House Appropriations Committee
2014 Session Budget Amendment Form

*** The deadline to submit completed forms is 5:00 p.m. FRIDAY, JANUARY 10, 2014 ***

Patron: _____ _____

(**Print** name of Delegate) (**Signature** of Delegate)

Requests can be made by completing this form and submitting it to the House Appropriations Committee staff office on the 9th floor of the GAB.

Agency Name: Virginia Polytechnic Institute and State University (Agency 208)

Please Circle the House Bill that your budget amendment request relates to: HB 29 (or) (HB 30)

Increase/Decrease

Use this section to indicate whether your amendment would require an Increase or Decrease in appropriated funds.

General Fund (GF) monies are derived from taxes levied on individual and corporate income, sales, public service corporations, and insurance companies. The General Fund is the major source of support for many State functions.

Nongeneral Fund (NGF) monies consist of special fund revenues, higher education operating monies (tuition, special revenues and federal grants), highway maintenance and construction funds, trust and agency funds, and federal trust funds.

Funding	*First Year*	*Second Year*
☒ Increase	GF $	GF $
☐ Decrease	NGF $ 3,100,000	NGF $

Employment Level

Use this section to indicate if a change in the employment level of the agency is desired or necessary. The employment level is the number of full-time equivalent (FTE) positions dedicated to a specific program activity or agency. If you are unsure, leave the space blank.

Employment Level	*First Year*	*Second Year*
☐ Increase	GF FTE	GF FTE
☐ Decrease	NGF FTE	NGF FTE

Explanation of Amendment

Please explain the purpose of your amendment or attach explanatory materials. THIS IS THE MOST IMPORTANT PART OF REQUESTING AN AMENDMENT as it ensures the staff has adequate background information to draft your budget amendment request.

EXPLANATION OF AMENDMENT: (Explain or Attach Materials)

This request is for authorization and funding for the Virginia Polytechnic Institute and State University (Agency 208) Planning for Central Chiller Plant, Phase II project to be included in House Bill 30. Please see attachment for the full capital project explanation.

Please return this signed, original form *(and the co-patron signature sheet if applicable)* to the
House Appropriations Committee Staff, 9th Floor, General Assembly Building -- Telephone: (804) 698-1590, FAX: (804) 698-1802
This form can also be found on the House Appropriations Committee's website: http://hac.virginia.gov

***** PLEASE KEEP A COPY OF THE COMPLETED FORM & SUPPORTING DOCUMENTATION FOR YOUR RECORDS *****

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
(Agency 208)

Capital Project Budget Amendment Proposal

Planning for Central Chiller Plant, Phase II

	2014-15	2015-16
Additional Funds Requested:		
General Fund	$0	$0
Nongeneral Fund	$3,100,000	$0

This project has been on the university's capital outlay plan since 2005 and is included as a high priority to continue the strategic infrastructure advancements initiated by the Chiller Plant, Phase I project (Chapters 1/874/890). The Phase I project was completed in 2013 and Phase II is needed to complete the overall central cooling infrastructure plan. The Phase II project request includes the upgrade of campus utility systems to address three key strategic points for shifting the campus to lower resource consuming cooling service: (1) update and add machines in existing central plant facilities to maximize the existing plant foot print and optimize refrigerant use; (2) install the necessary thermal distribution networks to link the central plants; and (3) retire outdated, inefficient non-centralized chillers throughout the campus.

This project is a critical component of a strategy developed by the university and detailed in its Chilled Water Master Plan to shift toward utility and energy management practices that optimize long-term cost control and resource management. Under the Chilled Water Master Plan, the university will replace outdated, costly stand-alone equipment with centralized equipment and plant operations. The timing of this request is critical because many of the existing building-specific chillers have reached the end of their useful life and no longer respond to normal maintenance and repairs. If the centralized strategy is not fully implemented now, the university will need to replace the aging building-specific chillers in-kind. Funding this critical infrastructure project will prevent the replacement in-kind of aging, high overhead cost building-specific units and will transition the university away from the undesired practice of decentralized chillers. Additionally, the existing plant has reached is capacity limits and is not able to supply new and planned space coming on-line in the near future. The university must lease temporary chillers to support buildings coming on-line because central cooling capacity is not available.

The primary scope of this Phase II project includes replacement and upgrade of central plant equipment in the existing campus chiller plants and the expansion of the underground distribution infrastructure to link campus chiller substations and bring existing campus buildings on-line. The envisioned improvements include the replacement of outdated chiller equipment in the North Plant with new two new 2800 ton chillers and installation of one new 1500 ton chiller in the South Plant. The project also includes replacement and upgrade of ancillary equipment

with state-of-the-art, optimally sized pumping and system support equipment and the expansion of the distribution system to connect the two plants. The project accommodates the need to meet LEED refrigerant requirements by replacing outdated, inefficient chiller equipment with equipment using newer refrigerant types. Other benefits include:

(1) Reduced operating/maintenance costs.
(2) Lower installed capacity due to diversity of multiple building loads.
(3) Improved redundancy and reliability.
(4) Lower life cycle costs.
(5) Consolidation of cooling tower noise and water vapor emissions.
(6) Reduced building square footage required by mechanical and electrical equipment.

The project scope also addresses the need for increased electricity capacity in existing and planned university facilities through the expansion of the Virginia Tech Electric Service South Campus Sub-station. Upgrade and expansion of the South Campus Sub-station will support the electrical demands of new space coming on-line. Without this accommodation, electrical demand cannot be met.

The savings of a central plant compared to stand-alone chillers are significant. As an illustration, 10 campus buildings using the stand-alone strategy will require two 450-ton chillers each, for a total of 20 chillers and 9,000 tons of operational cooling systems. Chillers operate most efficiently near their peak capacity and stand-alone chillers are generally operating at only about 75 percent of their capacity. Under a central plant strategy, these same 10 buildings would require only 6,750 tons of chilling capacity. To quantify anticipated energy reduction and improved efficiencies, the chillers of the central plant on the northeast side of campus are 94 percent more efficient than the individual building chiller systems on the southeast side of campus.

This proposal is for authorization and funding for detailed planning of the Construct Chiller Plant, Phase II capital project. The estimated total project costs are $44.3 million and the funding plan calls for shared support by the General Fund and auxiliary enterprises according to space the Phase II project will serve. This request is for $3.1 million of nongeneral fund authority to advance the project through the detail planning phase. Because the project is a high priority, the university is willing to temporarily fund planning with nongeneral fund resources provided the university is reimbursed by future General Fund allocations when the project is funded to move into the construction phase.