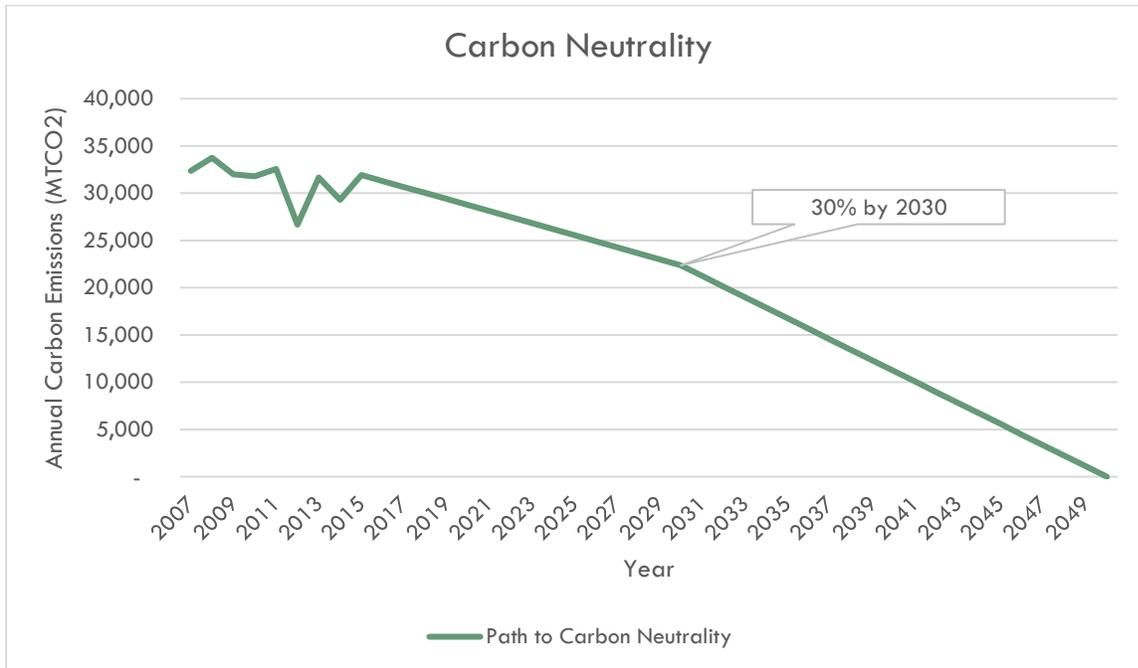


Figure 7

Goal 1: Save Energy

Purchased electricity generates 47% of annual carbon emissions. Natural gas consumption generates 15% of annual carbon emissions. Refrigerants generate 4% of annual carbon emissions.

Target: Reduce energy consumption 20% by 2030

Target: Secure 50% renewable electricity by 2030

Loyola must reduce energy consumption, including electricity and gas, as well as transition to renewable sources of energy on and off campus. Initially, the university will be required to identify opportunities to improve energy efficiency of campus buildings through energy auditing, lighting and HVAC upgrades and an aggressive preventive maintenance schedule. 50% of Loyola's buildings will require major envelope and mechanical updates in the next 10 years, which provides a significant opportunity to invest in long lasting energy efficient equipment. Modern equipment will improve performance, minimize building failure risk and reduce the university's annual utility expenses. Loyola must account for the emissions impact of new construction and identify opportunities to produce or acquire renewable energy on and off campus.

Strategy 1A: Improve Our Buildings

- Audit high energy buildings to determine immediate high impact energy savings projects and initiatives.
- Install and monitor real time energy metering on all campus electric meters.
- Enhance preventive maintenance program to reduce electricity, gas and refrigerant consumption.
- Update and share the Loyola Energy Management Policy annually.
- Develop Energy Star purchasing standard for campus appliances and equipment.
- Strive for LEED Gold equivalent for all new construction and renovations.

Strategy 1B: Invest in Renewable Energy

- Integrate renewable or renewable ready infrastructure into all new construction.
- Utilize direct purchase, community solar or Power Purchase Agreement to install a visible renewable energy system on the Evergreen campus.
- Utilize direct purchase, community solar or Power Purchase Agreement to invest in off-site renewable energy.

Strategy 1C: Energy Engagement

- Host energy and climate action awareness week for students, faculty and staff in January each year.
- Publicize utilities and real time energy metering data to encourage behavior change.

Goal 2: Travel Lighter

Transportation related activities generate 29% of annual carbon emissions.

Transportation related emissions include faculty, staff and student commuting, financed and study abroad air travel and on campus vehicle use. A majority of the university's transportation related emissions are scope 3 emissions, which can be reduced through programming and infrastructure support, but will ultimately be difficult to completely eliminate. Initially, the university must implement successful programs encourage and support transportation related behavior change. Due to the programmatic importance of international travel, the university will be required to develop programs to offset travel and study abroad air travel emissions.

Strategy 2A: Green Our Commutes

Faculty, staff and student commuting generates 11% of annual carbon emissions.

Faculty, staff and students are primarily traveling to and from the Evergreen campus alone in the car. The university is advantageously positioned between two main south and north pathways that are served by public transit, but these resources are currently underutilized by the Loyola community.

- Develop a Transportation Demand Management plan.
- Develop "Commuting Counselor" Program to incentivize and support alternative commuters.

- Achieve Bicycle Friendly University from the League of American Bicyclists⁴.
- Install EV charging stations on the Evergreen Campus.
- Construct an alternative commuter lounge for faculty, staff and students that includes shower facilities.
- Leverage City of Baltimore to improve public transit routes, biking conditions and pedestrian safety on York Rd, Coldspring Lane and Charles Street.
- Implement shuttle routes from key commuting hubs near university campuses.

Strategy 2B: Offset Flights

Air travel generates 16% of annual carbon emissions.

- Encourage local professional development opportunities to support local economy and reduce university travel miles.
- Expand marketing for video conferencing as a sustainable and fiscally responsible alternative to air travel and financed air fare.
- Develop offset program or purchase carbon offsets for both university and study abroad travel emissions.

Strategy 2C: Purchase Alternative Vehicles

Campus vehicles generate 2% of annual carbon emissions.

- Develop vehicle purchasing guidelines to prioritize fuel efficient, electric or hybrid vehicles vehicle purchases.
- Centralize vehicle purchasing to one department to ensure consistent and efficient vehicle allocations.
- Evaluate opportunities to improve efficiency of on campus transportation.

⁴Bicycle Friendly University Program Award Levels and General Scoring Guidelines
https://bikeleague.org/sites/default/files/BFU_scoring_guidelines.pdf

Climate Change Education

Goal 3: Engage all levels of the university in climate change and sustainability

Strategy 3A: Teach Sustainability Across the Curriculum

- Create a resource bank for sustainability and climate change related modules and course resources for both humanities and sciences to encourage faculty members to incorporate sustainability into their teaching in ways they deem most appropriate to their goals for their courses.
- Establish a sustainability course requirement (similar to the diversity course requirement) as part of the university's efforts to increase students' environmental and sustainability literacy.
- Introduce a new Messina theme, "Everything is Connected: Ecology & Society," and propose adopting a common text pertaining to this theme.
- Develop an Environmental and Sustainability Studies major (with a robust humanities component) that builds on the already-existing minor. This will make us more competitive with schools including Fordham, Villanova, and Fairfield Universities, which are already offering similarly integrated sustainability-focused majors.

See "Mission-Driven Rationale for Teaching Sustainability Across the Curriculum" in the Appendix.¹

Strategy 3B: Reimagine the Campus Landscape

Fertilizer use generates less than 1% of annual carbon emissions.

Loyola University Maryland must expand the role of the campus landscape to support native biodiversity, protect the local ecosystem and inspire environmental stewardship.

- Develop an approved campus plant list with a strong emphasis on native species and prohibits invasive species.
- Expand visibility and engagement in the Loyola Community Garden.
- Expand the visibility, academic use, and mission of the Loyola Arboretum and obtain level II accreditation.
- Develop a storm water management plan to identify critical areas and outline best practices to protect water quality.
- Incorporate bioswales into campus parking areas.

Strategy 3C: Reduce Waste

Solid waste generates less than 1% of annual carbon emissions.

Waste is a small component of Loyola's overall carbon footprint, but a successful waste diversion program is an impactful and visible symbol that can improve sustainability engagement. The university must increase waste diversion with special attention to education, consistency and contamination minimization.

- Standardize recycling and waste containers in operational and residential buildings.
- Include proper waste disposal training at student and employee orientation.
- Incorporate recycling and composting into campus event planning.
- Develop a Zero Waste Plan to expand diversion opportunities.

Strategy 3D: Sustainable Purchasing

Purchasing products and services from external vendors influences waste production, energy consumption and culture at Loyola.

- Develop sustainability requirements and language that align with the university's initiatives and commitments for Requests for Proposals (RFPs) and contracts.

Implementation

Goal 4: Sustain Climate Action

Strategy 4A: Finance Climate Action

Sustainable programming and buildings projects are currently funded by a variety of operational budgets as needed. In order to maintain a commitment to climate action multiple sources of funding must be secured.

- Implement an Energy Revolving Fund (Figure 8) to reroute funds saved by energy projects back into new energy savings projects.
- Increase scoring value assigned to capital project requests that reduce carbon emissions.
- Identify grant opportunities and develop a sustainability and climate change grant database for university stakeholders.
- Utilize existing resources to support a strong preventive maintenance program that maximizes energy savings.
- Investigate opportunities to establish Advancement giving opportunities for environmental scholarships and projects.
- Determine source of funding to develop a local carbon reduction project to offset Scope 3 carbon emissions and/or purchase carbon offset credits.

Energy Revolving Fund Model

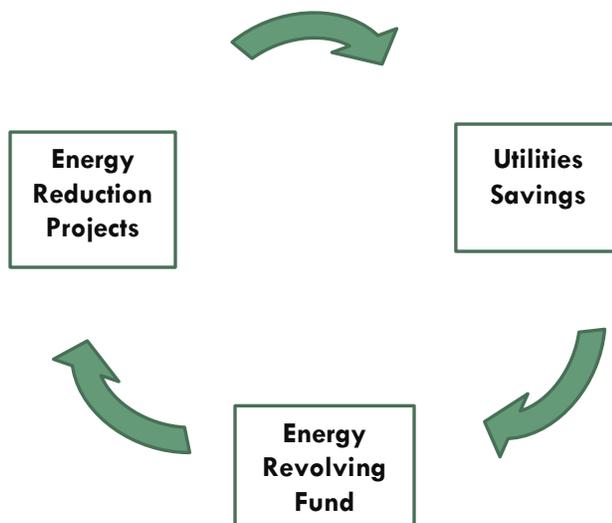


Figure 8

Energy Revolving Fund is a common model used by universities to fund energy reduction projects⁵. The fund is established using existing pool of utility savings from recent energy projects or capital funds. The revolving nature of the model is maintained by using this capital to implement energy reduction projects which result in utility savings that are returned back into energy reduction projects. The energy revolving fund ensures energy reduction projects are fully or partially funded, which reduces annual energy expenditures, invests in campus infrastructure and supports carbon reduction.

Carbon Offsets

Scope 3 emissions are typically offset by developing a carbon reduction project external to the university or by purchasing carbon offset credits, which supports carbon reduction project implemented by other organizations. The price and availability of reputable carbon offsets varies. The current average price for carbon offsets is \$4 per metric ton of carbon dioxide equivalent⁶. Therefore, the estimated cost to offset Scope 3 emissions is \$40,636 annually (Fig 9). Second Nature provides significant guidance and resources for purchasing quality carbon offsets to help institutions purchase carbon offsets which reflect the values of the university. The table below outlines the annual cost of purchasing carbon offsets for all three scopes.

Cost Analysis

Emissions MTCO ₂ Equivalent	Carbon Offsets (\$4/MTCO ₂)
Scope 1: 6,768	\$27,072
Scope 2: 15,023	\$60,092
Scope 3: 10,159	\$40,636

Figure 9

Carbon reduction projects are often established in developing nations, but there is a growing number of carbon offset projects that are being integrated into the local economy to provide tree plantings and other environmentally beneficial projects to the communities that support the institution. This is often more cost effective for reducing Scope 3 emissions compared to purchasing offsets. The university should prioritize developing or supporting a locally based carbon offset fund.

Strategy 4B: Communicate Climate Action

- Establish the Climate Action Plan as a living document.
- Develop an interactive Climate Action Plan website.
- Develop clear and concise action items for all levels of the organization.
- Develop climate action stickers and materials for washing machines, paper towel dispensers, light switches and thermostats.
- Focus communications on the connections between environmental stewardship Ignatian citizenship.

⁵ Joe Indvik, Robert Foley and Mark Orlowski, Green Revolving Funds: A Guide to Implementation & Management, Sustainable Endowments Institute and the Association for the Advancement of Sustainability in Higher Education, n.d. http://greenbillion.org/wp-content/uploads/2013/01/GRF_Implementation_Guide.pdf

⁶ Kelley Hamrick and Melissa Gallant. Unlocking Potential: State of the Voluntary Carbon Markets 2017, May 2017. Ecosystem Marketplace: A Forest Trends Initiative. <https://www.cbd.int/financial/2017docs/carbonmarket2017.pdf>

- Use annual student run events like Recyclemania and Earth Week to encourage engagement with the Climate Action Plan.
- Switch the narrative from waste management to energy consumption.
- Develop a "green leader" certification program.

Strategy 4C: Track and Update Progress

- Review and update the Climate Action Plan and website annually.
- Report Green House Gas Inventory (carbon footprint) to Second Nature annually.
- Update the Climate Action Plan and report progress to Second Nature every 3 years.

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Thank you to all faculty, staff and student contributors for providing idea generation and climate action plan feedback.

Appendix 1: Mission-Driven Rationale for Teaching Sustainability Across the Curriculum

i Appendix 1: Mission-Driven Rationale for Teaching Sustainability Across the Curriculum

When Loyola enlisted with the American College and University Presidents' Climate Commitment in 2015, we agreed to implement broad structural and cultural changes to reduce the university's carbon footprint. Infrastructural improvements are already in progress, with more forthcoming. Our cultural changes include our pledge to incorporate sustainability into our curriculum in ways that Loyola's faculty members deem most appropriate for their disciplines.

Teaching sustainability across the curriculum aligns closely with the university's mission to “inspire students to learn, lead, and serve in a diverse and changing world.” Scientific data demonstrate unequivocally that global warming is accelerating the rate at which the world is changing, and the scientific community concurs that humanity's consumption (and waste) of resources—particularly fossil fuels—is accelerating the rate of global warming. Privileged nations—principally the United States—are primarily responsible for this acceleration, which harms everyone, but especially the world's most vulnerable people.

Rev. Peter-Hans Kolvenbach, S.J., former superior general for the Society of Jesus, reminded us of the global context of our teaching when he noted in 1989, “We [have] set our aim on educating for responsible citizenship in the global city.” As educators in a Jesuit university, we are deeply committed to “care of the whole person” in our relationship with our students. Guided by Loyola's Ignatian Compass, we draw inspiration from Rev. Kolvenbach and from Pope Francis, who writes in his 2015 encyclical, *Laudato Si': Care for Our Common Home*, “Authentic human development has a moral character. It presumes full respect for the human person, but it must also be concerned for the world around us....Accordingly, our human ability to transform reality must proceed in line with God's original gift of all that is.” Pope Francis thus reminds us that as actors within global ecosystems, we have the power to change “our common home” for better or worse, and that we must always remember the world's poorest people. It follows, then, that we may extend care of the whole person to care of the global environment—our common home—and all its inhabitants.

As future leaders, our students will inherit unprecedented challenges and responsibilities. Pope Francis contends that we may best meet these challenges by developing an integral ecology. The Holy Father writes, “[I]ntegral ecology calls for openness to categories which transcend the language of mathematics and biology, and take us to the heart of what it is to be human.” He further argues, “We urgently need a humanism capable of bringing together the different fields of knowledge....in the service of a more integral and integrating vision.” To lead in a world disrupted by climate change, our students will need the humanities and social sciences as critically as they need business, math, and the natural and applied sciences.

As Pope Francis observes, “[E]verything is interconnected....It follows that the fragmentation of knowledge and the isolation of bits of information can actually become a form of ignorance, unless they are integrated into a broader vision of reality.” We envision Loyola as an Institute of Integral Ecology, incorporating sustainability across disciplines, focused on innovation, and informed by Campus Ministry and service experiences through CCSJ. Such preparation will help students cultivate “a broader vision of reality” informed by their commitment to environmental justice for all. Loyola is “anchored in Baltimore.” Our students' education in justice, coupled with spiritual education in compassion, may be brought to bear even more broadly on our city, where 24% of Baltimoreans live in poverty, even though Maryland has the

nation's highest median household income. Coordinating with Baltimore service partners, working groups, and coalitions (e.g. the Chesapeake Bay Foundation, Interfaith Power and Light, etc.) will ensure that Loyola's witness to integral ecology does not remain an abstract intellectual endeavor, but is incarnated in the world through practical initiatives and projects of environmental justice. By integrating sustainability across disciplines, and by coupling interdisciplinary education with practical experience gained through service and/or internships, we will better equip our students to be effective, innovative leaders as they cope with the technical, social, and moral challenges posed by climate change.

In accordance with this vision, we—the members of the Climate Education Working Group (a subcommittee of the Sustainability Committee)—will set up a site of teaching resources where faculty who wish to incorporate sustainability into their teaching will find disciplinary models for doing so. (For example, some may want to focus a course around sustainability; others may want to incorporate one or two units related to sustainability.) As Pope Francis stated above, integral ecology requires moving beyond the scientific disciplines. Scientific data naturally include human and non-human components, but it is through storytelling—through the social sciences and the humanities—that the broader human community best understands the implications of scientific data. Further, businesses that hope to succeed in perpetuity cannot do so without considering sustainability, which helps us understand the human dimensions and true costs of business practices, as well as true value of earth's resources.

We also support a sustainability course requirement (similar to the diversity course requirement) as part of the university's broader efforts to increase students' environmental and sustainability literacy.

Further, we recommend introducing a new Messina theme, "Everything is Connected: Ecology & Society," and propose having a common text pertaining to this theme adopted for the overall program.

Finally, we advocate development of an Environmental and Sustainability Studies major (with a robust humanities component) that builds on the already-existing minor. This will make us more competitive. For example, Fordham University offers an Environmental Studies major, described as "a sciences and humanities major program." Similarly, both Fairfield University and Villa Nova offer an Environmental Studies major with courses in the sciences, humanities, and social sciences. There is growing demand for these programs, and we are missing an opportunity if we do not develop this major at Loyola.