

THE UNIVERSITY OF MISSISSIPPI'S BUDGET-NEUTRAL SOLUTION TO UPGRADE INFRASTRUCTURE

DEAN HANSEN AND TEAM LEAD ESPC, UNITING CROSS-DEPARTMENTAL
LEADERSHIP TO MODERNIZE AGING FACILITIES, EXPAND EDUCATIONAL
PROGRAMS, AND CREATE OPPORTUNITIES FOR STUDENTS



THE UNIVERSITY of
MISSISSIPPI

The University of Mississippi, “Ole Miss,” is known for its football and is home to what many consider the most renowned tailgating spot in the SEC. On game days, 100,000 fans flood Oxford, which more than quadruples the town’s population. Fans line the Grove, a 10-acre field in the center of campus shaded by towering oak, elm, and magnolia trees, to celebrate the deep-rooted tradition of Ole Miss football.

Surrounding the Grove is the historic architecture, standing as a testament to the university’s legacy. The stately white columns of the Lyceum, the university’s oldest building, watch over the campus just as they have since 1848. Red-brick academic halls, some dating back more than a century, frame the landscape, each building full of its own stories. These buildings have witnessed generations of students pass through their doors and remain the foundation of a university that embraces academic excellence and Southern hospitality.

PRESERVING THE PAST, IMPROVING THE FUTURE

The Ole Miss Physical Plant team, now called Facilities Management, has been the backbone of the campus infrastructure operations for decades. Established in 2014, Facilities Management oversees the upkeep of more than 220 buildings across 3,400 acres and manages the university’s central plant. Their work includes everything from restoring century-old facades to modernizing infrastructure in ways that respect and preserve the university’s historic character.

However, with historic buildings come unique challenges—particularly in energy efficiency and infrastructure performance. Many of Ole Miss’s oldest structures were built long before modern efficiency standards, leaving them with aging HVAC systems, outdated lighting, and poor insulation. While these buildings add to the charm and identity of the campus, they also contribute to higher energy consumption and increased maintenance needs.

A COLLECTIVE VISION

In 2018, Dean Hansen joined Ole Miss as the Director of Facilities Management, bringing over 25 years of experience in facilities. Before arriving at Ole Miss, he served as Director of Facilities Services at the University of Texas at Austin and Assistant Vice President of the Physical Plant at the University of Memphis, overseeing large-scale campus infrastructure and operations.

Prior to that, Hansen spent more than two decades in various facilities management roles with the U.S. Navy, where he developed expertise in strategic planning, maintenance, and operational efficiency.

Hansen has a deep understanding of the value and impact of energy-efficient operations and facilities. When arriving on campus, he quickly identified the need and urgency to implement infrastructure modernization upgrades to ensure the long-term viability of the campus.

Hansen was not alone in this vision. As he began to articulate and construct a plan to transform the campus infrastructure, a strong team formed around him, including leadership from various other departments and internal support in the Facilities department. In 2019, Hansen began to build a detailed request for proposal (RFP) for an energy savings performance contract (ESPC), which would be available for 13 pre-qualified companies in Mississippi to bid on.

LONG-TERM PARTNERSHIP

Energy savings performance contracting (ESPC) is a procurement method that enables universities and other public entities to implement energy efficiency projects with minimal upfront costs. Mississippi law mandates that public institutions, including universities, adhere to competitive bidding processes to ensure transparency and fiscal responsibility. While Mississippi’s procurement laws require competitive bidding, the “lowest and best” bid provision allows universities to consider factors beyond the initial bid price, such as life-cycle costs and energy savings. This enables institutions to select energy performance contracts that offer the greatest long-term value, aligning with the university’s financial and sustainability goals.



Senior Ole Miss Mechanical Engineering Capstone Group on a tour to the Mississippi State Trane Ice Storage System. Photo provided by Trane.
Pictured Left to Right: Dean Hansen, P.E., Director of Facilities, University of Mississippi; Jake Shackleton, University of Mississippi student (Class of 2024); Matthew Bickerstaff, University of Mississippi student (Class of 2024); Hunter Wilson, University of Mississippi student (Class of 2024); and Chad Moore, P.E., Principal, Engineering Resource Group, Inc.



Nancy McBee, Business Development Manager - Energy Services, Trane

“In my 30 years in this industry, Ole Miss stands out as one of the most sophisticated clients I’ve had the privilege to work with. The combination of Dean, Mike, Lonnie, and Hughes is a remarkable convergence of talent, experience, and dedication.”



Dean Hansen, Director of Facilities Management, University of Mississippi
Photo by Bill Dabney

This opened the door for Hansen and the Facilities Team to engage a long-term partner. After a thorough evaluation and review of the submitted proposals, the university partnered with the energy service company Trane in 2021.

Over the next four years, the university planned and initiated an unprecedented multi-phase campus-wide modernization project that became deeply embedded in the institution. Interestingly, a benefit of an ESPC model is its flexibility, which the university took advantage of by pulling some one-time projects they were eyeing under the ESPC to move quicker on execution and utilize time-sensitive funding.

Fast-forward to the spring of 2025. Four phases of the ESPC have been completed, with the fifth phase in the works. In addition to the operational efficiencies, infrastructure upgrades, and a substantial reduction in energy costs for the university, many students have benefited from hands-on experience through the various student involvement opportunities.

Energy Services Media (ESM) sat down with Dean Hansen and three of the key individuals who are driving this project and bringing it to life to learn about the early stages of project development, challenges, impact, and student engagement.

ESM: *Why did the university explore a performance contract, and what factors drove that decision?*

Hansen: At my previous institution, I was privileged to be part of a department and a unit that was very energy efficient in terms of how the campus used and tracked energy. We understood the energy that was coming in, how it was being used, and how it was going out to the various buildings and processes.

When I got here six years ago, initial reviews of the different campus buildings showed that there was a lot of opportunity for energy conservation and energy efficiency, and so that was really the driving factor in why we chose to pursue a performance contract—it was for energy efficiency.

ESM: *What were the key benefits of using an energy savings performance contract?*

Hansen: The primary benefit of an energy savings performance contract is the fact that we can get projects done without having to use our own capital dollars to pay for them, so they get paid for over time through the savings that are generated by the energy conservation measures that we implement.

ESM: *How did you gain stakeholder alignment for the project?*

Hansen: When we first considered the project, we were approached by multiple ESCOs. That presented an opportunity for us to do a competitive procurement, an RFP. I spent quite a bit of time doing research and writing an RFP that fit the needs of our campus, which we were then able to compete with multiple firms.

The concept of an energy savings performance contract essentially sells itself. So, when presenting this to the institution's CFO, he saw the vision right away and understood the financing mechanism and how it worked.

Approval was also required from the Institutions of Higher Learning (IHL) in Mississippi. Since it had been a long time since any university had undertaken a performance contract, there was quite a bit of information sharing and discussion at the board and staff levels before it was approved.

One of IHL's mechanical engineers on staff came down to take a look at the project, get to know our team and the university as well as Trane's partnership and involvement, and understand how the cash flow and the financing works.

ESM: *Did you leverage any external resources when developing the ESPC?*

Hansen: Yes, I relied heavily on the Department of Energy's website, incorporating many of their model documents into our RFP and contract structure.

ESM: *How has this project impacted the university's budget?*

Hansen: While the total value of the projects is small relative to the university's overall budget, within facilities it has been pretty significant. We spend about \$12 million a year on utilities; when we save money, we do not need to increase the budget year over year. It has allowed us to keep our utilities budget flat despite increased enrollment and a growing building footprint.

ESM: *What advice would you give to other university facilities teams considering an ESPC?*

Hansen: For other universities that are considering an ESPC, I can't emphasize enough the value of preparation going into it. Educate yourself on the process, financing mechanisms, and contract details.

Some schools and agencies may not have the expertise or resources to fully navigate the complexities of energy performance contracts, which can leave them vulnerable to less-than-ideal agreements. I've seen cases where schools have faced challenges due to a lack of information about the process. That's why research is so important—understanding what a project entails, setting clear expectations, and even knowing the right questions to ask from the start.

This is especially true for some K-12 schools, where staffing and experience in facility management can be limited. In these cases, working with a third-party firm that serves as an owner's representative can be incredibly valuable. These firms help schools and institutions make informed decisions, ensuring they get the best possible outcomes from their projects.

ESM: Can you speak to Tennessee Valley Authority's (TVA) role in the project?

Hansen: TVA has been an unexpected but significant benefit. Their rebate programs have provided hundreds of thousands of dollars in incentives for our projects.

The paperwork, inspections, and all the stuff that goes into qualifying and receiving those rebates—if we had to do all that on our own, we probably wouldn't be able to. Our ESCO partner has been really instrumental in helping us navigate that. They handle it from start to finish, and then the rebate checks come right to us as an added benefit.

**LOCAL UTILITY REBATE
TOTAL CONTRIBUTION
TENNESSEE VALLEY AUTHORITY**

| | |
|---------------------------|---------------------------|
| PHASE 1 - PHASE 4: | PHASE 5: |
| ~\$300K | ESTIMATED |
| | \$630K |
| | (PENDING APPROVAL) |



*Mike Dunnivant, Associate Director of Facilities Operations, University of Mississippi
Photo by Bill Dabney*

Mike Dunnivant is the Associate Director of Facilities Operations with 40-plus years of experience in facilities management. Dunnivant has been a critical resource in the development and implementation of the energy savings performance contract.

ESM: What were you looking for in an ESCO partner?

Dunnivant: We wanted a long-term strategic partner—not just a vendor completing isolated projects. Our goal was to have an integrated approach to campus energy management, ensuring all initiatives worked together efficiently.

Experience, stability, and a willingness to engage with students were also key criteria.

ESM: What were some challenges you faced, and how did you address them?

Dunnivant: With any project, there were a few things missed in the audits, but for this reason, we had built in a contingency budget. As we progressed through phases, we adjusted based on what we learned, but we stayed within our contingency budget.

One of the more complex challenges of taking on a project like our LED lighting upgrade—even to a lesser degree, the controls—was managing the work in occupied campus buildings. Careful scheduling and clear communication with occupants were essential. It was important to inform them in advance about what was happening to avoid any surprises.

For the LED project alone, we upgraded nearly 50,000 fixtures across 94 buildings, and without proper planning and management, it could have been disruptive. However, we received overwhelmingly positive feedback once we explained the benefits—improved lighting, lower energy costs, and reduced long-term maintenance. As we moved from building to building, the response was largely positive.

A project of this scale requires extensive communication because we're dealing with thousands of people—faculty, staff, and even students in classrooms. From the start, we focused on getting communication right.

At Ole Miss, we had strong support from the Chancellor's Office and the Vice Chancellor for Administration and Finance. We also worked closely with our system of building mayors or managers, who served as key contacts to distribute information and address questions. Some concerns came up, like whether LED lighting would cause headaches or be too bright. But during that same period, a separate project, we also constructed new buildings with all-LED lighting, and people walked in without noticing a difference.

However, in buildings where older fluorescent lighting had deteriorated, the contrast was striking. We had people step off the elevator and wonder if they were in the right building because the colors and lighting levels had changed so dramatically. The difference was immediately noticeable.

ESM: How does working with an ESCO differ from traditional contracting?

Dunnivant: We took a long-term big-picture approach to this project, and an ESCO could provide that long-term partnership because you can't do it all at once; it depends on annual funding. There is always a backlog of projects, whether it's mechanical equipment upgrades, controls improvements, or other infrastructure needs.

When projects are done piecemeal, as they were for decades here, you end up with a patchwork of systems that don't integrate well. We wanted a partner who truly understands the campus and the business—one that learns the campus and becomes a long-term collaborator, not just with facilities management but also with other key groups, like our engineering departments and the Facilities Planning Department.

It's not just about addressing current needs; it's about planning for the future—considering our new central plant under construction, the new electrical substation, and our evolving energy demands. We needed a contractor who takes a holistic approach, looking beyond a single project to a long-term strategy rather than completing a contract and potentially disappearing for years.

ESM: *How has staff training factored into the project?*

Dunnivant: Our staff has received training, especially on the controls side—both from the current energy services contractor and the controls vendor—which has been extensive.

We had been using older-generation building automation systems on campus, and our team was accustomed to the old-fashioned coding methods that had been in place for decades. Now, with modern systems largely shifting to drag-and-drop programming, it was a completely new experience for them. There was some initial resistance, but we made a point to include them in the process early on to gain their buy-in. Over time, they've really embraced the new system and appreciate its benefits.

The controls contractor has also provided hands-on training, bringing in actual setups for them to work through various phases of the system. They've gained a much deeper understanding of how it all works. So far, we have six or eight buildings running on the new system, with plans to migrate another 100 or so over the next few years. The controls training has been a significant effort, and it's been instrumental in the transition.

STUDENT INVOLVEMENT

Real-world experience leads to full-time placement for students

The University of Mississippi's energy savings performance contract (ESPC) has evolved into a broader collaboration. Alongside critical energy efficiency upgrades, the initiative has provided hands-on learning experiences for students in engineering, business, and sustainability programs.

Engineering Engagement: Senior capstone projects have incorporated real-world campus energy challenges, allowing students to analyze and propose solutions that align with ongoing infrastructure improvements. Several participants have transitioned into full-time roles in the industry.

Business Collaboration: Marketing students explored the feasibility of a potential solar PV project, gaining experience in energy services sales and project analysis through a semester-long assignment.

Sustainability Initiatives: Micro-internships have supported data collection for the university's AASHE STARS rating, while a campus-wide digital media contest promoted awareness of a major LED lighting project.

University leaders recognize that integrating students into these efforts has strengthened the program, turning a traditional energy project into a true educational partnership.



*Lonnie Weaver, Assistant Director of Mechanical Services, University of Mississippi
Photo by Bill Dabney*

Lonnie Weaver is the Assistant Director of Mechanical Services. Prior to his role, he had worked at the university for eight years before a stint in the private sector. He has a deep knowledge of the campus's systems and is an invaluable asset to the team.

ESM: *What was the impact of the ASHRAE audit?*

Weaver: It was valuable to have Trane's expertise in areas where we don't have complete in-house capability. The immediate access to additional engineering support was especially beneficial.

From my perspective, I needed to communicate our challenges effectively. Having those issues quantified helped ensure I could do that. We had solid data to support our concerns and gained a better understanding of some existing issues—ones we knew were there but didn't fully understand.

Trane was able to identify and clarify these problems, essentially putting a name and face to them, which has been incredibly beneficial.

ESM: *Prior to 2021 what were some pain points with the facilities and equipment? How is the ESPC solving those problems?*

Weaver: Lighting was a significant focus for us, as we were spending a great deal of maintenance labor on it. We still had fluorescent lighting across parts of the campus, so upgrading to LED has been a major improvement. The lighting quality has increased, maintenance costs have decreased, and where it made sense, we implemented automation to further enhance energy savings. Overall, it's been a positive change for the campus.

ESM: *What infrastructure upgrades are a part of this project?*

Weaver: In addition to lighting, we've also completed some control projects as part of this effort. Right now, much of the audit is focused on mechanical systems, which involve substantial work. Like many college campuses, we have a significant backlog of deferred maintenance—there's a long list of projects that need attention.

This type of project, and the performance contract model, provides an opportunity to address those issues in ways that capital funding alone couldn't. Capital budgets can only stretch so far, and leveraging this approach has been a major financial benefit to the campus.



Hughes Miller, Senior Director of Industry Engagement, University of Mississippi
Photo by Bill Dabney

Hughes Miller is the Senior Director of Industry Engagement, supporting comprehensive partnerships between industry and the University of Mississippi around research, philanthropy, community engagement, and innovation.

ESM: *What was the evolution of Trane’s involvement with student-related initiatives? How did the opportunity present itself, and how has it evolved?*

Miller: Early on, Nancy McBee, our liaison with Trane, initiated a series of meetings. It started with an introductory session with our engineering school, where I was invited to step in and explore how we could develop a stronger relationship. Nancy shared the scope of Trane’s work on campus while also expressing interest in broader engagement with the university beyond its ESPC.

We discussed how Trane could align with our programs, from recruiting students and building a talent pipeline to engaging in the classroom and collaborating with faculty on curriculum development. As a public university, we also have an obligation to serve our surrounding communities, so we worked with Trane Technologies Foundation and Corporate Social Responsibility teams to identify common goals that the university could partner around.

ESM: *Can you describe the real-world experience these students are gaining and why these opportunities are important?*

Miller: One of our early discussions focused on how Trane could support our educational mission. An obvious way to engage and work with the engineering school and get involved in the classroom is through senior projects, which was identified as an early next step.

Working with colleagues and faculty in the engineering school, we took a look at Trane’s interests and existing projects they had in place at the university to understand how they could tie into student learning.

It is something that continues to see success for both organizations. Trane has built strong visibility among university

students, which has developed an emerging talent pipeline for them. Our students have benefitted from applied learning and professional development programs Trane representatives have helped facilitate, from being able to go on-site and see different facilities that we have at the university that a lot of students probably don’t even realize are here to some great career opportunities, from internships to full-time hires for our students.

ESM: *What is the future of these student-related initiatives, particularly those aligned with the performance contracting project?*

Miller: I think it will always go back to what type of projects Trane has in place with the facilities management team, but it’s only poised to grow. Initially, we started with the projects we had in place, but then we realized we were looking at all this energy data. That resulted in our students getting involved in data science classes. So, as Trane’s relationship and involvement with the university continue to expand and evolve into future phases, as I think it has already done, we are going to keep seeking other ways to involve them in our educational programs.

The project is already showing results, and its full impact is poised to grow even further as the university is set to launch the fifth phase in April, which includes chilled water loop correction and optimization, building automation systems, major HVAC upgrades, and duct sealing.

The university’s success is due to many factors, but the primary factor is leadership across departments. From senior leadership to boots-on-the-ground technicians, everyone is aligned on the value, opportunity, and vision. This can be attributed to the foundation Hansen, Dunnivant, Weaver, and Miller laid in the early stages of the development and implementation of the ESPC and their engagement with the university’s energy service company partner. ❁

DEPARTMENTS ENGAGED IN THE ESPC

- Facilities Management
- Facilities Planning
- Procurement
- Office of the Chancellor
- Office of Finance & Administration
- Business Office
- School of Engineering
- School of Business Administration
- Office of Sustainability
- Ole Miss Data Science Institute
- Division of Outreach
- Office for Research and Economic Development

Ole Miss Large-Scale Energy Savings and Building Infrastructure Modernization Project Structure

To date, the ESPC includes five phases to align with financial and operational priorities.



PHASE 1

Awarded | **October 2022**
 Construction Phase Completed | **June 2023**
 Contract Term | **20 years** Contract Value | **\$5.9M**
 Total Projected Savings | **\$1.46M (\$73k/year)**
 Rebate Amount | **~\$72,000**
 Federal Grant Funding | **\$5.9M HEERF Funds**

In the Fall of 2022, Higher Education Emergency Relief Funds (HEERF) became available for ALC control upgrades in 3 buildings; in order to use the funding before they expired, the university decided to pull the scope under Phase 1 of the ESPC. *This is a non-traditional approach; typically, projects are awarded after the Investment Grade Audit (ASHRAE Level III) is completed and reviewed by a 3rd party, but it was critical for the university to move quickly to take advantage of the funds.*

ECMS

Direct digital controls installation on 3 campus buildings – upgrading from old pneumatic controls systems, coil cleaning and retro-commissioning.

PHASE 2

Awarded | **February 2023**
 Construction Phase Completed | **February 2025**
 Contract Term | **20 years** Contract Value | **\$9.9M**
 Total Projected Savings | **\$13.80M (\$690k/year)**
 Rebate Amount | **~\$260,000**

Once the lighting audit was completed during the ASHRAE Level II audit, it did not require a 3rd party Investment Grade Audit review, so the university decided to move forward with LED Lighting for 93 campus buildings.

ECMS

LED Lighting Upgrades and Lighting Controls on 93 campus buildings, ~4.3M square feet.

PHASE 3

Awarded | **August 2023**
 Construction Phase Completed | **November 2024**
 Contract Term | **1 year** Contract Value | **~\$1.9M**
 Total Capital Avoidance Amount | **\$1.9M**

At the time Trane was completing its audits, the university was designing a new 3,000-ton chilled water plant to add to its loop. For the new chiller plant to keep the project timeline intact and ensure the university received the most efficient equipment with the lowest total lifecycle cost rather than just the lowest first cost, the university elected to use the ESPC project.

ECMS

(2) 1,500 ton Centrifugal Chillers & (2) 250 ton Heat Recovery Chillers for new Central Plant still under construction.

PHASE 4

Awarded | **April 2024**
 Construction Phase Completed | **February 2025**
 Contract Term | **12 months** Contract Value | **\$350,000**
 Total Capital Avoidance Amount | **\$300,000**

Specialized lighting project, the university opted to treat it as a separate phase.

ECMS

Specialized LED Lighting for House Lighting in Ford Theater.

PHASE 5 (DEVELOPED)

Awarded | **Projected April 2025**
 Construction Phase Projected Start | **Projected April 2025**
 Construction Phase Projected Complete | **Projected November 2026**
 Contract Term | **19 years** Contract Value | **~\$10M**
 Total Projected Savings | **\$10.58M (\$556k/year)** Rebate Amount | **~\$630K**

ECMS

Chilled Water Loop Correction & Optimization, Building Automation Systems on 15 buildings and 4 chiller plants, major HVAC upgrades at 4 campus buildings, and Aeroseal duct sealing at 7 buildings.