BOARD APPROVED
June 6, 2025
Cindy Ream
Corporate Secretary

To: Patrick Wolfe, Provost and Executive Vice President for Academic Affairs and Diversity

From: Arvind Raman, John A. Edwardson Dean of Engineering Arvind Raman

Date: March 12, 2025

RE: Converting Division of Environmental and Ecological Engineering (EEE) to School of Sustainability Engineering and Environmental Engineering (SEE)

The faculty of the Division of Environmental and Ecological Engineering propose to establish the School of Sustainability Engineering and Environmental Engineering (SEE) housed in the College of Engineering effective July 1, 2025.

Why now? Under the leadership of John W. Sutherland, who was recently inducted into the National Academy of Engineering (NAE), the US News ranking of Purdue Environmental Engineering broke into the top 10, currently ranked No. 9 jointly with MIT. EEE started as a Division (not school, and thus not a tenure home), offering a BS in EEE. Today, the number of applications received with EEE as the educational objective has risen fourfold over the past decade. Undergraduate enrollment in EEE (sophomore through seniors) currently stands at 147, which is quickly approaching the undergraduate enrollment of the School of Nuclear Engineering (150) and the School of Materials Engineering (213). EEE now offers the full range of degrees – the ABET accredited BS in Environmental and Ecological Engineering (EEE), MSEEE, PhD, minor, and certificate programs, and their associated classes. EEE graduate programs enroll 70+ MS and PhD students today. A new online/professional Master's degree in Sustainability Engineering is going through the approval process.

With the creation of SEE, we anticipate that the new School will offer both Environmental/Ecological and Sustainability Engineering Degrees. While *Environmental and Ecological Engineering graduates* learn about how to manage/treat contaminated air, water, and land, *Sustainability Engineering graduates* learn about how industries can simultaneously increase profitability and decrease environmental impact using engineering techniques before products, factories, processes and systems are put in place. The core faculty expertise in SEE will include life cycle engineering, industrial ecology, circular economy, techno-economic assessment, efficient resource utilization, recycling, remanufacturing, in addition to traditional environmental engineering areas.

The new school positions Purdue to respond effectively to surging industry demand for a technically skilled workforce capable of designing engineering systems that incorporate such sustainability principles as circular economy thinking, resource efficiency, and waste reduction. The urgency of this demand is reflected in workforce trends; between 2022 and 2023 job postings requiring skills needed to create sustainable economic prosperity increased by 22.4%, far outpacing the 12.3% growth in the supply of individuals with these skills. There is no equivalent school/department in the U.S. that through its research activities and degree programs integrates the traditional aspects of environmental engineering with systems and technical engineering expertise for sustainability while responding to this industry workforce needs.

The proposed School of SEE is well-poised to meet industry needs. Intel, NVIDIA, Broadcom, Lam Research, Micro, and other semiconductor manufacturers now recognize sustainability as a core principle and are adapting their operations and systems to responsibly manage water, chemicals/materials, energy, and waste for the long term. Large pharmaceutical manufacturers, such as Eli Lilly, are planning to recover value from 100% of their plastic waste by 2030. Companies like Cummins and Caterpillar realize substantial profit through their remanufacturing programs, while Ford has aligned its financial strategies with sustainable business commitments. ArcelorMittal and Gestamp are advancing circularity in steel recycling to enhance the sustainability of the automotive supply chain. Microsoft and Google are improving their global operations by reducing the environmental footprint of products, platforms, and supply chains.

What's the competition? Stanford recently created a new School of Sustainability; their school covers all aspects of sustainability, as opposed to our proposed School's focus on the engineering/technical aspects which many industries are asking for. Arizona State University and the University of Michigan also have Schools of Sustainability, which are broad-based. The Rochester Institute of Technology has an Institute for Sustainability but does not offer undergraduate degrees outside of traditional civil/electrical/mechanical engineering. SEE will be the first program that will focus on technical aspects of Sustainability Engineering and Environmental Engineering based on industry needs.

How will this be financed? The Fehsenfeld Family has agreed (see support letter from Purdue for Life) for the named Headship of EEE to transfer to the named Headship of the SEE School. Purdue for Life is actively looking for donors to name the new School (see Purdue for Life letter). Currently, EEE holds 5.85 FTE of tenure/tenure track faculty in various joint appointments with other schools. When the School of SEE is created, we will offer tenured faculty with joint appointments in other engineering schools the choice to shift their tenure home to the new School, based on our standard joint appointment process. This will not affect net T/TT FTE within Engineering but will be a simple reallocation of budgeted T/TT FTE between units in Engineering. With these adjustments, the new School will likely start FY2026 with 2 T/TT FTE faculty with SEE as the tenure home. EEE also has 2.0 FTE professors of practice, a 0.25 FTE research professor, a 0.45 lecturer, and 6.80 FTE staff. The creation of the new school will not change the College net budget (see letter from the Office of Financial Affairs). We expect that moving forward the new School T/TT faculty lines will grow based on targeted talent-based hires and lean into revenue generating online and professional MS programs. The faculty primary committee (PC) will initially consist of tenured faculty with primary or joint appointment in the unit to ensure that the PC size exceeds the University policy threshold. In the future, as we increase the number of faculty with primary appointment in SEE, the PC will transform to one consisting only of faculty with majority appointment in the School.

Other synergies: This proposal has been discussed with the Deans of the Daniels School of Business, Agriculture, and the College of Science, and with the Director of Institute for Sustainable Futures, and all consider this effort to be complementary to programs in their units.

The proposal has been discussed with faculty, staff, and advisory councils, all of whom are in favor of establishing this new school. The faculty vote for moving forward with a school was:

18-Yes and 0-No. The proposal has also been discussed with all the Heads within the College of Engineering.

I am in favor of moving ahead and taking this important step for our College to address industry and workforce needs/opportunities in this important area.

Approval Recommended:

05/28/2025

Patrick J. Wolfe Date
Provost and Executive Vice President for
Academic Affairs and Diversity
Miller Family Professor of Statistics
And Computer Science

Approved:

5.29.25

Mung Chiang Date
President
Roscoe H. George Distinguished
Professor of Electrical and
Computer Engineering

PURDUE UNIVERSITY | Environmental and Ecological Engineering

To: Arvind Raman, John A. Edwardson Dean of Engineering

From: John W. Sutherland, Fehsenfeld Family Head of Environmental and Ecological Engineering

Date: March 12, 2025

RE: Converting Division of Environmental and Ecological Engineering to School of Sustainability Engineering and Environmental Engineering (SEE)

The faculty of the Division of Environmental and Ecological Engineering propose to establish the School of Sustainability Engineering and Environmental Engineering (SEE) housed in the College of Engineering effective July 1, 2025. The College of Engineering is well-positioned to be a leader in this emerging area as the SEE will capture the impact and relevance of engineering innovations that are essential to meet industry demands for sustainability while ensuring economic vitality.

From 1970 until the early 2000s while peer institutions across the nation were developing and expanding environmental engineering programs, Purdue had a minimal footprint in this area. In 2006, in response to the growing national and global call for sustainability engineering solutions, increasing student demand for an accredited environmental engineering degree, and changing workforce needs, faculty from across Purdue came together to create the Division of Environmental and Ecological Engineering (EEE), a stand-alone academic unit. Since its founding, EEE has become an international leader in engineering for sustainability, including life cycle engineering, industrial ecology, complex system dynamics, circular economy, techno-economic assessment, efficient resource utilization, recycling and remanufacturing with a dual focus on *environmental and ecological engineering* and *sustainability engineering*. EEE students and faculty manage/treat contaminated water, air, and soil – often from industrial sources (*environmental and ecological engineering*), while also using systems engineering techniques to proactively avoid environmental challenges before they are created while advancing economic competitiveness (*sustainability engineering*).

The SEE will support the on-going transformation in the corporate sector that is increasingly pursuing sustainability initiatives to remain profitable and competitive. With these rapid and dramatic shifts, businesses need technical expertise in sustainability that can increase efficiencies and cost savings, as well as minimize environmental impacts across the entire life cycle of products and processes. This surging demand underscores the necessity for a technically skilled workforce capable of designing engineering systems that incorporate such sustainability principles as circular economy thinking (e.g., recycling and remanufacturing), resource efficiency, and waste reduction.

EEE is unique among our peers in its integration of the dual themes of sustainability engineering and classic environmental engineering. Moreover, we have an engineering focus as opposed to the broad School of Sustainability emphasis adopted at Stanford and Arizona State. And, as you know, since its establishment EEE has grown quickly and has become increasingly respected by our peers (we broke into the top 10 last year in the USNWR). Our undergraduate (increase in student demand

of 4X since 2013) and graduate student (70+ M.S. and Ph.D. students) growth has been outstanding. To deliver undergraduate and graduate curricula we have been creative at engaging existing faculty and partnering with other academic units in recruiting new faculty. In spite of our small faculty size (5.85 T/TT FTE faculty) we are internationally recognized for our research related to such topics as life cycle engineering, techno-economic assessment, remanufacturing/recycling, and sustainable manufacturing applied to the automotive, pharmaceutical, and semiconductor industry sectors. Additionally, we have one of the highest percentages of women (59%), as well as the highest participation in experiential learning in the College of Engineering—propelling the College toward becoming the most consequential engineering college in the nation. Our graduates work across sectors as emerging leaders in sustainability engineering (Global Zero Waste Program Manager-General Motors, Manufacturing Systems Analyst-Collins Aerospace, Environmental Process Area Manager-New-Indy Containerboard, Technology Innovation Engineer-Proctor and Gamble, Senior Sustainability Impact Manager-Microsoft, Operational Engineer-Vestas, Sustainability Manager-Disney, Lead Scientist-Kimberly Clark, Director of Environmental Sustainability-UnitedHealth Group).

Future growth and improved reputation for EEE is constrained by the "division" designation. A division within the College of Engineering has no ability to serve as a faculty tenure home and can only have partial appointments for tenure-track faculty. This provides hiring challenges for new faculty, recruiting challenges for students, and research expenditure accounting often misses the division's contributions. Additionally, EEE has one of the highest student to T/TT faculty teaching ratios in the College—39:1. Because EEE is a division it does not participate in the tenure/promotion activity; as a result, feedback from EEE students is not fully considered in the process. With the establishment of the new School of SEE, tenured faculty members with joint appointments in EEE will be given the option of changing their tenure home to SEE. Several faculty members, including myself, will change their tenure home to the new school.

The opportunity to invest strategically in establishing the SEE will allow the SEE faculty to own its future to deliver excellence at scale and drive research and education in sustainability engineering. Additional faculty members will expand the expertise of current faculty members and targeted degree and credentialing programs, accelerate research and discovery in this field of growing importance, and increase the talent pipeline in Indiana and beyond.

I might note that the EEE faculty are unanimous in their support of establishing the School of SEE; the staff and EEE External Advisory Council are also overwhelmingly supportive.

PURDUE FOR LIFE
FOUNDATION

February 12, 2025

Arvind Raman, PhD
John A. Edwardson Dean of the College of Engineering
Neil Armstrong Hall of Engineering, Suite 3000
701 West Stadium Ave.
West Lafayette, IN 47907

Re: Support for the Division of Environmental and Ecological Engineering

The Purdue for Life Foundation is supportive of the Division of Environmental and Ecological Engineering (EEE) to become the School of Sustainability and Environmental Engineering (SEE) in the College of Engineering. The Purdue for Life team will continue raising and stewarding funds across the College, including the School of Sustainability and Environmental Engineering (SEE).

The fundraisers will review all agreements affected by this change and make the necessary amendments when approved. Donors and board members will also be made aware.

Sincerely,

Julie Dussliere
President and Chief Executive Officer
Purdue for Life Foundation

Dick and Sandy Dauch Alumni Center
403 West Wood Street, West Lafayette, IN 47907
800-319-2199 // purdueforlife.org

PURDUE UNIVERSITY | College of Engineering

To: Arvind Raman, John A. Edwardson Dean of Engineering

From: Jason Dietz, Interim Assistant Vice President, Financial Management
Brittany Vestal, Director of Finance, College of Engineering

Date: March 12, 2025

Re: School of Sustainability and Environmental Engineering (SEE)"

This memo documents fiscal endorsement for the creation and naming of the School of Sustainability and Environmental Engineering (SEE)", formally Environmental and Ecological Engineering (EEE). EEE has been operating in a sustainable financial position and is projected to maintain this fiscal position.

The planned naming will provide opportunity to realize prospective growth in undergraduate enrollment, graduate programs, reputation, rankings, and increased revenue.

Through a careful review with the Dean of Engineering and Head, John Sutherland, operating balances, restricted and unrestriced fund balances, and account criteria has been reviewed with little to no impact expected from this change.