University of Alabama System
Board Rule 415 (2/2005)
Board Submittal Checklist Criteria

*** Board Submittal Checklist No. 2**
Capital Project – Stage I and Stage II Submittals/1
(General Information Package and Architect Ranking) /8

Campus: The University of Alabama
Project Name: Campus Energy Delivery Optimization and Efficiency Project
UA Project #: UTL-22-2811
Meeting Date: November 4 – 5, 2021

* ☒ 1. Completed Board Submittal Checklist No. 2
☒ 2. Transmittal Letter to Chancellor from Campus President requesting the project be placed on the agendas for the forthcoming Physical Properties Committee and Board of Trustees (or Executive Committee) meetings
☒ 3. Proposed Board Resolution requesting approval of Stage I and II Submittals (General Information, Architect Ranking, Project Scope and Project Budget; authority to proceed with Owner/Architect contract negotiations)
☒ 4. Campus correspondence/photos providing supporting project information
☒ 5. Completed Executive Summary – Proposed Capital Project./2
☐* 6. Executive Summary - Architect, Engineer, Selection process (include Interview Outline). /3, /4, /5
☐* 7. Campus letter requesting approval of the ranking of firms and authority to submit to the Physical Properties Committee for approval – signed by the Chair of the Physical Properties Committee and signed by the UA System Senior Vice Chancellor for Finance and Administration
☒ 8. Project Planning Report /2
☐ 9. Preliminary Business Plan (if applicable) /7
☒ 10. Campus map(s) showing Project site

*This Project is being submitted as a Request for a Waiver of the Consultant Selection process

Additional document for Stage I:
☒ 11. Completed Supplemental Project Information Worksheet – Attachment "K", Board Rule 415

Prepared by: _____

Approved by: Tim Leopard

/1 Reference Tab 3H - Board Rule 415 Instructional Guide
/2 Reference Tab 3E - Board Rule 415 Instructional Guide
/3 Reference Tab 3K - Board Rule 415 Instructional Guide
/4 Reference Tab 3L - Board Rule 415 Instructional Guide
/5 Reference Tab 3M - Board Rule 415 Instructional Guide
/6 Reference Tab 3N – Board Rule 415 Instructional Guide
/7 Reference Tab 3V – Board Rule 415 Instructional Guide
/8 After completion of negotiations on Owner/Architect Agreement provide notification to Chair of the Physical Properties Committee and UA Senior Vice Chancellor for Finance and Administration. Reference Tab 3-O-Board Rule 415, Instructional Guide

* Basic documents required for this Board Submittal Package. Include other supporting materials, correspondence, etc., as may be required to fully describe or illustrate project being submitted for approval to Physical Properties Committee and Board of Trustees.

THE UNIVERSITY OF ALABAMA® | Office of the President

October 6, 2021

Chancellor Finis E. St. John IV
The University of Alabama System
500 University Boulevard East
Tuscaloosa, Alabama 35401

Dear Chancellor St. John:

I am pleased to send to you for consideration by the Board of Trustees at its November 4-5, 2021 meeting the following resolution:

- Board Item – Action: Stage I and Stage II, Waiver of Consultant Selection Process Submittals: Campus Energy Delivery Optimization and Efficiency Project, UA Project #: UTL-22-2811

Please contact us if you have questions or need additional information.

Sincerely,

Stuart R. Bell /CT

Stuart R. Bell
President

Enclosure

203 Rose Administration Building | Box 870100 | Tuscaloosa, AL 35487-0100 | 205-348-5100 | Fax 205-348-7238
president@ua.edu | http://www.ua.edu

RESOLUTION

CAMPUS ENERGY DELIVERY OPTIMIZATION AND EFFICIENCY PROJECT

WHEREAS, in accordance with Board Rule 415, The University of Alabama ("University") is requesting approval from The Board of Trustees of The University of Alabama ("University") for a Stage I submittal for the Campus Energy Delivery Optimization and Efficiency Project ("Project"); and

WHEREAS, as part of the University's master plan for thermal energy distribution, the University has previously completed the East Quad Energy Plant and the interconnection of the system with the Shelby Energy Plant and numerous building connections; and

WHEREAS, the Tutwiler Parking Deck project included space capacity for future boilers and chillers so that the University could connect to additional buildings in alignment with capital projects and deferred maintenance needs in facilities in and efficient manner by taking advantage of space that could not be used for other purposes under the main ramp; and

WHEREAS, the University was able to secure routing for the thermal piping to the Bryant Conference Center and Moody Music Area across City Right of Way, thereby eliminating the need for a stand alone facility at the Bryant Conference Center which has yielded a substantial cost savings and maintained land for other uses in that critical area; and

WHEREAS, the University desires to proceed with the connection of additional buildings at this time so as to coordinate with the support of new facilities, the need to replace systems that have reached the end of their functional service life, install piping in advance of campus paving and hardscape improvement projects, and to provide heating capacity to buildings prior to the retirement of the steam distribution system; and

WHEREAS, due to the different project delivery schedules to align with shutdowns at the seasonally appropriate time, different geographic areas of campus, and other related project's schedules, the University has deemed it appropriate to separate construction into four (4) packages: Package A–Tutwiler Energy Plant-Phase I; Package B–Bryant Conference Center and Moody Music Area Thermal Connections; Package C–Rose Administration and Doster Hall Area Thermal Connections; Package D–Gorgas Library, Oliver-Barnard Hall and Tuomey Hall Thermal Connections; and

WHEREAS, the University has focused on financial benefit and return of the work, both operating and capital expenses; performance of the system throughout the life cycle; consideration of total life cycle cost; and system resiliency and consistency of operation, while ensuring exceptional service to campus in advancing this project as the next phase of the Campus master plan for thermal energy; and

WHEREAS, the University is requesting approval to waive the Consultant Selection Process and to proceed with engineering design utilizing the services of Burns and McDonnell of Raleigh, North Carolina ("Burns and McDonnell"); and

WHEREAS, Burns and McDonnell were the design-build engineering firm and engineer of record for the East Quad Energy Plant and engineer of record for the Central Campus Thermal Energy Connections projects and, as a result, Burns and McDonnell has exclusive knowledge of the design, construction and goals of this Project as well as detailed information regarding as-installed thermal energy infrastructure locations and configurations; and

WHEREAS, the University further requests approval to accept a final proposed fee of 5.8% of the cost of construction and equipment plus $14,000 in additional services, less a credit in the amount of $100,000; and

WHEREAS, the Project location and program have been reviewed and are consistent with the master plan, University Design Standards, and the principles contained therein; and

WHEREAS, the Project will be funded from The University of Alabama Construction, Renovation, and Equipment Quasi Endowment in the amount of $22,700,000 and the College of Continuing Studies Reserves in the amount of $2,500,000; and

WHEREAS, the preliminary budget for the Project is as stipulated below:

BUDGET:	PRELIMINARY
Construction–Package A (Tutwiler Energy Plant Phase I)	$ 7,000,000
Construction–Package B (Bryant Conference Center and Moody Music Area Thermal Connections)	$ 4,700,000
Construction–Package C (Rose Administration and Doster Hall Area Thermal Connections)	$ 3,000,000
Construction–Package D (Gorgas Library, Oliver-Barnard Hall and Tuomey Hall Thermal Connections)	$ 2,700,000
Equipment (Chillers, Transformer, and Chiller Optimization)	$ 2,000,000
Landscaping	$ 650,000
Security/Access Control	$ 90,000
Telecommunication/Data	$ 90,000
Contingency* (10%)	$ 2,005,000
UA Project Management Fee** (3%)	$ 661,650
Architect/Engineer Fee*** (~5.7%)	$ 1,115,200
Commissioning Fee	$ 50,000
Other Fees and Services	$ 1,138,150
TOTAL PROJECT COST	**$ 25,200,000**

*Contingency is based on 10% of the cost of Construction Packages A, B, C,D, Equipment, and Landscaping.
**UA Project Management Fee is based on 3% of the cost of Construction Packages A, B, C, D, Equipment, Landscaping, and Contingency.
***Architect/Engineer Fee for Packages A-D fee is based on 5.8% of the costs of Construction and Equipment plus $14,000 in additional services, less a credit in the amount of $100,000.

BE IT FURTHER RESOLVED that:

1. The Stage I submittal package for the Project is hereby approved.

2. The preliminary budget for the Project as stipulated above is hereby approved.

3. Stuart R. Bell, President, Matthew M. Fajack, Vice President for Finance and Operations, or those officers named in the most recent Board resolutions granting signature authority for the University be, and each hereby is, authorized to act for and on behalf of the Board to execute an engineering design agreement with Burns and McDonnell of Raleigh, North Carolina for engineering services in accordance with Board Rule 415 for this Project.

THE UNIVERSITY OF ALABAMA® | Division of Finance and Operations
Vice President

October 18, 2021

MEMORANDUM:

To: Stuart R. Bell

From: Matthew M. Fajack

Subject: Board Item – Action: Stage I and Stage II, Waiver of Consultant Selection Process Submittals:
Campus Energy Delivery Optimization and Efficiency Project
UA Project #UTL-22-2811

Pursuant to Board Rule 415, The University of Alabama ("University") is requesting approval from The Board of Trustees of The University of Alabama ("Board") of a Stage I submittal for the Campus Energy Delivery Optimization and Efficiency Project ("Project") which will include Package A–Tutwiler Energy Plant-Phase I; Package B–Bryant Conference Center and Moody Music Area Thermal Connections; Package C– Rose Administration and Doster Hall Area Thermal Connections and Package D–Gorgas Library, Oliver-Barnard Hall and Tuomey Hall Thermal Connections.

As part of the University's Master Plan for Thermal Energy Distribution, this proposed Project will address deferred maintenance issues and improve system efficiency and reliability through utilization of the new distribution systems and infrastructure. A focus on financial benefit and return, both operating and capital expenses; performance of the system throughout the life cycle; consideration of total life cycle cost; and system resiliency and consistency of operation, while ensuring exceptional service to campus, were all key considerations of evaluating and developing the initiatives and the plan.

Additionally, Burns and McDonnell, Raleigh, North Carolina, ("Burns and McDonnell") were the design-build engineering firm and engineer of record for the East Quad Energy Plant and engineer of record for the Central Campus Thermal Energy Connections projects. As a result, Burns and McDonnell has exclusive knowledge of the design, construction, goals of this Project as well as detailed information regarding as-installed thermal energy infrastructure locations and configurations. Further, Burns and McDonnell's knowledge of preferred equipment, University Standards, design principles, and procedures will greatly facilitate the design and administrative process. Burns and McDonnell is committed to completing the design to allow the Project to proceed as scheduled to bid by early spring of 2022. Accordingly, the University is requesting a Waiver of the Consultant Selection Process for the Project.

Furthermore, the University has negotiated a proposed final design fee for Packages A-D based on 5.8% of the cost of construction and equipment plus $14,000 in additional

services, less a credit in the amount of $100,000. This proposed fee is consistent with the Alabama Building Commission fee for this type of project and reflects an overall savings in the amount of $100,000 or approximately 9%, which represents a substantial financial benefit to the University.

The Project in the total amount of $25,200,000 will be funded from The University of Alabama Construction, Renovation, and Equipment Quasi Endowment in the amount of $22,700,000 and the College of Continuing Studies Reserves in the amount of $2,500,000 and will address approximately $7,300,000 in campus deferred maintenance liabilities.

This Project location and program have been reviewed and are consistent with the Campus Master Plan, University Design Standards, and the principles contained therein.

I have attached a Letter of Approval from the Vice Chancellor for Finance and Administration and Chair of the Physical Properties Committee, Resolution, Executive Summary, Attachment K, Project Planning Report, Project Summary, and Location Map for your review. Subject to your approval, I recommend this item be forwarded to the Chancellor for inclusion as an Action item on the agenda for the Physical properties Committee at the Board of Trustees meeting scheduled for November 4 – 5, 2021.

MMF/ccj

pc w/atchmts: Michael Rodgers
Tim Leopard
Steven Mercado

EXECUTIVE SUMMARY
PROPOSED CAPITAL PROJECT
BOARD OF TRUSTEES SUBMITTAL

Meeting Date: November 4 – 5, 2021

CAMPUS:	The University of Alabama, Tuscaloosa, Alabama
PROJECT NAME:	**Campus Energy Delivery Optimization and Efficiency Project**
PROJECT LOCATION:	Tutwiler Energy Plant-Phase I; Bryant Conference Center and Moody Music Area Thermal Connections; Rose Administration and Doster Hall Area Thermal Connections; Gorgas Library, Oliver-Barnard Hall, and Tuomey Hall Thermal Connections.
ARCHITECT:	Requesting in this submittal

THIS SUBMITTAL:	**PREVIOUS APPROVALS:**
☒ Stage I	
☒ Stage II, Waiver	
☐ Stage III	
☐ Stage IV	

PROJECT TYPE	**SPACE CATEGORIES**	**PERCENTAGE**	**GSF**
☐ Building Construction			
☐ Building Addition			
☒ Campus Infrastructure	Central Utility & Mechanical	100%	N/A
☐ Equipment			
☐ Other			
	TOTAL	**100%**	**N/A**

BUDGET		**Preliminary**
Construction - Package A (Tutwiler Energy Plant-Phase I)	$	7,000,000
Construction - Package B (Bryant Conference Center and Moody Music Area Thermal Connections)	$	4,700,000
Construction - Package C (Rose Administration and Doster Hall Area Thermal Connections)	$	3,000,000
Construction - Package D (Gorgas Library, Oliver-Barnard Hall Tuomey Halls Thermal Connections)	$	2,700,000
Equipment – Chillers, Transformer, and Chiller Optimization	$	2,000,000
Landscaping	$	650,000
Security/Access Control	$	90,000
Telecommunication/Data	$	90,000
Contingency* (10%)	$	2,005,000
UA Project Management Fee** (3%)	$	661,650
Architect/Engineer Fee*** (~5.7%)	$	1,115,200
Commissioning Fee	$	50,000
Other Fees and Services	$	1,138,150
TOTAL PROJECT COST	**$**	**25,200,000**

*Contingency is based on 10% of the costs of Construction Packages A, B, C, D, Equipment, and Landscaping.
**UA Project Management Fee is based on 3% of the cost of Construction Packages A, B, C, D, Equipment, Landscaping, and Contingency.

***Architect/Engineer Fee Packages A-D fee is based on 5.8% of the costs of Construction Packages A, B, C, D and Equipment, plus $14,000 in additional services, less a credit in the amount of $100,000 for previously performed work and the waiver credit.

ESTIMATED ANNUAL OPERATING AND MAINTENANCE (O&M) COSTS:		
(Utilities, Housekeeping, Maintenance, Insurance, Other)		
Per GSF: gsf x~$ /GSF	$	N/A*
TOTAL ESTIMATED ANNUAL O&M COSTS:	**$**	**N/A***

*Central utility O&M costs are neither assigned at a facility level nor by GSF.

FUNDING SOURCE:		
Capital Outlay:		
The University of Alabama Construction, Renovation, and Equipment Quasi Endowment	$	22,700,000
College of Continuing Studies Reserves	$	2,500,000
O&M Costs: University Annual Operating fund	$	N/A

NEW EQUIPMENT REQUIRED:

(2) 1,000 Ton Chiller w/Associated Cooling Tower and Pumps

Electrical Transformer

Chiller Optimization Hardware and Software

RELATIONSHIP & ENHANCEMENT OF CAMPUS PROGRAMS:

The Campus Energy Delivery Optimization and Efficiency Project ("Project") will improve the teaching, learning, and working environments of campus constituents by providing reliable and efficient thermal energy to facilities by replacing systems which have reached the end of their functional service life. By centralizing equipment in the energy plants, the Project will free campus exterior space currently occupied by existing equipment for other uses including, but not limited to, parking, landscaping, and hardscape improvements. Furthermore, reducing the cost to provide cooling and heating to buildings will support The University of Alabama ("University") in maintaining a competitive cost of attendance.

The Project will allow the University to condition buildings more efficiently and reduce the quantity of equipment that requires maintenance thereby reducing HVAC system downtime and increasing occupant comfort. Removal of localized equipment such as cooling towers and air-cooled chillers will lower ambient noise facilities and improve campus appearance. Most importantly, this Project will increase capacity for the entire campus in an efficient and effective manner.

The Project will address significant campus deferred maintenance liabilities by replacing numerous independent systems, which are nearing or have surpassed expected service life, and will aid in the decommissioning of the steam plant.

ATTACHMENT NO. 1
Project: Campus Energy Delivery Optimization and Efficiency Project
BOT Submittals: Stage I and Stage II, Waiver of Consultant Selection Process
Meeting Date: November 4 – 5, 2021

Project Summary

CAMPUS ENERGY DELIVERY OPTIMIZATION AND EFFICIENCY PROJECT

The University of Alabama ("University") currently operates two interconnected central thermal energy plants which generate hot water for campus heating and chilled water for cooling for parts of campus. Over the years, the capacity of the two central thermal energy plants has been expanded, along with the service area, to provide efficient and reliable heating and cooling to many buildings on the campus. The proposed Campus Energy Delivery Optimization and Efficiency Project ("Project") is an initiative to enhance the effectiveness and efficiency of the system and to continue the service area expansion based on the University's Energy Master Plan. Focus on financial benefit and return of the work, both operating and capital expenses; performance of the system throughout the life cycle; consideration of total life cycle cost; and system resiliency and consistency of operation, while ensuring exceptional service to campus, were all key considerations of evaluating the initiatives and the plan.

A summary of the financial benefits from the scope of this project which reflect the goals above are as follows:

- Annual electric savings total $823,000
- Annual operational and maintenance savings total $234,100
- Total life cycle operational savings total $2,250,000
- Avoided deferred maintenance liabilities total $7,300,000
- Avoided new capital expenditures total $1,280,000 and approximately $3,500,000 is the difference of building a distinct district plant at Bryant Conference Center versus routing central thermal piping to the site as currently proposed.

Other objectives of the plan and Project include, but are not limited to, the following:

- Eliminate aged systems that are at the end of their functional system life expectancy with a focus on decommissioning deteriorating existing steam systems as quickly as possible.
- Improve operational efficiencies and resiliency by eliminating numerous single points of failure at air cooled chillers, that are less efficient and difficult to maintain and monitor.
- Minimize capital cost by eliminating redundant and stranded boiler and chiller capacity at the individual building level.
- Leverage and recognize load diversity within the University's operations by taking advantage of the highly fluctuating use of purpose-built facilities and events.
- Leverage technology to enhance the efficiency of the systems both on the demand and operational side.

- Facilitating the retirement and decommissioning of the steam system.

This Project will also improve the teaching, learning, and working environments of campus constituents by replacing systems which have reached the end of their functional service life and facilitating the provision of 4-pipe systems in buildings. By centralizing equipment in the energy plants, the Project will free campus exterior space currently occupied by existing equipment for other uses including, but not limited to, parking, landscaping, and hardscape improvements. Furthermore, reducing the cost to provide heating and cooling to buildings will support the University in maintaining a competitive cost of attendance.

In order to validate and challenge the University's preliminary plan, the University engaged Edison Energy (Edison), an independent energy efficiency consulting company. Edison's scope of work is to evaluate different Energy Conservation Measures campus-wide, including performance analysis of the Central Thermal Energy Loop. The scope of work focused on evaluation of viable improvement options in order to increase efficiency, address future load growth, and identify optimum short-and long-term approaches. The resulting recommendations provide lower cost of ownership and improve energy efficiency, while maintaining resilient and reliable space conditioning for the University's research, teaching, and residential facilities.

Edison's analysis included a comprehensive evaluation of thirteen possible central plant and thermal loop options to determine the most cost-effective approach to meet campus heating and cooling demands. The analyses consist of multiple design scenarios with accompanying equipment performance evaluations and included predictive energy savings and lifecycle cost modeling, to arrive at the optimum recommended solution. The recommended approach, described below, achieves multiple financial and facilities operational benefits:

- Optimized equipment performance resulting in significant annual energy savings over the current baseline condition;
- Lower cumulative annual operational expense by a significant reduction in the number of smaller distributed HVAC units;
- Deferred maintenance liability is minimized, and in some instances, eliminated;
- Future cost avoidance by utilizing thermal loop capacity versus installation of local equipment; and
- Avoided capital expenditures for replacement of aging distributed HVAC units.

The resulting energy savings over the modeled baseline condition resulting from this approach are calculated at $823,000 annually at full build-out. The accompanying Internal Rate of Return calculation (IRR) is a favorable 7.6%.

The Project includes four (4) packages: Package A – Tutwiler Thermal Energy Plant-Phase I; Package B – Bryant Conference Center and Moody Music Area Thermal Connections; Package C – Rose Administration and Doster Hall Area Thermal Connections; and Package D - Gorgas Library, Oliver-Barnard Hall, and Toumey Hall Thermal Connections.

Package A-Tutwiler Energy Plant-Phase I is needed to increase the connected chiller load capacity on the central thermal system necessitated by existing and future facilities forecasted to be added. The Tutwiler Parking Deck was designed to include space for the future energy plant under the first level ramp and with cooling tower space on the top level and all appropriate connections and infrastructure were preplanned and coordinated with that construction. This Package will improve the existing system's performance by adding the following equipment:

1. (2) 1000-ton new high-efficiency magnetic bearing chillers and associated high-efficiency pumps for greatly improved variable load operational efficiency.
2. (2) cooling towers to be located on the top of the Tutwiler parking deck as originally planned.
3. (2) additional secondary chilled water pumps.

The magnetic bearing chillers are much more efficient than the conventional water-cooled chillers. When the chiller optimization control system is installed, the magnetic bearing chillers can operate at their optimal load, which is 50 percent. When the magnetic bearing chillers operate at 50 percent, they use 62 percent of the energy that a standard centrifugal chiller uses at that same load. The magnetic bearing chillers will primarily run during the campus base load and the conventional water-cooled chillers will be used at peak load, which is their optimal operational range.

Package B-Bryant Conference Center and Moody Music Area Thermal Connections includes building connections to the central system as needed to provide chilled water piping to the Bryant Conference Center, Alumni Hall, Bryant Museums, and the Moody Music Building. Future consideration of the potential to connect to other buildings within the area was also given. The existing HVAC equipment in Bryant Conference Center is over thirty years old and is past the end of its functional service life and several of the air-cooled chillers at Moody are nearing the end of their service life. Package B will connect the buildings to the central system to provide an efficient and redundant HVAC system for these important buildings. The package will also remove the existing mechanical yards on the backs of both the Bryant Conference Center and the Moody Music Building, substantially reducing the existing fan and pump motor noise in and around both buildings, thereby providing real estate for other future uses.

By connecting to the campus central chilled water system this allows for future expansion of chilled water in that area of campus too. The future Alumni Hall and Bryant Conference center addition was included in the load calculation for the chilled water pipe, also Hotel Capstone was included in the chilled water pipe sizing. As part of the routing for this project, the City of Tuscaloosa preliminarily indicated that they would facilitate University easements on their right of way for the thermal piping. This will also allow the project to correct a much-needed storm drainage issue on 9th Street from 4th Avenue to 2nd Avenue. The routing of the chilled water piping will also allow for the future connection to fraternities on 4th Street, if desired.

Currently, two chillers and two cooling towers at Bryant Conference Center and one chiller at Moody Music needed to be replaced, and going forward with this Project will avoid that capital expense. Completion of this Project will result in a decrease in the annual O&M cost from approximately $247,410 to approximately $128,000, resulting in an annual savings of approximately $120,000, and will eliminate $2,300,000 in campus deferred maintenance liability.

Package C-Rose Administration and Doster Hall Thermal Connections will connect buildings the central thermal loop and facilitate removal of aged, localized HVAC equipment such as cooling towers and air-cooled chillers. Connection to the loop will allow the University to heat and cool buildings more efficiently and with lower cost of ownership. Package C scope will also reduce the quantity of equipment that requires maintenance, thereby reducing potential facility downtime, ensure occupant comfort, and avoid the future operational and capital cost associated with multiple local independent HVAC systems. Further, removal of the existing local HVAC units will lower ambient noise near key facilities and improve campus appearance. Facilities proposed for connection to the central thermal loop are Rose Administration, Doster and Adams Hall, the proposed Fashion and Design Building, and the new sorority house. This package eliminates $2,400,000 in campus deferred maintenance liability and saves $1,280,000 in avoided capital cost. Completion of this portion of the project will also result in operational savings of $52,500 annually and operational cost savings of $1,050,000 over the expected life of the equipment.

Package D - Gorgas Library, Oliver-Barnard Hall and Toumey Hall Thermal Connections is needed for the future Gorgas Library renovation and the proposed renovations of Oliver-Barnard and Toumey Halls. It is imperative that this work be completed summer of 2022 in conjunction with the City of Tuscaloosa's water line project to ensure coordination, minimize the impact of the disruption to campus operations, and to reduce costs. The hot water and chilled water pipes will be installed up to the building. The final connection will not take place during this Project. Oliver-Barnard and Toumey Hall are also being connected because of their close proximity to Gorgas Library and the thermal piping extension. Once the buildings are connected to the campus central thermal loop, this will facilitate removal of localized HVAC equipment, such as cooling towers and air-cooled chillers and exterior boilers. Connection to the loop will allow the University to heat and cool buildings more efficiently and with lower cost of ownership. It will also reduce the visual and noise impact of the air-cooled chillers and exterior boilers. This package eliminates $2,600,000 in campus deferred maintenance liability. Completion of this portion of the project will also result in operational savings of $61,600 annually, thereby reducing operational costs by over $1,200,000 over the expected life of the equipment.

Equipment - Chiller Optimization control system is needed to configure the best orientation between all the energy plants. The overall central thermal energy plant system consists of thousands of pieces of individual equipment, both inside the energy plants and inside the buildings the energy plants serve. As additional buildings are connected to the energy plant system, it becomes even more essential that the many

different components associated with the system all operate as energy efficiently as possible. Controlling the energy plants and all associated equipment in unison, whether new or existing, so the entire system operates as effectively and efficiently as possible, will result in the least amount of energy consumed, while also better meeting the cooling needs of the buildings.

The chiller optimization control system will automatically determine the best operating conditions across the entire energy plant system and dynamically adjust the energy plant equipment and the building level cooling equipment in real time, in response to changing conditions, such as weather and building occupancy. The software optimization algorithms enhance equipment performance holistically, by monitoring and controlling the operation of entire energy plant system to increase overall efficiency, not just the efficiency of a single component. The optimization software works in conjunction with the existing building automation system to operate all equipment at the lowest total possible energy consumption per ton of chilled water load.

Benefits will include lowering the University's energy costs, extending the life expectancies of the equipment, delaying capital expenditures, lowering maintenance operational costs of the system, and creating better accountability for the overall performance of the central thermal energy plant system.

University of Alabama System
Individually Distinct. Altogether Stronger.

University of Alabama System
500 University Boulevard East
Tuscaloosa, AL 35401
205.348.6432

October 6, 2021

MEMORANDUM

TO: Dr. Dana Keith, Senior Vice Chancellor for Finance and Administration
Trustee Karen Brooks, Chairwoman, Physical Properties Committee

FROM: Michael Rodgers

SUBJECT: Board Rule 415 Waiver
Architect/Engineer Selection Process
Campus Energy Delivery Optimization and Efficiency @ UA

Dr. Keith and Trustee Brooks:

Board Rule 415 provides a detailed process for the selection and approval of Architects, Engineers, and construction professionals. Campus officials are required to appoint a Selection Committee which, after careful review of all qualified firms, is to submit a ranking of the most qualified professionals to the Physical Properties Committee for approval and authorization to negotiate a Consulting Agreement.

You will find attached a request to waive this Consultant Selection Process on the above referenced project. The University would like to contract with Burns & McDonnell of Raleigh, NC based on the following:

1.) **Familiarity with the Project.** Burns & McDonnell (B&M) has been involved with energy projects on campus since 2016, serving as the design-build engineering firm and engineer of record for the East Quad Energy Plant and Central Campus Thermal Energy Connections. B&M has also performed fluid flow simulations on the current piping system and analyzed the pressure and flow characteristics of the system. This experience provides B&M with an unmatched knowledge of the University's central thermal system layout, operation, and control sequences.

2.) **Schedule Impact.** The firm's experience and knowledge of the University's preferred equipment, design guidelines and standards, and procedures will greatly facilitate the design and administrative process. B&M has committed to complete the designs this winter to allow the projects to be bid in February 2022.

3.) **Financial Impact.** The University has negotiated a design fee based on the following:
Package A – 6.1% cost of construction and equipment (budgeted @$9,000,000.00); $8,400 additional services; $67,400 credit.
Package B – 6.4% cost of construction (budgeted @ $4,700,000.00); $5,600 additional services; $14,600 credit.
Package C - 6.7% cost of construction (budgeted @ $3,000,000.00); $9,000 credit.
Package D - 6.7% cost of construction (budgeted @ $2,700,000.00); $9,000 credit.

The negotiated fee represents a savings of approximately $100,000.00 or approximately 8.55% off the allowable fee for this type of project.

I have reviewed this request and the associated documentation and recommend approval by the Senior Vice Chancellor and the Chairwoman of the Physical Properties Committee. Thereafter, campus officials will be authorized to proceed in negotiating a Consultant Agreement with the preferred firm.

Sincerely,

Michael Rodgers

Michael Rodgers
Assistant Vice Chancellor for Construction Management

THE UNIVERSITY OF ALABAMA® | Division of Finance and Operations
Vice President

October 5, 2021

Dr. Dana S. Keith
Senior Vice Chancellor for Finance and Administration
Sid McDonald Hall
500 University Boulevard, East
Tuscaloosa, AL 35401

Trustee Karen Brooks
Chair, Physical Properties Committee
2555 14th Street, East
Tuscaloosa, AL 35404

RE: Request for Waiver of Consultant Selection Process
Campus Energy Delivery Optimization and Efficiency Project
UA Project # UTL-22-2811

Dear Dr. Keith and Trustee Brooks,

Burns and McDonnell, of Raleigh, North Carolina ("Burns and McDonnell"), was previously engaged by The University of Alabama ("University") to provide engineering services on the Campus Central Thermal Energy projects and to perform due diligence and programming services for the current Campus Energy Delivery Optimization and Efficiency Project ("Project"). The Project will support the Tutwiler Energy Plant and the connection of Bryant Conference Center, Frank Moody Music Building, Alumni Hall, Bryant Museum, Rose Administration, Adams Hall, the proposed Fashion and Design Building and a new sorority house, Gorgas Library, Oliver- Barnard Hall, and Toumey Hall to the central thermal system. Burns and McDonnell assisted in developing and evaluating key initiatives reflected in this Project's plan, such as a focus on financial benefit and return, both in operating and capital expenses; system performance throughout the life cycle; consideration of total life cycle cost; and system resiliency and consistency of operation, while ensuring exceptional service to campus.

Furthermore, from an engineering and fluid dynamics standpoint, it is advantageous to utilize the engineering services of the firm that is most familiar with the University's current central thermal system layout, operation, and control sequences. Burns and McDonnell has performed fluid flow simulations on the University's current piping system and analyzed the pressure and flow characteristics of the system. This existing model will save design cost and time when adding the next phases of the University's central thermal expansion and system improvements. This will aid in properly sizing pumping equipment and piping, setting pressure reliefs, and

creating controls sequences for proper system operation after adding a third energy plant, additional building loads, and additional long piping branches such as to the Bryant Conference Center and Moody Music area to the system.

Burns and McDonnell were also the design-build engineering firm and engineer of record for the East Quad Energy Plant projects and Central Campus Thermal Energy Connections. As a result, Burns and McDonnell has exclusive knowledge of the design and construction of the Project as well as detailed information regarding as-installed thermal energy infrastructure locations and configurations. Further, Burns and McDonnell's knowledge of preferred equipment, University Standards, design principles, and procedures will greatly facilitate the design and administrative process. Burns and McDonnell is committed to completing the designs this winter to allow the projects to be bid in February of 2022. This commitment will provide the University the ability to start the Project as soon as possible, finish by the desired completion dates, and coordinate this Project with several ongoing and related projects.

Accordingly, the University has negotiated a design fee for the Project with Burns and McDonnell as follows. Package A-Tutwiler Energy Plant-Phase I fee is based on 6.1% of the cost of construction and equipment plus $8,400 in additional services, less a credit in the amount of $67,400; Package B - Bryant Conference Center and Moody Music Area Thermal Connections is based on 6.4% of the cost of construction plus $5,600 in additional services, less a credit in the amount of $14,600; Package C - Rose Administration and Doster Hall Area Thermal Connections is based on 6.7% of the cost of construction less a credit in the amount of $9,000; Package D - Gorgas Library, Oliver-Barnard Hall, and Toumey Hall Thermal Connection is based on 6.7% of the cost of construction less a credit in the amount of $9,000. The total of credits provided by Burns and McDonnell for the packages is $100,000, which represents an 8.55% savings to the University.

The proposed total credit of $100,000, combined with the technical, engineering and schedule advantages of utilizing Burns and McDonnell, represent a substantial benefit to the University.

Approval is hereby requested for:

1. Waiver of Consultant Selection process for the Project.
2. Burns and McDonnell, Raleigh, North Carolina, as the engineering design service provider for the Project at a negotiated design fee as presented above for each Package A through and including Package D.
3. Submittal to the Physical Properties Committee for review and approval.

For your convenience, a preliminary Project Summary has been attached detailing the scope and outlining the benefits of the Project. If you have any questions or concerns, please feel free to contact me.

Matthew M Fajack/ cm

Matthew M. Fajack
Vice President for Finance and Operations
and Treasurer

MMF/ccj

Attachment

pc w/atchmts: Michael Rodgers Tim Leopard Steven Mercado

****

☒ Recommended for Approval.
☐ Not Recommended for Approval. Submit to Physical Properties Committee.

DocuSigned by:
Dana S Keith
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Dr. Dana S. Keith, Senior Vice Chancellor for Finance and Administration

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☒ Recommended for Approval.
☐ Not Recommended for Approval. Submit to Physical Properties Committee.

DocuSigned by:
Karen P. Brooks
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Trustee Karen Brooks, Chair for Physical Properties Committee

THE UNIVERSITY OF ALABAMA SYSTEM
PROJECT PLANNING REPORT
DATE: November 4 - 5, 2021

X INITIAL REPORT
__ INTERIM REPORT
__ FINAL REPORT
1 REPORT NO.

TO: OFFICE OF THE CHANCELLOR
BOARD OF TRUSTEES OF THE UNIVERSITY OF ALABAMA

FROM: OFFICE OF THE PRESIDENT
THE UNIVERSITY OF ALABAMA

1. PROJECT: Campus Energy Delivery Optimization and Efficiency Project

2. LOCATION: Tutwiler Energy Plant Phase I; Bryant Conference Center and Moody Music Area Thermal Connections; Rose Administration and Doster Hall Area Thermal Connections; Gorgas Library, Oliver-Barnard Hall and Tuomey Hall Thermal Connections

3. ARCHITECT/ENGINEER: Requesting in this submittal

4. PROJECT STATUS:

A. SCHEMATIC DESIGN	DATE INITIATED	Jul-21
	% COMPLETE	50%
	* DATE COMPLETED	Aug-21
B. PRELIMINARY DESIGN:	DATE INITIATED	Oct-21
	% COMPLETE	0%
	* DATE COMPLETED	Nov-21
C. CONSTRUCTION DOCUMENTS:	DATE INITIATED	Nov-21
	% COMPLETE	0%
	* DATE COMPLETED	Jan-22
D. SCHEDULED BID DATE:		Feb-22

5. CURRENT PROJECT BUDGET:

	PRELIMINARY
A. CONSTRUCTION - Package A (Tutwiler Energy Plant-Phase I)	$ 7,000,000
B. CONSTRUCTION - Package B (Bryant Conference Center and Moody Music Area Thermal Connections)	$ 4,700,000
C. CONSTRUCTION - Package C (Rose Administration and Doster Hall Area Thermal Connections)	$ 3,000,000
D. CONSTRUCTION - Package D (Gorgas Library, Oliver-Barnard and Tuomey Halls Thermal Connections)	$ 2,700,000
E. EQUIPMENT - Chillers, Transformer And Chiller Optimization	$ 2,000,000
F. LANDSCAPING	$ 650,000
G. SECURITY/ACCESS CONTROL	$ 90,000
H. TELECOMMUNICATION/DATA	$ 90,000
I. CONTINGENCY* (10%)	$ 2,005,000
J. UA PROJECT MANAGEMENT FEE** (3%)	$ 661,650
K. ARCHITECT/ENGINEER FEE*** (~5.7%)	$ 1,115,200
L. COMMISSIONING FEE	$ 50,000
M. OTHER FEES AND SERVICES	$ 1,138,150
N. TOTAL PROJECT COST	**$ 25,200,000**

*Contingency is based on 10% of the costs of Construction Packages A, B, C, D, Equipment, and Landscaping.
**UA Project Manager Fee is based on 3% of the costs of Construction Packages A, B, C, D, Equipment, Landscaping, and Contingency.
***Engineer Fee Packages A-D fee is based on 5.8% of the cost of Construction Packages A, B, C, and D and equipment plus $14,000 in additional services, less a credit in the amount of $100,000 for previously performed work and the waiver credit.

6. FUNDING/RESOURCES: The University of Alabama Construction, Renovation, and Equipment Quasi Endowment - $22,700,000 and the College of Continuing Studies Reserves - $2,500,000

7. REMARKS: This Project will address $7,300,000 in deferred maintenance liabilities and improve the reliability and efficiency of building HVAC systems.

* FINAL AGENCY APPROVAL

SUBMITTED BY: Jim Leopard RC

Attachment K to Board Rule 415

Supplemental Project Information Worksheet
Annual Capital Development Plan

FY: 2021 – 2022

Project Name/Category: Campus Energy Delivery Optimization and Efficiency Project Tutwiler Energy Plant-Phase I, Bryant Conference Center and Moody Music Area Thermal Connections, Rose Administration and Doster Hall Area Thermal Connections, Gorgas Library, Oliver-Barnard Hall, and Tuomey Hall Thermal Connections.
Tuscaloosa, Alabama

Campus: The University of Alabama

1. Will this Project increase the current space inventory on campus or replace existing space?

☐ increase space inventory _____ % increase _____ GSF

☐ replace space inventory _____ % replacement _____ GSF

☒ renovation of existing space only 9,887 GSF

The 9,887 GSF represents the existing shell space in the Tutwiler Parking Deck which will be fit out for the Tutwiler Energy Plant.

2. If this Project will replace existing space inventory, how will vacated space be utilized or assigned after this Project is completed?

Comments:

Not applicable – work limited to existing mechanical spaces.

3. Is the proposed Project location consistent with the Campus Master Plan and University Design Standards and the principles contained therein?

☒ Yes ☐ No, A Campus Master Plan Amendment Is Required

If Campus Master Plan amendment required, explain:

4. Provide information on classification of new space provided by this Project and latest utilization data on similar type space on campus.

Proposed New Space/Facilities				
Classification	**Number** (Spaces/Rooms)	**Capacity** (Persons)	**Area** (GSF)	**Existing Space Utilization Data** (See Notations)
100 Classroom Facilities				
200 Laboratory Facilities				
300 Office Facilities				
400 Study Facilities				
500 Special Use Facilities				
600 General Use Facilities				
700 Support Facilities			9,877	
800 Health Care Facilities				
900 Residential Facilities				
000 Unclassified Facilities				

Data reported on latest fiscal year data available.
Utilization factor based on Scheduled Operating Hours at each Campus – outlined below in notations.

Comments/Notations:

The 9,887 GSF represents the existing shell space in the Tutwiler Parking Deck which will be fit out for the Tutwiler Energy Plant.

5. How will this Project enhance existing/new programs and undergraduate/graduate enrollments?

Estimated new Funds from Tuition/Programs **$** N/A Yr.

Comments:

Campus Energy Delivery Optimization and Efficiency Project ("Project") will improve the teaching, learning, and working environments of campus constituents by providing reliable and efficient thermal energy to facilities. This is achieved by replacing existing systems that have reached the end of their functional service life with more efficient centralized systems. By centralizing equipment in the energy plants and providing thermal energy for space conditioning via underground utilities, the project will free campus exterior space currently occupied by existing HVAC equipment for other uses. These alternative uses include, but are not limited to, parking, landscaping, and hardscape improvements. Furthermore, reducing the cost to provide heating and cooling to buildings will support The University of Alabama "(University") in maintaining a competitive cost of attendance.

As part of the University's master plan for thermal energy distribution, this proposed Project will address deferred maintenance issues and improve system efficiency and reliability through utilization of the existing East Quad and Shelby Energy Plant distribution systems and infrastructure. The Project will provide a cost-effective means to increase system efficiency and resiliency at lower cost than continuing to operate numerous stand-alone HVAC systems. Additionally, the project will address projected future system load growth though 2028-2030 with the addition of chilled water production capacity at the Tutwiler Hall Energy Plant.

In recognition of the differences in the site work requirements and Project delivery timelines between the major portions of the Project, the Project has been separated into four (4) packages: Package A – Tutwiler Energy Plant-Phase I; Package B – Bryant Conference Center and Moody Music Area Thermal Connections; Package C – Rose Administration and Doster Hall Area Thermal Connections, and the New Sorority areas: and Package D - Gorgas Library, Oliver-Barnard Hall and Tuomey Hall Thermal Connections.

Package A – Tutwiler Energy Plant Phase I (Package A) is needed to increase the connected chiller capacity on the central thermal capacity necessitated by existing and future facilities forecast to be added. The Project will improve the existing system performance by the addition of two (2) new high- efficiency magnetic bearing chillers and associated high-efficiency pumps.

Package B – Bryant Conference Center and Moody Music Area Thermal Connections (Package B) is needed to provide chilled water piping to the Bryant Conference Center and Moody Music Building. The existing HVAC equipment in Bryant Conference Center is over thirty years old and is past the end of its functional service life. Package B will connect the buildings to the East Quad Energy Plant to provide an efficient and redundant HVAC system for these important buildings. The package will also remove the existing mechanical yard on the backs of both the Bryant Conference Center and the Moody Music Building, substantially reducing the existing fan- and pump motor noise in and around both buildings. Further, this package will make way for a better landscaped area that will be more visually appealing.

Package C – Rose Administration and Doster Hall Area Thermal Connections (Package C) will connect buildings to the central thermal loop and facilitate removal of localized HVAC equipment such as cooling towers and air-cooled chillers. Connection to the loop will allow the University to heat and cool buildings more efficiently and with lower cost of ownership. Package C scope will reduce the quantity of equipment that requires maintenance, thereby reducing potential facility downtime, ensure occupant comfort, and avoid the future operational and capital cost associated with multiple local independent HVAC systems. Further, removal of the existing local HVAC units will lower ambient noise near key facilities and improve campus appearance. Facilities proposed for connection to the central thermal loop are: Rose Administration, Doster and Adams Hall, Fashion and the Design Building, and the New Sorority areas.

Package D - Gorgas Library, Oliver-Barnard Hall, and Tuomey Hall Thermal Connections (Package D) is needed for the future Gorgas Library renovation. The hot water and chilled water pipes will be installed up to the building. The final connection will not take place during this project. Barnard, and Tuomey are also being connected because of their close proximity to Gorgas Library and the piping run. Once the buildings are connected to the campus central thermal loop this will facilitate removal of localized HVAC equipment such as cooling towers and air-cooled chillers and exterior boilers. Connection to the loop will allow the University to heat and cool buildings more efficiently and with lower cost of ownership. It will also reduce the visual impact of the air-cooled chillers and exterior boilers.

Equipment - Chiller Optimization control system is needed to configure the best orientation between all the energy plants. The overall central thermal energy plant system consists of thousands of pieces of individual equipment, both inside the energy plants and inside the buildings the energy plants serve. As additional buildings are connected to the energy plant system, it becomes even more essential that the many different components associated with the system all operate as energy efficiently as possible. Controlling the energy plants and all associated equipment in unison, whether new or existing, so the entire system operates as effectively and efficiently as possible, will result in the least amount of energy consumed, while also better meeting the cooling needs of the buildings.

6. Has a facility user group been established to provide input for planning, programming, and design purposes? ☒ Yes ☐ In-Progress

If yes, list key members of user group:

Greg McKelvey – Executive Director, Maintenance Operations and Energy Management
Tim Leopard – Senior Associate Vice President for Campus Development
Matt Skinner – Executive Director for Construction Administration
Dwight Stewart – University Mechanical Engineer
Clint Hamner – Facility Condition Assessment Program Manager
Steven Mercado – Project Manager

7. Source(s) of funding for Total Project Development Costs.

Source(s)	New Funds (FY 2022)	Reserves	Status /7
Tuition			
Student Fees			
Investment Income			
Auxiliary Income • External • Internal			
Education Sales/Services • External • Internal			
Direct Grants			
Gifts			
Bonds			
Existing Net Assets			
Other The University of Alabama Construction, Renovation, and Equipment Quasi Endowment College of Continuing Studies	$22,700,000 $ 2,500,000		Pending Pending
Totals	**$25,200,000**		**Pending**

/7 Approved, allocated, pending

Comments:

This Project total cost of the Project in the amount of $25,200,000 will be funded from The University of Alabama Construction, Renovation, and Equipment Quasi Endowment in the amount of $22,700,000, and the College of Continuing Studies Reserves in the amount of $2,500,000.

8. Estimate of operations and maintenance (O&M) costs for the initial occupancy year and projections for succeeding five (5) year period.

Operations and Maintenance (O&M)Annual Costs Projections			
Expense	**FY 2020- 2021 Base Data** /8	**First Full /YR** Occupancy FY 2023	**Successive Five (5) Year Projections** /9
Other			
Totals	**N/A**	**N/A**	**N/A**

/8 Latest Fiscal Year Data used as Base Year for Projections
/9 Combined Costs for next Five (5) Years of Occupancy

Comments:

The O&M costs for this Project will not be associated with individual buildings.

Package A will replace existing local utility infrastructure with more efficient centralized equipment.

Package B will reduce maintenance costs by eliminating chillers and cooling towers in Bryant Conference Center and Moody Music Building. Replacement of existing individual air-cooled chillers at these buildings, with service by Central Plant water cooled chillers, will result in energy savings of approximately 40% for the cooling load.

Package C will reduce maintenance costs by eliminating chillers, boilers, and steam heat exchange equipment in Rose Administration, Doster and Adams Hall, the Fashion and Design Building and the New Sorority area.

Package D will reduce maintenance costs by eliminating chillers, boilers, and steam heat exchange equipment in Gorgas Library, Oliver-Barnard Hall, and Tuomey Hall.

The benefits from the above packages will produce a savings totaling $234,100 in O&M cost.

9. Source of funds for projected ongoing operations and maintenance (O&M) costs for this project.

Source(s)	Occupancy Yr. /9 (FY 2023)	Future Years /10	Status /7
Tuition			
Student Fees			
Investment Income			
Auxiliary Income • External • Internal			
Educational Sales & Services • External • Internal			
Direct Grant(s)			
Reallocated Funds /11			
Gifts			
Other			
Total/YR	**N/A**	**N/A**	**N/A**

/9 Initial Full Yr. of Occupancy
/10 Next Five (5) Yrs. Occupancy
/11 Funds Reallocated from other sources
/7 Approved, allocated, pending

Comments:

Ongoing O& M cost will be funded from the annual operating budget. Savings resulting from the execution of these Projects will help offset future energy inflation cost and additional energy cost from campus growth.

10. Are development expenditures for this Project being used to reduce the current deferred maintenance/facilities renewal liabilities for the Campus?

$ 7,300,000 **30** % of Total Development Costs

Comments:

Package A will replace existing local utility infrastructure with more efficient centralized equipment.

Package B will eliminate replacement costs of chillers, and cooling tower equipment at Bryant Conference Center and Moody Music Building.

Package C will eliminate replacement costs of chillers, boilers, and steam heat exchange equipment at Rose Administration, and Doster and Adams Hall.

Package D will eliminate replacement costs of chillers, boilers, and steam heat exchange equipment at Gorgas Library, Oliver-Barnard Hall, and Tuomey Hall.

The benefits from the above packages will produce a savings totaling $7,300,000 in deferred maintenance liability cost.

11. What other development alternatives were considered in the planning process for this Project? /13

Comments:

Continued use of existing equipment was considered. The buildings currently supplied with thermal energy by independent boilers and chillers are less efficient and more maintenance intensive than buildings served by central plants. To arrive at the recommended approach, an independent analysis was performed that included evaluation of twelve different options of efficiency, cost, and resilience.

Constructing a district energy plant at Bryant Conference Center was also originally proposed. University was able to secure routing for the thermal piping to the Bryant Conference Center and Moody Music Area across City Right of Way, thereby eliminating the need for a stand-alone facility at the Bryant Conference Center which has yielded a substantial cost savings and maintained land for other uses in that critical area.

/13 Renovation vs. new construction, adaptive reuse of underutilized buildings, etc.

12. Explain how the project will promote adequacy of campus facilities in relation to the University's Mission and scope of programs and/or services:

Comments:
As part of the University's master plan for thermal energy distribution, this proposed Project will address deferred maintenance issues and improve system efficiency and reliability through utilization of the existing East Quad and Shelby Energy Plant distribution systems and infrastructure. The Project will provide a cost-effective means to increase system efficiency and resiliency at lower cost than continuing to operate numerous stand-alone HVAC systems. Additionally, the project will address projected future system load growth though 2028-2030 with the addition of chilled water production capacity at the Tutwiler Hall Energy Plant.

Energy delivery resiliency reinforces the confidence needed for the campus community to conduct research, teach, facilitate an exceptional learning environment, and live comfortably. This project will ensure that impacted campus facilities operate at the highest level necessary to support the affected programs and services.

13. How does the project correlate to the University's strategic goals?

Comments:
Maintaining a comfortable, pleasant, and continuously operating facilities is an important part of recruiting and retaining top tier students, faculty, and staff. Reducing the quantity of noisy and unsightly mechanical equipment and increasing the reliability of the overall systems helps achieve this goal.

The University's Strategic goal number two is the increase the University's productivity and innovation in research, scholarship and creative activities that impact economic and societal development. This Project accomplishes that goal by addressing the objective to invest in infrastructure that promotes a thriving research and economic development enterprise.
The above packages and equipment provide the best combination of financial, efficiency, and resiliency benefits with respect to maintaining space conditioning and occupant comfort on campus.

14. Which of the six University of Alabama system Core Principles does this project support?

Comments:
This Project supports Core Principle number three, be accountable for every dollar we receive while maintaining the highest standards of excellence in every program and endeavor.
Upgrading the cooling systems in the most economical way possible will improve the environment within the structures while saving energy, reducing future operating costs, and supporting a competitive cost of attendance, thereby ensuring accountability and maintenance of the highest standards of excellence.

15. What would be the immediate impact on campus programs and enrollment if this project is not approved?

Comments:
The immediate impact is the loss of an opportunity to:

1. Reduce risk of campus program downtime due to failure of antiquated equipment and systems with single point of failure conditions.
2. Enhance the environment of the University by removal of unsightly and noisy mechanical equipment.
3. Near-term costs associated with maintenance and replacement of aging HVAC equipment.

CAMPUS ENERGY DELIVERY OPTIMIZATION AND EFFICIENCY PROJECT

LOCATION MAP