



**THE OHIO STATE UNIVERSITY**

---



## **Concession Agreement Annual Report**

**Fiscal Year 2019**

**TABLE OF CONTENTS**

**Operations** .....3

**OSEP Project Plans & Approvals** .....4

**Financials** .....5

**Endowments** .....6

    Appendix A – Complete listing of projects.....8

    Appendix B – Endowment distributions & expenditures.....9

    Appendix C – Academic Collaboration report.....10

## **EXECUTIVE SUMMARY**

The Long-Term Lease and Concession Agreement for Utility Systems at The Ohio State University was executed on April 12, 2017. The concessionaire, Ohio State Energy Partners (“OSEP”) assumed operations responsibility with the financial close of the transaction on July 7, 2017. In fiscal year 2019, the utility system operator was changed from ENGIE Services, Inc. to ENGIE Buckeye Operations, LLC. (“ENGIE”). All obligations and provisions of the Concession Agreement regarding the Operator remain the same and are applicable to ENGIE Buckeye Operations, LLC.

This is the second annual report of the concession agreement, which documents the progress made during the second full year of the partnership and the academic impacts demonstrated.

To summarize the successes of fiscal year 2019,

- OSEP met or exceeded all Key Performance Indicators (“KPI”) targets,
- Commenced 18 new capital improvement projects, and
- Continued work on eleven projects that began in the previous year.

Among the project highlights were the collaborative projects with the university’s Office of the Chief Information Officer (OCIO) to retrofit all of the signature (“Buckeye”) outdoor light posts with LED lamps, and simultaneously install wireless network equipment in designated light posts in strategic locations to improve the university’s outdoor wireless connectivity.

OSEP is ahead of schedule on the deployment of smart utility meters throughout campus, and the Columbus campus energy efficiency has improved for the second consecutive year.

In fiscal year 2019, OSEP also met or exceeded all its academic collaboration commitments, including the awarding of ten total paid internships, more than 50 undergraduates, professional and professional student scholarships, and the Board of Trustees approved design for the \$50 million Energy Advancement and Innovation Center.

## OPERATIONS

### KPIs/Service Reliability

OSEP must maintain utility service availability at a level of reliability that meets or exceeds Ohio State's historical levels. The annual "KPI Calculation" determines the KPI scores for the most recent fiscal year.

Chart 1 is a summary of OSEP's utility service reliability performance regarding the number of unplanned utility outages in the fiscal year. Chart 2 is a summary of the utility service reliability based on the total number of unplanned outage hours.

Chart 1

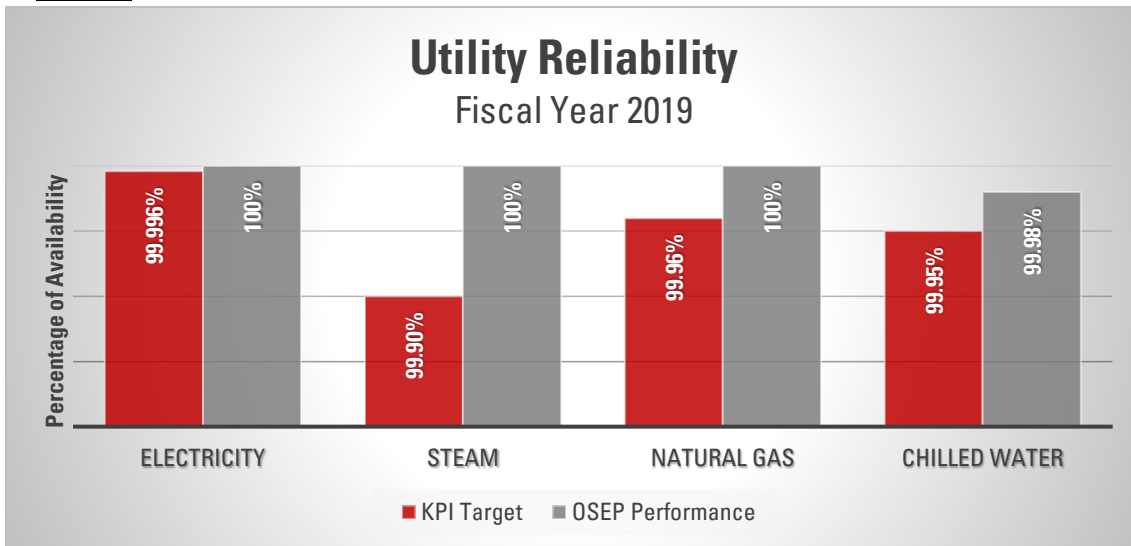
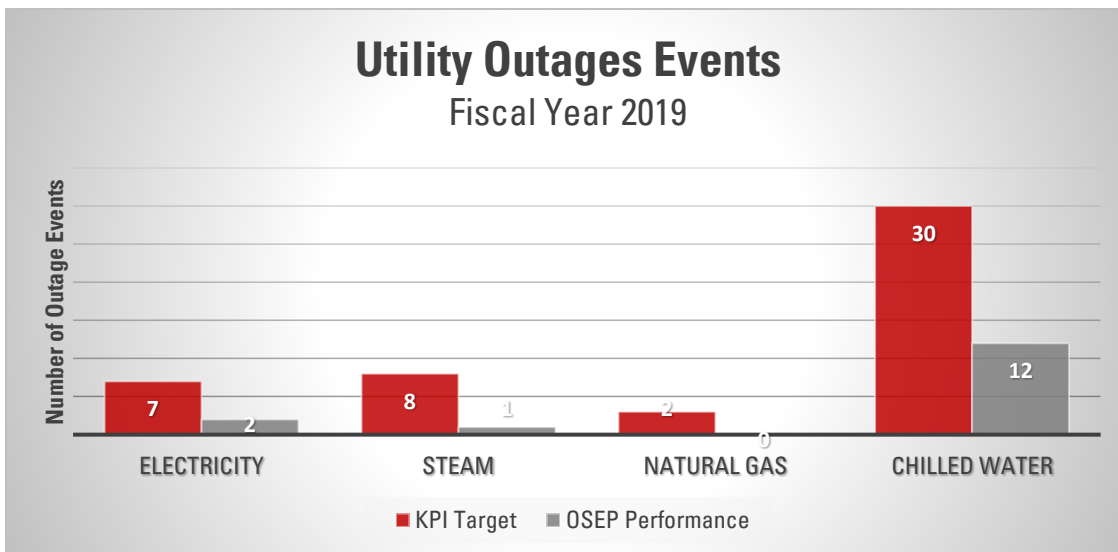


Chart 2



## Energy Use Intensity

OSEP is required to maintain or improve the energy efficiency of the Columbus Campus annually (based on a three-year rolling average) as well as meet or exceed a 25% improvement target by June 30, 2028.

Energy efficiency is represented by the Energy Use Intensity (“EUI”) of campus. EUI is a calculation of the energy used per square foot of building area on campus. Improvements to the EUI resulting from Energy Conservation Measures (“ECM”) were not expected to be significant in the first couple years of the partnership, as the installation of the first ECMs began. Greater impacts are expected over the next several years as more of the Energy Conservation Measures projects are completed.

Table 1 summarizes the EUI for fiscal year 2019 relative to the 2017 baseline.

Table 1

<b>Fiscal Year</b>	<b>Total Area (sf)</b>	<b>Total Area Variance</b>	<b>EUI Score (Btu/sf)</b>	<b>EUI Score Variance</b>
Baseline - 2017	24,118,154		199,922	
2019	24,813,694	2.88%	191,839	- 4.0 %

## **OSEP PROJECTS PLANS AND APPROVALS**

### Energy Advisory Committee

OSEP provides the financing for capital improvement projects on the Utility Systems as well as for ECM projects on campus. Generally, OSEP projects are proposed to the university through the Energy Advisory Committee (EAC). The EAC was established pursuant to the Agreement. The EAC members represent OSEP; the offices of Academic Affairs, Administration and Planning, Athletics, Business and Finance, Student Life, and the Wexner Medical Center; as well as two faculty members appointed by the Provost; and one student appointed by the Senior Vice President – Student Life.

In December 2017, OSEP presented it's draft Fiscal Year 2019 Five-Year Plan to the EAC including all the capital projects OSEP is proposing. In its review of the Five-Year Plan, the EAC included a detailed focus on the proposed projects for the upcoming fiscal year. After the EAC review and comment process was concluded, the draft Five-Year Plan proceeded to reviews in the university’s capital approval process, including review and consideration by the Integrated Physical Planning Liaison Group, Integrated Capital Planning Group, and Capital – Executive Sponsor Group.

Ultimately, the selected projects were presented to the Board of Trustees with a recommendation for approval. All OSEP projects are subject to University approval. The second through fifth years of the Five-Year Plan are for forecasting and planning purposes only. Even with an approved Five-Year Plan, OSEP must obtain annual approval of any projects to be commenced in a given fiscal year. In June 2018, the Board of Trustees approved the Fiscal Year 2019 list of projects.

## Capital Projects

OSEP has three categorizations for utility capital improvements.

1. Lifecycle projects are those projects that maintain existing campus operations.
2. Expansion projects are projects that expand or renovate the utility systems to meet the needs of our changing campus, including the addition or removal of buildings.
3. ECM projects are those improvements undertaken specifically to improve the energy efficiency of campus buildings and utility infrastructure.

A complete list of the approved projects are shown in Appendix A.

Examples of each type of projects include:

### Life-cycle Projects

McCracken Roof Phase II (22-19-LFC) – This two-phase project is providing repair and renovation to the 32-year old eastern section of the McCracken roof. The repairs are addressing leaks that are jeopardizing electrical controls, chiller and boiler reliability, and posing a risk to personnel.

### Expansion Projects

Newton Hall Expansion (68-19-EXP) – This project is relocating and extending utility distribution pipes and lines to bring heating, cooling, and power up to the new extension of Newton Hall for the College of Nursing.

### Energy Conservation Measure Projects

Campus Lighting – Buildings/Interior Phase II (53-19-ECM) – This three-phase project is replacing campus in-building fluorescent and incandescent lamps with LED lamps. Phase II included 40 buildings and is expected to save the university approximately \$10.2 million in energy and maintenance costs over the life of the new lamps.

## **FINANCIALS**

### Project Summary

Table 2 shows the total approved capital budgets for each of the categories. The approved budgets represent the total project budget. Many of the projects have budget expenditures over multiple years.

Table 2

<b>Projects</b>	<b>FY 2019 Approved</b>
Lifecycle Projects	\$ 4.8M
Expansion Projects	\$ 320.2M
ECM Projects	\$ 37.4M
<b>TOTALS</b>	<b>\$ 362.4M</b>

### Utility Fee

The Utility Fee is a fee that OSEP charges to the university for operation of the Utility Systems and the recovery of OSEP's approved capital improvement investments.

The three components of the Utility Fee are (i) the Fixed Fee, (ii) the Operations and Maintenance Fee, and (iii) the Variable Fee.

- i. The Fixed Fee is set by the Agreement. It began at \$45 million and will escalate for inflation each year at a rate of 1.5%.
- ii. The Operations and Maintenance (O&M) Fee is OSEP's allowable costs for operating the Utility Systems. The O&M Fee includes employee salaries and benefits, general business supplies, routine maintenance of systems, and other general business expenses.
- iii. The Variable Fee is for the recovery of OSEP's approved capital improvement investments made to the Utility Systems. The Variable Fee includes a Return on Equity (ROE). The ROE is established by a formula in the Agreement. The ROE is earned on 50% of the capital OSEP invests. The other 50% of the investment recovers only the cost of debt. The Utility Fee for Fiscal Year 2019 was \$56.530 million. Table 3 shows the breakdown of the Utility Fee.

Table 3

<b>Utility Fee</b>	<b>FY 2019 Payments</b>
Fixed Fee	\$ 45.675 M
O&M Fee	\$ 9.747 M
Variable Fee	\$ 1.109 M
TOTALS	\$ 56.530 M

### **ENDOWMENTS**

Ohio State devoted \$800 million of the upfront proceeds, including \$54.5 million from the academic collaboration package, to create 11 new endowments that were placed in the Long-Term Investment Pool and allocated to the following quasi-endowment categories:

1. Student aid
2. Faculty
3. Strategic initiatives
4. Other
5. Energy stabilization

Detailed distributions and uses from each of the endowments can be found in Appendix B.

## **ACADEMIC COLLABORATION**

The *Partnership in Sustainability* report summarized the use and impact of the academic collaboration funds throughout the first two years and focuses on how the partnership advances academic goals in addition to the concession agreement.

The complete academic collaboration report can be found in Appendix C.



## APPENDIX A

Project #	Project Title	Budget <sup>1</sup> (\$000)
22-19-LFC	McCracken Roof - Phase II	\$ 2,115
25-19-LFC	Air System Modernization	\$ 422
48-19-LFC	Safety Upgrades	\$ 375
51-19-LFC	Cyber-Security Implementation	\$ 1,570
62-19-LFC	CT Makeup H2O Storage System (SCCP) & Feasibility (McCr/ECRCWP)	\$ 344
<b>Lifecycle Subtotal Budget</b>		<b>\$ 4,827</b>
13-18-EXP	Advanced Material Corridor	\$ 795
16-19-EXP	CHP & MW Campus DHC (Smart CampusE - Phase I)	\$ 277,730
19-19-EXP	New Hospital - Garage	\$ 1,078
20-19-EXP	Health Sciences	\$ 6,777
27-19-EXP	Ambulatory SF (Power Only)	\$ 2,114
28-19-EXP	Cannon Drive - Phase II	\$ 14,255
30-19-EXP	BRT Chilled Water Connection	\$ 480
44-19-ECM	ENGIE Digital Platform (Smart CampusE - Phase I)	\$ 649
57-19-EXP	South Residence Halls Air Conditioning	\$ 13,676
67-19-EXP	Franklin County	\$ 230
68-19-EXP	Newton Hall Expansion	\$ 119
71-19-EXP	Harding Hospital Chilled Water Supply	\$ 2,333
<b>Campus expansion &amp; renovation subtotal Budget</b>		<b>\$ 320,236</b>
01-19-ECM	Campus Lighting - Exterior	\$ 1,367
18-19-ECM	Building Energy Systems Optimization - Phase I	\$ 30,151
45-19-ECM	Behavioral ECM through Innovation	\$ 150
53-19-ECM	Campus Lighting - Buildings - Phase II	\$ 5,696
<b>ECMs subtotal Budget</b>		<b>\$ 37,364</b>
<b>Total Budget Approved in Fiscal Year 2019</b>		<b>\$ 362,427</b>

<sup>1</sup> Many of the approved projects are being executed over multiple years. The budget shown in the table represents the total approved budget for the project as of the Aug-2019 BoT meeting.

## APPENDIX B

### Summary: Energy endowment funds as of December 31, 2019

- Total energy endowments market value: \$822M
- Total remaining balance on distributions: \$58.1M

### Energy - Upfront Consideration Funds

	Principal	Market Value	FY 18 Distribution	FY 19 Distribution	FYTD 20 Distribution	Total Distribution
Strategic Initiatives Endowment	\$704,559,701	\$693,624,544	\$22,164,325	\$29,406,684	\$30,077,105	\$81,648,114
Energy Stabilization Endowment *	\$75,475,500	\$74,175,790	\$2,230,987	\$3,144,733	\$3,216,427	\$8,592,147
<b>Total:</b>	<b>\$780,035,201</b>	<b>\$767,800,334</b>	<b>\$24,395,312</b>	<b>\$32,551,417</b>	<b>\$33,293,532</b>	<b>\$90,240,261</b>

#### Expenditures

	FY 19 Uses	FYTD 20 Uses	Total Expenditures
Teaching Excellence (Salary, Benefits)	\$1,500,000	\$1,000,000	\$2,500,000
Student Aid (Buckeye Opportunity Program)	\$12,671,738	\$14,600,000	\$27,271,738
Strategic Investments Endowment – Krios Microscope**	\$4,242,000	\$0	\$4,242,000
Energy Stabilization Fund	\$0	\$3,213,000	\$3,213,000
<b>Total:</b>	<b>\$18,413,738</b>	<b>\$18,813,000</b>	<b>\$37,226,738</b>

### Energy - Academic Collaboration Funds

	Principal	Market Value	FY 18 Distribution	FY 19 Distribution	FYTD 20 Distribution	Total Distribution
Sustainability Projects Endowment	\$15,101,187	\$14,890,251	\$512,352	\$631,282	\$645,674	\$1,789,308
Undergraduate Endowed Scholarship	\$12,584,323	\$12,408,543	\$426,960	\$526,069	\$538,062	\$1,491,091
Graduate, Professional Endowed Scholarship	\$12,584,323	\$12,408,543	\$426,960	\$526,069	\$538,062	\$1,491,091
Sustainability Curriculum & Staff Development	\$5,033,729	\$4,963,417	\$170,784	\$210,427	\$215,225	\$596,436
Endowed Dean's Chair	\$3,523,610	\$3,474,392	\$119,549	\$147,299	\$150,657	\$417,505
Endowed Chair #1	\$2,013,492	\$1,985,367	\$68,314	\$84,171	\$86,090	\$238,575
Endowed Chair #2	\$2,013,492	\$1,985,367	\$68,314	\$84,171	\$86,090	\$238,575
Endowed Professorship #1	\$1,006,746	\$992,683	\$34,157	\$42,086	\$43,045	\$119,288
Endowed Professorship #2	\$1,006,746	\$992,683	\$34,157	\$42,086	\$43,045	\$119,288
<b>Total:</b>	<b>\$54,867,648</b>	<b>\$54,101,246</b>	<b>\$1,861,547</b>	<b>\$2,293,660</b>	<b>\$2,345,950</b>	<b>\$6,501,157</b>

#### Expenditures

	FY 19 Uses	FYTD 20 Uses	Total Expenditures
Sustainability Projects Endowment		\$662,813	\$662,813
Undergraduate Endowed Scholarships	\$140,280	\$142,316	\$282,596
Graduate, Professional Endowed Scholarship	\$60,000	\$138,995	\$198,995
Sustainability Curriculum & Staff Development	\$23,750	\$31,203	\$54,953
Endowed Chairs & Professorship		\$12,500	\$12,500
Graduate, Professional Endowed Scholarship	\$60,000	\$138,995	\$198,995
<b>Total:</b>	<b>\$284,030</b>	<b>\$1,126,822</b>	<b>\$1,410,852</b>

APPENDIX C

**Ohio State and  
Ohio State Energy Partners**

**A Partnership in Sustainability**

**Academic Collaboration  
2017-2019**

September 23, 2019



The Ohio State University Board of Trustees approved an innovative public-private partnership for comprehensive energy management on April 7, 2017, with Ohio State Energy Partners (OSEP), a consortium of ENGIE North America and Axium Infrastructure.

The funding provided through this partnership is helping Ohio State reach its ambition to become an international leader in sustainability and has provided unprecedented opportunities for Ohio State students.

On July 7, 2017, Ohio State received \$54.5 million of the \$150 million in “academic collaboration” funds contained in the contract with OSEP. The other academic collaboration components (internships, visionary project and philanthropic contributions) are funded on an annual basis or as otherwise specified in the contract.

This report summarizes the use and impact of the academic collaboration funds over the partnership’s first two years. In addition, it provides a brief overview of how the partnership advances academic goals beyond the concession agreement funding to create value for Ohio State and for ENGIE-Axium.

## Elements of \$150 Million Academic Collaboration

Endowments	
<b>Scholarships</b>	▶ \$25 million
\$12.5 million for undergraduates	
\$12.5 million for graduate and professional students	
<b>Faculty Endowments</b>	▶ \$9.5 million for 5 positions
<b>Sustainability Projects</b>	▶ \$15 million
<b>Sustainability Curriculum</b>	▶ \$5 million
Additional Support	
<b>Internships</b>	▶ \$100,000 year direct to interns (10/year)
<b>Visionary Project:</b> <i>Energy Advancement and Innovation Center</i>	▶ \$50 million
<b>Philanthropic Support</b>	▶ \$810k/year - 50 years

## Governance and Advisory Structure

Two separate committees provide advice and some governance over the academic collaboration activities. In FY18, the Executive VP and Provost chartered the university’s Energy Academic Collaboration Council (EACC) to guide many of these efforts and provide meaningful campus engagement in this process. The concession agreement also required the creation of a Visionary

Project Advisory Committee (VPAC), which is planning the \$50 million Energy Advancement and Innovation Center. Membership of both committees is contained in Attachment A.

The EACC meets every other month during the academic year. In FY18 and FY19, the EACC made the following recommendations which were then approved by the Provost after consulting with ENGIE-Axium:

- Use of \$12.5 million undergraduate scholarship fund
- Use of \$12.5 million graduate and professional scholarship fund
- Areas of scholarship in which to target funding for faculty chairs
- Potential uses for \$810,000 in annual philanthropic contributions

Unlike the EACC, which serves as an internal advisory body to the Provost, the VPAC is comprised of four Ohio State members along with a representative of Ohio State Energy Partners and a representative of the City of Columbus. The VPAC meets at least monthly, updates the EACC and reports progress back to the Senior VP for Research.

In FY18 and FY19, the Visionary Project Advisory Committee (VPAC) met the following milestones:

- Developed a charter to outline operations and VPAC activities
- Held three open houses in fall 2018 to collect input and ideas from the university community (faculty, staff and students) and community partners to help define program and scope of the center
- Visited innovation centers nationally to benchmark designs and governance best practices
- Worked with the architectural firm Smith-Miller + Hawkinson to develop a scoping study to provide a preliminary cost estimate and design elements including site strategy, concept development, sustainability and programming
- Received Board of Trustees approval in February 2019 for \$3 million in design funds
- Developed initial business model to begin shaping the financial sustainability of the center; continued work in process to validate the business model

The university's design development with Smith-Miller + Hawkinson is in process and targeted for completion in March 2020.

### **Scholarships: 54 Ohio State Students Funded in Year 1**

The two ENGIE-Axium scholarship funds support undergraduate, graduate and professional students who demonstrate financial need and an interest in sustainability.

#### **Undergraduate: \$12.5 million**

The first cohort of undergraduate students were awarded ENGIE-Axium scholarships in FY19. The scholarships cover the cost of in-state tuition and fees, housing, dining and books. The first 20 students to receive these grants were selected by Ohio State's financial aid office based on criteria developed by the EACC and approved by the Provost. Future students will be considered for the scholarship after they complete the university's special scholarship application.

#### **Graduate and Professional: \$12.5 million**

In FY19, 24 new and existing graduate and professional students received a total of \$210,000 from the ENGIE-Axium scholarship and professional fund. The EACC worked with Ohio State's Vice Provost for Graduate Studies and Dean of the Graduate School and other faculty leaders to develop criteria for use of the \$12.5 million ENGIE-Axium graduate and professional student scholarship fund.

In FY19, the Provost approved three initial uses of this fund:

- Five \$50,000 fellowships for high-ability, new graduate students interested in energy and sustainability
- Twenty \$5,000 incentive scholarships for prospective graduate or professional students seeking to study or work in sustainability and energy
- Scholarships of \$5,000 each for up to 18 existing graduate or professional students working or studying in areas of energy or sustainability who do not have access to year-round employment or funding opportunities

## Faculty Chairs

Ohio State Energy Partners provided \$9.5 million to support five chaired faculty positions at Ohio State.

With this funding, Ohio State created five endowments and the EACC developed recommendations approved by the Provost in FY18 for targeted areas for hiring:

- The \$3.5 million ENGIE-Axium endowed dean's chair supports innovative and contemporary programs and initiatives for graduate students. Alicia L. Bertone was named vice provost for graduate studies, effective April 2018, and was officially named the ENGIE-Axium endowed dean in August 2018.
- The two ENGIE-Axium endowed chairs (\$2 million each) will support academic leaders focused on Sustainable Materials



Alicia Bertone presents at a recent “Intersections” event for Advancement.

and Secure and Resilient Energy Systems. Search committees were appointed for both chairs in FY19.

- The two ENGIE-Axium endowed professorship funds (\$1 million each) will support academic leaders focused on Energy and Ecosystem Public Policy and Innovations in Energy and Environment through Humanities and Culture. Searches for these positions will begin in FY20 or FY21.

## Sustainability Projects

The ENGIE-Axium Sustainability Projects Fund, a \$15 million endowment to enhance sustainability on our campuses, supports sustainability projects that fall outside the scope of any contractual requirements. The endowment now provides an ongoing funding source for the Ohio State Sustainability Fund (OSSF), which is used to provide grants to faculty and staff members for sustainability projects that positively impact an Ohio State campus. The Sustainability Institute manages the Ohio State Sustainability Fund with review and advice from the President and Provost's Council on Sustainability.

The first funding from this new endowment supported an innovative project submitted by The Ohio State University Wexner Medical Center's data center to reduce energy use (and related greenhouse gas emissions) and hazardous waste generation. Currently, the data center relies upon a lead-acid

battery bank. By converting to a lithium ion battery bank, the data center will extend the lifespan of the batteries at a higher temperature point, which will result in less battery waste and energy needed to cool the battery bank.

Other funded projects include a pilot project to determine the benefit of hand dryers over paper towels in restrooms; developing solutions for making use of food waste on campus; and support toward understanding the Columbus campus' urban heat island effect. A complete list of projects funded in FY19 can be found in Attachment B.

## Curriculum and Staff Enhancements

The \$5 million ENGIE-Axium Sustainability Curriculum and Staff Endowment was created to enhance teaching and learning with respect to sustainability. The Executive Vice



A pilot project to replace restroom paper towels with hand dryers expects to divert 161 tons of waste from landfills and save \$50,000 annually.

President and Provost assigned the use of this endowment to the new Sustainability Institute, launched in January 2019.

The Sustainability Institute used this funding in FY19 to:

- Hire a new program coordinator for Sustainability Learning
- Support the work of the Sustainability Education and Learning Committee
- Fund seven student research initiatives and projects related to sustainability
- Enhance student programming in sustainability

## Internships

Under the concession agreement, OSEP is required to employ at least 10 students each fiscal year. Ohio State assigns a value of \$100,000 a year to this commitment. During FY18, OSEP employed 11 student interns on a variety of projects, ranging from community engagement to data analysis. In FY19, OSEP employed 10 interns and sent six additional MBA students from the Fisher College of Business to work with the ENGIE Lab CRIGEN team from May 6 to 24, 2019, in Paris, France.



Fourth-year student Peri Turk, who is interested in ecological engineering, worked with ENGIE in Columbus over the summer assisting the Capital Expansion team with acquiring construction and design services as well as with overall project execution.

“These internships make you feel like you’re actually making a difference,” Turk says. “Having reports and visible numbers allows you to see how your work is making an impact at Ohio State.”

Peri Turk

## Visionary Project – Energy Advancement and Innovation Center



OSEP’s academic collaboration package included the creation of a \$50 million Energy Advancement and Innovation Center on campus. The center will create a hub where faculty members, students, alumni, ENGIE researchers, local entrepreneurs and industry experts work together on the next generation of smart energy systems, renewable energy and green mobility solutions.

Planning for the Energy Innovation Center is led by the Visionary Project Advisory Committee (VPAC). Jay Sayre, Assistant Vice President in the Office of Research and Director of Innovation in the Institute for Materials Research, chairs the committee, which comprises Ohio State, OSEP and Columbus community members. In February 2019, the Board of Trustees approved spending \$3 million to design the Energy Advancement and Innovation Center. The Center is expected to consist of myriad spaces on multiple floors, including a section for ENGIE’s 12th global R&D facility, all housed under a canopy of solar panels.

The center will be one of a pair of buildings, along with the Interdisciplinary Research Facility, located west of Kenny Road and south of Lane Avenue. Framework 2.0, the university’s long-term planning vision, identified this area for a future innovation district.

### **Philanthropic Contributions**

Beyond its upfront payments, OSEP has committed \$810,000 per year for the next 50 years in “philanthropic contributions” associated with the university.

#### *2018 Philanthropic Contributions*

In FY18, OSEP consulted with the Energy Academic Collaboration Council and chose 18 projects that support important initiatives on campus.



A \$100,000 award to the Billy Ireland Cartoon Library and Museum will be used to host a 2020 international symposium on women and gender in *bande dessinée*, the French translation for “drawn strips.”

“The timing is perfect as France’s Ministry of Culture has declared 2020 to be ‘l’année de la bande dessinée,’” says Jenny Robb, library curator. “We simply couldn’t have moved ahead with this symposium without the support of the Ohio State Energy Partners. Their generous award has positioned BICLM to promote and celebrate French-language comics through strategic collecting, transformational teaching and innovative scholarly research. We are incredibly grateful for this opportunity.”

In the College of Arts and Sciences, three faculty grants for supported creative projects, including a dance composition project by Susan Petry that will premier in spring 2020; a graduate student project led by associate professor Sebastien Proulx in the Department of Design; and a performance series, led by faculty from the Department of English, that aims to develop an evidence-based proposal for a new nonprofit performance space.

A contribution to the Office of Diversity and Inclusion supported 31 students studying abroad in a variety of programs. The demands of today’s global economy and the 21st-century skills that college graduates need to succeed in today’s job market require experiences beyond the classroom. By studying public health in Japan or agriculture, sustainability and diversity in Panama, these students enhanced their cross-cultural communication skills, deepened their global insights and perspectives, and developed self-initiative and self-awareness — all preparing them for success in their future careers.

Another philanthropic contribution enabled the STEAM Factory to create an interdisciplinary postdoctoral research program, with the Sustainable Urban Systems Scholar beginning work in Autumn 2019. The two-year postdoctoral role will focus on connecting university-led sustainability research with the broader Columbus community and beyond. For the incoming OSEP-funded scholar — and for other researchers throughout the university — the STEAM Factory is unmatched in the opportunities it presents for highly collaborative, interdisciplinary research.

And an internal grant process awarded two faculty seed grants to support sustainable energy research collaborations. One is focusing on organic materials for grid-scale energy storage in hybrid redox flow batteries to demonstrate an entirely new battery architecture. The other will develop next-generation airborne wind energy systems with significantly enhanced energy production efficiency and mobility.

These innovative and transformative projects, made possible through support from OSEP, affect and are informed by interdisciplinary areas of study, from engineering and business to arts and humanities. A broad cross-section of the university is involved in these grants, including students, faculty and researchers. The depth and breadth of OSEP’s support in just this first year is leading to changes and breakthroughs across campus.

Examples of other FY18 contributions to support campus and community projects include:

- \$100,000 to the Office of Research for an OSEP Research Seed Grant Fund in support of sustainable energy collaborations
- \$50,000 to support student sustainability initiatives through the Undergraduate Student Government and the Student Sustainability Council
- \$50,000 to support the Women in Engineering Program

### *2019 Philanthropic Contributions*

In FY19, OSEP initiated the Smart Campus Challenge, a venture capitalist-style student campus sustainability competition in which six finalist teams won \$144,000 dollars, combined, for their projects to make Ohio State's Columbus campus more sustainable. Winning projects addressed food waste, greenhouse gas emissions, diverting waste from landfills, solar energy education, recycling and energy efficiency.

The EACC in FY19 developed an online portal to obtain additional proposals for funding. Nearly 70 projects were submitted, and 19 were selected for funding, including projects from the College of Social Work, Fisher College of Business and Moritz College of Law.

Proposals that received funding include:

- A systematic ecological and economic

assessment led by the School of Environment and Natural Resources of the 1,000 acres of forest owned by Ohio State

- The creation of a more sustainable method for handling food waste generated at university residence halls and event centers, led by Waterman Agricultural and Natural Resources Laboratory
- A virtual toolkit, led by the Kirwin Institute and the Moritz College of Law, to gauge leaders' readiness and the community's ability to resolve issues related to addiction, sustainability and income inequality
- WestFest, a free public event showcasing sustainability science and outreach at Ohio State and the Columbus community
- Materials Week, a multi-day conference with more than 350 researchers from academia, industry and government labs that showcases innovative research and accomplishments of Ohio State's materials community

A complete list of funded projects funded in FY18 and FY19 is included in Attachment C.

### **Other Collaborative Academic Activities**

In addition to the funded academic collaborations, Ohio State's partnership with ENGIE-Axiom has led to other opportunities for collaboration and engagement.

For example, ENGIE has partnered with Ohio State faculty on a number of external research proposals in the areas of advanced vehicle technologies and energy efficiency and energy storage. Ohio State believes the support and engagement of ENGIE was a key to its success in a highly competitive, \$3 million National Science Foundation proposal focused on convergent graduate training in energy.

ENGIE has also been a terrific partner in our efforts to develop the campus as a true living laboratory for sustainability innovation. ENGIE has contributed many hours of staff time and guidance assisting

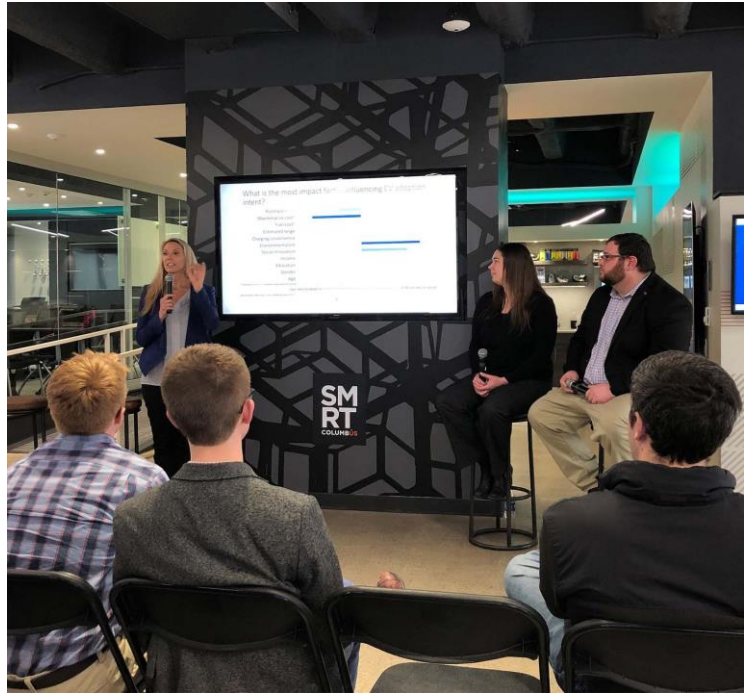


Smart Campus Challenge student team Wasted Opportunities traveled to Paris to meet with ENGIE executives.

faculty associated with our Environmental and Social Sustainability Lab to develop projects to assess students' knowledge and behaviors related to sustainability.

In addition, ENGIE leaders have guest lectured in multiple classrooms and provided tours of campus facilities to better educate students, faculty and other university partners.

Finally, ENGIE has also been a partner on many campus and external events ranging from the Research and Innovation Series: SMART=Energy to "Buck-i-Frenzy" to HackOHI/O.



SMART=Energy panel discussion on campus transportation

# Attachment A

## Committee Memberships

### **Energy Academic Collaboration Council (EACC)**

- Kate Bartter, Executive Director, Sustainability Institute, Office of Academic Affairs
- Jeff Bielicki, Associate Professor, Civil, Environmental and Geodetic Engineering and Knowlton School of Architecture, College of Engineering
- Molly Ranz Calhoun, Associate Vice President, Student Life
- Kip Curtis, Associate Professor, Environmental History, Mansfield Campus, College of Arts and Sciences
- Claudia Turro, Professor and Chair, Chemistry and Biochemistry, College of Arts and Sciences
- Elena Irwin, Faculty Director, Sustainability Institute; Professor, College of Food, Agricultural, and Environmental Sciences; VPAC designee
- Cathann Kress, Vice President of Agricultural Administration; Dean, College of Food, Agricultural, and Environmental Sciences
- Randy Moses, Senior Associate Vice President, Research Administration; VPAC Chair designee
- Keith Myers, Senior AVP of Physical Planning, Administration and Planning; VPAC designee
- Stephen Post, President, Council of Graduate Students
- Scott Potter, Senior Director, Energy, Business and Finance
- Giorgio Rizzoni, Director, Center for Automotive Research; Professor, Mechanical and Aerospace Engineering, College of Engineering
- Sara Rubin, Vice President of Development, Advancement
- Jay Sayre, Assistant Vice President, Materials and Manufacturing Sustainability; VPAC designee
- David Staley, Associate Professor, History, and Adjunct Associate Professor, Design, College of Arts and Sciences; Associate Professor, College of Education and Human Ecology
- Jordan Vajda, President, Inter-Professional Council
- Richie Waino, Undergraduate Student Government
- Peter Ward, Senior Associate Dean, Fisher College of Business
- David Williams, Executive Dean of the Professional Colleges; Dean, College of Engineering

### **Visionary Project Advisory Committee (VPAC)**

- Jay Sayre, VPAC Chair, Assistant Vice President, Materials and Manufacturing Sustainability, The Ohio State University
- Elena Irwin, Faculty Director, Sustainability Institute; Professor, College of Food, Agricultural, and Environmental Sciences
- Randy Moses, Senior Associate Vice President, Research Administration
- Keith Myers, Senior AVP of Physical Planning, Administration and Planning, The Ohio State University
- Serdar Tufekci, Chief Executive Officer, Ohio State Energy Partners
- Mike Stevens, Chief Innovation Officer, City of Columbus

# Attachment B

## Sustainability Projects

ENGIE-Axium Sustainability Projects Fund - FY19 Activity Total  
amount awarded: \$568,949

### **Wexner Medical Center Data Center Battery Bank - \$49,764**

Recognizing the amount of its energy use and waste generation, the Wexner Medical Center seeks to continuously improve the environmental footprint of its data center. Through this grant funding, the Medical Center will replace its current lead-acid battery bank with a lithium-ion battery bank. Given the longevity of lithium-ion batteries and their ability to withstand higher temperatures and lower failure rate compared to lead-acid batteries, this change will reduce energy use and hazardous waste generation, save over \$10,000 annually and improve the safety of the battery bank.

### **Innovating Organic Waste Solutions - \$169,280**

An interdisciplinary team across university academic units, operational units, on-campus partners (including ENGIE) and external experts, led by Brian Roe, a professor in the College of Food, Agricultural, and Environmental Sciences, was awarded funding to determine if two separate technologies can be married together to beneficially use the university's Columbus campus generated organic waste (including food waste). The approach would enable new academic research and circular economy by-product innovation, advancing the university's sustainability research and zero waste goals.

The team will assess the use of organic waste for two intertwined outcomes:

- as a food source for black soldier fly larvae to both reduce the volume of bulk organic waste and grow the larvae into a supplemental protein source for human and animal nutrition, and
- to provide feedstock for a biodigester to supply alternative energy to the black soldier fly larvae growing facility.

### **Columbus Campus Urban Heat Island Effect - \$149,905**

To help measure the beneficial impact of the university's ecosystem services goal, the Byrd Polar and Climate Research Center and the Department of Geography partnered on this effort to determine the Columbus campus' urban heat island effect. In addition to developing a campuswide metric to monitor over time, this proposal will add to the developing academic literature on appropriate methodology of measuring urban heat islands (an area of growing social concern under climate change) while also creating an ongoing project-based learning opportunity for geography students to participate in data collection and analysis methods using the Columbus campus as a living lab.

### **Zero Waste Hand Dryer Phase II - \$200,000**

Paper towels represent almost 9% of the university's total landfill waste stream. During a pilot project to reduce paper towel waste, Facilities Operations and Development (FOD) transitioned 11 Columbus campus building restrooms to hand dryers. The pilot proved successful, saving operational costs and reducing the amount of waste generated by 161 tons. To expand the effort, FOD identified additional high-priority opportunities to convert restroom paper towel dispensers with hand dryer units that will reduce the university's overall waste generation by about 5%, with an annual cost savings that will generate a five-year return on investment. The project also provides the university with a beneficial sustainability communications tool in an unexpected location, as the hand dryers are branded with sustainability zero waste messaging.

# Attachment C

## OSEP FY2018 Awards

OSEP FY2018 AWARDS		
Theme	Amount	College/Unit
Billy Ireland Cartoon Library & Museum	\$ 100,000	University Libraries
OSEP Research Seed Grant Fund	\$ 100,000	Office of Research
Student Organizations	\$ 60,000	Office of Student Life
Arts and Humanities	\$ 50,000	College of Arts and Sciences
Collegiate Recovery Community	\$ 50,000	Office of Student Life
Environment, Economy, Development, and Sustainability Program	\$ 50,000	College of Food, Agricultural, and Environmental Sciences
The Ohio State Fund for Diversity and Inclusion	\$ 50,000	Office of Diversity and Inclusion
STEAM Factory	\$ 50,000	STEAM Factory
Student Projects Fund	\$ 50,000	Office of Student Life
Undergraduate Student Government Sustainability Committee	\$ 50,000	Office of Student Life
Women in Engineering Program	\$ 50,000	College of Engineering
Distinguished Teaching Fellows	\$ 30,000	Fisher College of Business
Distinguished Staff and Faculty Recognition Awards	\$ 30,000	Fisher College of Business
Climate Engagement Forum	\$ 25,000	Sustainability Institute
Byrd Polar - Ellen Mosley Thompson	\$ 25,000	Byrd Polar and Climate Research Center
Women on Fire Retreat	\$ 20,000	Office of Student Life
Ohio State Materials Week	\$ 10,000	Institute for Materials Research
Ottoman and Turkish History Lesson Series	\$ 10,000	College of Arts and Sciences

OSEP FY2019 AWARDS		
Campus Student Sustainability Challenge <i>Wasted Opportunities</i>	\$ 54,000	College of Food, Agricultural, and Environmental Sciences
<i>Search for Trees</i>	\$ 40,000	Office of Administration and Planning
<i>Solar Bus Stop</i>	\$ 20,000	Transportation and Traffic Management
<i>Faci</i>	\$ 10,000	Fisher College of Business
<i>Surfactant Addition</i>	\$ 10,000	College of Engineering
<i>We CAN Change the World</i>	\$ 10,000	Office of Student Life
Ohio State Forest Research	\$ 80,000	College of Food, Agricultural, and Environmental Sciences (School of Environment and Natural Resources)
Virtual Toolkit for Community Resilience	\$ 70,000	Kirwin Institute and Moritz College of Law
Waterman Farm Sustainable Food-Waste Disposal Project	\$ 70,000	College of Food, Agricultural, and Environmental Sciences (Waterman Agricultural and Natural Resources Laboratory)
Create Education Abroad Access and Affordability Initiative	\$ 50,000	Office of Diversity and Inclusion
REACH for Commercialization	\$ 50,000	Ohio State ADVANCE and Office of Research
Women in Engineering	\$ 50,000	College of Engineering
Distinguished Teacher Fellows	\$ 30,000	Fisher College of Business
Staff and Faculty Recognition Awards	\$ 30,000	Fisher College of Business
Student Experiential Learning Programs	\$ 30,000	Center for Automotive Research
WOSU	\$ 25,000	WOSU Public Media

Mirror Lake Water Science Learning Lab	\$ 24,000	College of Arts and Sciences (School of Earth Sciences)
Scholarly Research Database	\$ 24,000	College of Arts and Sciences (Department of English)
Music and Science Colloquium and Teaching Seminar	\$ 13,500	College of Arts and Sciences (School of Music)
Campus Bike Parking at Kottman Hall	\$ 10,000	College of Food, Agricultural, and Environmental Sciences (School of Environment and Natural Resources)
LiFEsports Youth Leadership Academy	\$ 10,000	College of Social Work
Ohio State Materials Week Conference	\$ 10,000	Institute for Materials Research
National Dance Collaboration	\$ 10,000	College of Arts and Sciences (Department of Dance)
WestFest	\$ 8,000	Byrd Polar and Climate Research Center
Engineering Recharge Retreat	\$ 2,000	College of Engineering
2019 Community Engagement Conference: Partnering for a Resilient and Sustainable Future	\$ 900	Office of Outreach and Engagement