MARQUETTE S-LAB

Charting the Way Out of the Sustainability Recession

Annual Report of the Marquette S-Lab | Governance + Sustainability State of the Sustainable Economy

Marquette S-Lab | Governance + Sustainability College of Business Administration Marquette University O'Brien Hall

September 2025



College of Business Administration

Letter from the Co-Director

This report is for people who must make projects work in the real world – CFOs, utility planners, engineers, investment managers, city managers and procurement leads. The United States has slipped into what we call a **sustainability recession**: not a collapse in technology or need, but a stall in confidence. In 2022–2024, the Biden Administration's subsidy-led industrial policy paired large dollars with intricate eligibility rules and shifting guidance – gains were illusory, transitory, and inflation skyrocketed¹; in 2025, the **Trump Administration**2.0 pivoted hard – rolling back and re-signaling while embracing "all-of-the-above" energy for the age of artificial intelligence (AI), sometimes captured as "BTUs for CPUs". At the risk of understatement, pruning was more than overdue; and the policy whiplash has been disorienting.

Nearly a decade ago, in "Stampede into ESG" (2017), I warned that labels would outrun substance and that only measurable outcomes would endure; 2025 has made that forecast uncomfortably current.² Our aim now is neither applause nor alarm: it's a sober route from stall to scale built on consistent rules, market instruments that stand up to diligence, and public governance that delivers.



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¹ Bureau of Labor Statistics – Consumer Price Index

² CFA Institute Daily Browse

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Markers of the Sustainability Recession (2023–2025)

Confidence stalls leave fingerprints across markets, boardrooms, and even language. In U.S. public markets, sustainable funds posted \$19.6 billion of net outflows in 2024, deepening from \$13.3 billion in 2023. Globally, Q1 2025 was the worst quarter on record for the category with \$8.6 billion in net outflows, reversing Q4 2024's inflows. These are not abstractions; they show up in fund consolidations, rebrandings, and risk committees demanding clearer payoffs.³

Exhibit F-1. Sustainable fund net flows (US 2023-2024; Global Q1 2025)



What it shows: two consecutive years of U.S. outflows and the worst global quarter on record in early 2025—clear evidence of a confidence stall in labeled strategies.

Unit: USD billions (net).

Source context: Morningstar fund-flow tallies cited in the report's "Markers" section.

The vocabulary has shifted, too. The Conference Board reports that S&P 100 use of "ESG" in annual sustainability report titles fell from 40% (2023) to 25% (2024) and to ~6% year-to-date in 2025 – evidence that many firms prefer operational framing over virtue signaling even where underlying work continues.⁴ Meanwhile, S&P Global Ratings stopped publishing its alphanumeric ESG credit indicators in 2023, retaining narrative analysis of ESG factors but stepping away from the scorecard optics.⁵ And the tenor of investor communications shifted: BlackRock's 2024 annual letter emphasized "energy pragmatism" while omitting "ESG," a symbol of the broader retreat from the acronym even as many projects advance.⁶

Exhibit F-2. "ESG" in S&P 100 report titles (share of issuers)



What it shows: deliberate language retreat—firms are doing the work but avoiding the label in titles.

Unit: % of S&P 100 issuers using "ESG" in the report title.

Source context: The Conference Board review summarized in "Markers."

³ Morningstar (2025), "Global Sustainable Fund Flows—Q1 2025."

⁴ The Conference Board (2025), "How Companies Are Reframing ESG."

⁵ S&P Global Ratings (Aug 2023), "S&P Global Ratings Discontinues Use of ESG Credit Indicators."

Legal and policy friction has been priced in, sometimes directly by taxpayers. Research on Texas's anti-ESG statutes documents reduced underwriting competition and higher municipal borrowing costs following the exit of major banks. The paper is agnostic on politics; the financial lesson is plain: policy uncertainty is priced.⁷

In corporate governance, the 2025 U.S. proxy season marked a low-water line: for the first time in six years, no environmental shareholder proposals passed, with average support near 10%—a combination of heightened legal risk, strategic withdrawals by proponents, and tighter SEC no-action relief.⁸

Public attention has cooled as well. Media and analytics reviews note that Google search interest in "ESG" peaked around 2023 and has since eased – a coarse proxy, but directionally consistent with the retreat in labeling.9

A stall in language and flows does not equal a halt in investment: global energy-transition spending still topped \$2 trillion in 2024, though growth slowed and regional dispersion widened. The U.S. must compete for that capital with clearer rules and faster delivery.¹⁰

The Sustainability Recession (what it is)

A sustainability recession is a **confidence stall**. Adoption slows, abatement per dollar falls, and planning horizons shrink when **design risk** (complex, evolving programs), direction risk (reversals across administrations), and **legal risk** (litigation and remands) rise together. The prescription is not "do less," but **do it differently**: short, durable rules keyed to outcomes rather than inputs; procurement and interconnection that move at the speed of capex; and market instruments that survive diligence.

Federal Policy Shift (DOE Working Group Report)

Steven Koonin's recent position¹¹ broadly reflects the **current U.S. Department of Energy (DOE)** climate line: a working-group report issued under the present administration that questions aspects of mainstream attribution and risk framing.¹² We think it's important to acknowledge that provenance – this isn't just an op-ed; it's the government's own report this year – even as we note the substantial scientific pushback it has drawn. We don't align with the report's overall message, but we do share a few instincts worth preserving. Koonin is right to caution against over-interpreting noisy indicators, to insist on humility about models, and to warn that rhetoric often outruns what policy and institutions can actually deliver. Those are healthy guardrails – and they help explain why we argue for short, durable rules tied to observable outcomes rather than shifting labels.

Where we part is on what the preponderance of evidence and basic risk management imply for action. Multiple independent observations – ocean heat content, sea level, heat extremes – point in the same direction even as practitioners down-weight "hot" models and normalize disaster losses for wealth and exposure. The practical response is neither alarmism nor delay; it is to do the things that pay under almost any climate path and any administration: cut methane from legacy wells we can measure and permanently stop; buy power portfolios that pair renewables with clean-firm capacity and transmission so rising Al and industrial loads don't stall the economy; professionalize charging so electrification gains are real rather than theatrical; and grade public partners on execution (DEQ/PEQ) so capital prices reliability, not promises.

In that sense, Koonin's skepticism about overreach and our push for market discipline share a root: evidence should lead money. The difference is that we see abundant, financeable work now – **W+E Forward** is a case in

⁷ BrookingsKnowledge at Wharton (2022)

⁸ Financial Times ISS Freshfields (2025)

⁹ Eco-Business (2025)

¹⁰ BloombergNEF (2025), "Energy Transition Investment Trends 2024.

^{11 &}quot;At Last, Clarity on Climate" by Steven Koonin, September 7, 2025, Wall Street Journal

¹² Steven E. Koonin is a theoretical physicist who served as Under Secretary for Science at the U.S. Department of Energy from 2009 to 2011.
A former Caltech provost and BP chief scientist, he later wrote *Unsettled* (2021) and has since advocated a more cautious interpretation o climate evidence than most assessments. Source: <u>DOE Working Group Report</u>

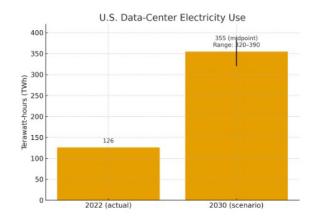
point – that reduces near-term warming, cleans up local risks, and passes audit. We do not need unanimity about every projection to act; we need contracts that reward delivery, standards that survive courts and elections, and instruments a credit committee can trace. That is the bridge between scientific disagreement and practical progress – and the way out of a sustainability recession driven by confidence, not physics.

Clarifying "not physics." Here "not physics" means the stall we diagnose isn't caused by the physical impossibility of decarbonization or by a lack of technological pathways; nor is it caused by an absence of physical demand for clean, reliable energy (which is rising). It is caused by human systems – policy whiplash, legal uncertainty, institutional bottlenecks, and inconsistent rules – that raise hurdle rates and slow projects. In other words, this recession lives in governance and finance, not in thermodynamics or engineering feasibility.

Demand Did Not Get the Memo

The most important fact of 2025 is that load is rising. U.S. data-center electricity demand is on track to climb from about **126 terawatt-hours (TWh)** in 2022 to ~**320–390 TWh by 2030** in scenarios that account for generative-Al – roughly 2–2.5% of national load to 6–7.5%. In Northern Virginia – the hub through which "about **70%** of the world's internet traffic, at some point, makes it" – the December 2023 grid mix was ~**60% natural gas** and 31% nuclear, a snapshot of how the digital economy is actually powered today while we build what comes next.¹³

Exhibit F-3. U.S. data-center electricity use (TWh)



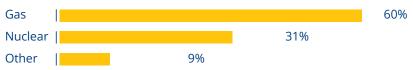
What it shows: a structural load step-up from ~126 TWh (2022) toward ~320–390 TWh by 2030 under Al scenarios – why "all-of-the-above" is an electrical constraint, not a slogan.

Unit: terawatt-hours (TWh).

Source context: Load trajectories cited from the W+E Forward deck in the report.

Exhibit F-4. Northern Virginia grid mix (Dec 2023)





What it shows: how today's digital load is actually carried in the largest U.S. data-center hub (firm gas + nuclear), underscoring the need to add clean-firm capacity while scaling renewables and transmission.

Unit: % of generation.

Source context: Regional mix snapshot cited from the W+E materials.

That reality makes "all-of-the-above" less a slogan than an electrical constraint. The portfolio that works in practice: keep adding solar and batteries where it makes sense and is both economically and technologically feasible; connect them with transmission and clear interconnection backlogs; retain firm, low-carbon capacity – life-extended nuclear now and small modular reactors (SMRs) as they mature; geothermal where rocks and rigs cooperate; and natural gas as the near-term reliability hedge while methane intensity declines. These emphases align with our 2023–2024 guidance.¹⁴

Autos as Bellwether—sequencing, not slogans

The auto market shows how ambition without administration breeds volatility. Credits, mandates, and headlines pulled forward electric-vehicle (EV) investment; charging reliability lagged; total cost of ownership proved rate- and insurance-sensitive; and the model mix skewed premium. When execution wobbled, buyers retrenched to hybrids and plug-in hybrids (PHEVs) – a cheapest near-term ton consistent with our prior advice – while fleets stretched refresh cycles. The fix is not ideology; it's a rulebook a CFO can plan against: tailpipe performance standards that outlast elections; incentive glidepaths without cliffs; and charging rules that pay for uptime, throughput, open access, and simple payment, not just port counts. These are exactly the kinds of outcome-based rules markets finance.¹⁵

Markets that work: methane first-aid

If the grid is tight and load is rising, the fastest climate relief comes from cutting short-lived **super-pollutants**. Methane is the highest-yield lever. Our collaborators in **Water + Energy (W+E) Forward** frame it bluntly: abandoned and legacy wells leak methane today; plugging them to compliant plug-and-abandon (P&A) standards permanently stops measured emissions and prevents future leaks – an **avoidance/removal hybrid** with immediate atmospheric benefit and water co-benefits. Quality is the hinge. High-integrity credits in this category use conservative baselines (decline-curve analysis), require measured leakage ex-ante, issue credits in two stages against verified performance, ensure permanence via compliant P&A and post-plug monitoring, and align time horizons (e.g., GWP20 for methane over a 20-year crediting window).¹⁶

¹⁴ 2023 Annual State of the Sustainable Economy (Marquette S-Lab) and 2024 S-Lab Annual Report

¹⁵ ibid

This isn't theoretical. The W+E diligence materials document ISO-aligned verification (ISO 14064-2/-3; 14065), active engagement with registries such as BCarbon, and offtake-backed bank diligence – i.e., the scaffolding that turns field work into financeable inventory.

A Midwest demonstration: W+E Forward

The S-Lab, The Water Council, members of Quarles & Brady and Pickering Energy Partners, after a near yearlong study of Green Bank models in 2024 launched W+E Forward on January 1, 2025. The non-profit sustainability leader in its first foray has shown how to turn a neglected environmental liability – leaking legacy wells – into a repeatable workflow a bank can diligence: identify and measure, plug to standard, verify and issue credits under a recognized protocol, monitor to ensure permanence, and reinvest a share of proceeds into industrial water/energy efficiency projects across the region. The logic is explicit in the materials: public budgets alone cannot clear the backlog at speed; a free-market solution can, if it is conservative, transparent, and auditable.

Governance that delivers: DEQ and PEQ

Markets clear when operators can execute. That is why S-Lab is extending practice into public-sector governance with two instruments. **District Effectiveness Quotient (DEQ)** evaluates K-12 districts using documentary evidence – board packets, minutes, budgets and Annual Comprehensive Financial Reports (ACFRs), procurement policies, audit logs, facilities HVAC uptime – to score budget execution and transparency, procurement/internal controls, and follow-through on audit findings. **Public Entity Effectiveness Quotient (PEQ)** applies a parallel rubric to cities and authorities – financial discipline, service reliability (water, transit, waste), capital planning, permitting throughput, and transparency. Our hypothesis is that higher DEQ/PEQ correlates with lower policy-duration risk, faster project cycles, and lower borrowing costs; our 100-district DEQ pilot is underway, and AI (Microsoft Co-Pilot and ChatGPT v.5) and graduate assistants are helping us power ahead.

Putting "all-of-the-above" on rails

"All-of-the-above" only works if constrained by outcomes and sequenced by the grid we have. In power, that means renewables and storage where they deliver system value; firm resources to meet peaks and cover doldrums; and transmission to connect it all. In mobility, it means letting hybrids and PHEVs carry near-term duty while charging reliability catches up and EV total cost improves. In industry and buildings, it means metered efficiency and fuel-neutral standards, not technology quotas. **Fusion** merits continued R&D and commercialization pilots, but no serious planner should depend on near-term capacity; the practical board question is simpler: *Do we have firm contracts for the power we will need, and are our public partners capable of delivering on time?* Our DEQ/PEQ work and the W+E playbook give evidence-based ways to answer.

From reckoning to recovery: Make Government Boring Again (MGBA) 17

The way out of the sustainability recession is to make government boring again and let the market run. "Boring" means short rules that survive elections and court review; predictable timetables for permits, interconnection, and rights-of-way; and outcome standards a CFO can plan against. Once the state does only the things only the state can do—referee the game and build the commons – private capital will price risk, write contracts, and scale the work. That is the logic behind our shift from labels to measured outcomes (grams of CO_2 -equivalent per mile; tons of CO_2 -equivalent per megawatt-hour; verified methane intensity) and from prescriptive checklists to performance. It is also the through-line of our 2023–2024 guidance: replace coal with gas as a bridge where it cuts near-term tons; keep adding renewables and storage; emphasize nuclear and geothermal for clean-firm capacity; and accelerate approvals so time-to-impact governs choices rather than slogans.

The urgency is electrical, not rhetorical. As noted, U.S. data-center consumption is leaping ahead. The implication is not to slow innovation but to sequence it: add nuclear, geothermal and storage aggressively; connect them with transmission; and pair them with clean-firm capacity so reliability never becomes the rate-limiting step in the GPU era.

The most financeable near-term climate relief is methane first-aid. Abandoned and legacy wells leak today; plugging them to compliant plug-and-abandon (P&A) standards permanently stops measured emissions and prevents future leaks – an avoidance/removal hybrid with immediate atmospheric and water benefits. The W+E Forward program demonstrates how to make this investable: use decline-curve analysis to set conservative baselines; require measured leakage before action; issue credits in stages against verified performance; and ensure permanence through post-plug monitoring. Align verification with ISO 14064-2/14064-3 and 14065 (verifier accreditation) and route issuance through a recognized registry (e.g., BCarbon). That is the scaffolding institutional buyers and lenders expect – and it already exists.

Governance is where public reliability is made – or lost. We do not bypass government; we bound it and measure it. Some tasks are irreducibly public – rights-of-way, basic safety regulation, orphan-well liability chains, regional transmission corridors. So we grade public counterparts on those functions, using S-Lab's District Effectiveness Quotient (DEQ) for K-12 and Public Entity Effectiveness Quotient (PEQ) for cities and authorities. These document-based rubrics score budget execution and transparency, procurement integrity, audit closure, permitting throughput, and service uptime (e.g., HVAC and water systems). Our 100-district DEQ pilot is designed to confirm what practitioners suspect: higher DEQ/PEQ correlates with faster project cycles and lower cost of capital. Capital will always prefer predictable counterparties; measuring public execution makes them more predictable.

This private-led, public-enabled pattern travels beyond methane. In power, treat rising data-center and industrial load as contracted demand and procure firm, low-carbon capacity against it – life-extended nuclear today, small modular reactors (SMRs) and enhanced geothermal as they mature – while clearing interconnection backlogs that strand solar and storage. In mobility, pay for charging uptime and throughput, not just installed ports, and let hybrids and plug-in hybrids carry near-term duty cycles while full electrification scales from a position of reliability. Across sectors, tie any public incentive to metered performance and verified tons rather than equipment lists or labels: the market will finance what it can audit.

If the critique is that governments are unreliable, our answer is not to abdicate the public role but to shrink and harden it. Write rules on a page, not in a binder; publish interconnection clocks and transmission plans with attrition assumptions; standardize verification and disclosure so offtake contracts can be insured and securitized; and then get out of the way. The rest is execution: W+E Forward is positioned to plug wells, issue credits under a recognized protocol, engage banks on offtake-backed finance, and reinvest a share of proceeds into industrial water and energy efficiency projects—a model showing that a boring state and a hungry market can deliver climate and community returns at the same time.

This is a recovery plan that reads like a financing memo, not an op-ed. Government builds the commons and keeps score. Markets do the work. Verification is strict. Dollars chase measured outcomes. Run that play for twelve quarters and the sustainability recession looks like what it is: a confidence problem solved by predictable rules and auditable performance, not by waiting for the physics or the technology to change.

MGBA is a critique of both the Biden and Trump eras. The last administration's subsidy-first industrial policy piled complex eligibility, domestic-content carve-outs, and shifting guidance on top of a heavy hand of government orientation — often rewarding compliance theater over measured abatement. The current administration's posture-first deregulation and "all-of-the-above" signaling has cut some red tape but replaced it with volatility: reversals, waivers, and rule rollbacks that shorten planning horizons and spook capital. MGBA rejects both instincts. It narrows the public role to what only government can credibly supply — short rules that survive courts and elections, transparent clocks for permits and interconnection, and enforcement that pays for delivery, not labels — so private contracts can carry scale and accountability.

Notes & Sources (selected)

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- Global investment context. BloombergNEF—global energy-transition investment > \$2T in 2024; growth slowed; regional dispersion. BBHub AssetsBloombergNEF
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Glossary (acronyms and terms)

- ACFR Annual Comprehensive Financial Report (successor to "CAFR").
- AI Artificial Intelligence.
- **BCarbon** A carbon-credit registry (proper name).
- CO₂e Carbon-dioxide equivalent.
- CPU / BTUs Central Processing Unit / British Thermal Units
- **DEQ** District Effectiveness Quotient (S-Lab governance measure for K-12).
- EV Electric Vehicle.
- GWP20 Global Warming Potential over 20 years (methane ≈ 82.5× CO₂ on this horizon).
- HVAC Heating, Ventilation, and Air Conditioning.
- ISO 14064-2/-3; 14065 International standards for GHG project quantification (-2), validation/verification (-3), and verifier accreditation (14065).
- PEQ Public Entity Effectiveness Quotient (S-Lab governance measure for cities/authorities).
- P&A Plug and Abandon (well decommissioning).
- PHEV Plug-in Hybrid Electric Vehicle.
- RTO Regional Transmission Organization (independent grid operator).
- SMR Small Modular Reactor (advanced nuclear).
- tCO₂e/MWh Tons of CO₂-equivalent per megawatt-hour.

Staff

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Christopher K. Merker, PhD, CFA, is co-director of the S-Lab at Marquette University and director of Private Asset Management at Baird. Chris publishes the blog, Sustainable Finance, and is co-author of the book, *The Trustee Governance Guide: The Five Imperatives of 21st Century Investing*. Chris serves on the ESG Advisory Panel for CFA Institute and is a past member of the ESG Working Group. Chris received his Ph.D. from Marquette University and MBA from Thunderbird, School of Global Management.

Daniel Romito

Daniel Romito is co-director of the S-Lab at Marquette University and director of consulting and advocacy at Pickering Energy Partners. Prior to that, Daniel spent eight years at Nasdaq, where he focused on investor analytics and sustainability implementation. During his tenure at Nasdaq, he developed several key technology solutions and services under Nasdaq's Corporate Platform repertoire, including its investor behavioral analytics platform, the ESG Advisory Service, the Insight360 Analytics module, the Activist Diagnostic, Capital Deployment Scenario Analysis and the Small Cap Investor Targeting Service.

Noelle Brigham, P.E.

Noelle Brigham, P.E., Instructor of Practice, OPUS College of Engineering Noelle is a licensed Professional Engineer with over 20 years of experience in sustainability and environmental engineering in the consumer products and consulting industries. In her sustainability role, Noelle developed global strategies and led international implementation plans for research & development and engineering for consumer product formulation and packaging. She also led sustainability and environmental programs for North America consumer product manufacturing locations including air quality, waste management, soil and groundwater remediation, ISO 14001, and energy reduction. As a consultant, Noelle managed environmental programs for a variety of domestic and international industries including oil refining, military, glass manufacturing, chemical, electric power generation, and automotive. She is currently director of sustainability for A.O. Smith.

John Mueller

John Mueller, Instructor of Practice, John is VP of Marketing and a shareholder at Dana Investment Advisors. Dana has been managing ESG strategies for clients since 2000 and John has served as a member Seventh Generation Interfaith Coalition for Responsible Investment (SGI-CRI) a regional investor network of Interfaith Center on Corporate Responsibility (ICCR). John helped Dana, rebrand and launch Dana Epiphany ESG Funds, a fund lineup for faith-based investors, in 2019.

Art Harrington

Art Harrington, Instructor of Practice, Art Harrington practices environmental and energy law at the Wisconsin law firm of Godfrey & Kahn. He also serves as an adjunct professor in the Marquette Law and Engineering Schools where he teaches renewable energy courses. He serves on the WAVE committee, a Wisconsin Department of Transportation committee that provides advice on policies to implement autonomous vehicles on Wisconsin's roadways. Wisconsin Department of Transportation Wisconsin Automated Vehicle External Advisory Committee (wisconsindot.gov) He also serves on the Board for WiACES, a Wisconsin trade association that promotes education on good policies for EVs, AVs and shared mobility. WI ACES Home - Wisconsin ACES.

Katharine Miller, Ph.D.

Katharine Miller, Ph.D., Assistant Professor, Organizational and Corporate Communications Dr. Miller's research agenda lies at the intersection of organizational communication, strategic communication, and business, and focuses on answering the overarching question of: how can we make organizations more responsible? She addresses this question through rhetorical and qualitative approaches to corporate social responsibility, corporate advocacy, and sustainability.

Matteo Arena, Ph.D.

Matteo Arena, Ph.D., Professor of Finance and Chair. Dr. Arena is the recipient of the 2023 COBA Miles Research Fellow Award. Dr. Arena is one of the leading finance world experts on corporate litigation and his research in corporate finance is widely published in top-tier finance journals such as the Review of Financial Studies and the Journal of Financial and Quantitative Analysis, among others. His work has been featured in national media outlets, including the Wall Street Journal, Fortune, the Washington Post and NPR Marketplace. Currently, Dr. Arena is examining sustainability issues in corporate finance related to internal and external governance disciplinary forces. Dr. Arena, who joined Marquette University in 2006, earned his bachelor's and master's degrees in chemistry from the University of Torino in Italy, his MBA from Iowa State University, and his Ph.D. in finance from the University of Missouri. Previously, Dr. Arena worked for as an environmental consultant and as a visiting scientist at the Department of Energy Lab, Iowa State University, where he developed a method to analyze drinking water on the International Space Station, which is still used today by NASA astronauts.

Bin Wang, Ph.D.

Bin Wang, Ph.D. Associate Professor of Finance. Dr. Wang is the recipient of the 2023 Marquette University Core Curriculum Teaching Excellence Award and the 2021 COBA Miles Research Fellow Award. Several of his research papers focus on sustainability issues in finance, including a highly cited ESG study on toxics release data and institutional investing published on Management Science. His work has been published in numerous finance journals, including Journal of Banking and Finance, Journal of Corporate Finance, Financial Management, Journal of Empirical Finance, and European Financial Management.

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About the S-Lab

Launched in June 2023 and housed in the finance department of the College of Business Administration, the S-Lab is interdisciplinary across the university including the Sustainability Office, Office of Economic Partnerships, supply chain management, communications, engineering, the natural sciences, the Women's Leadership Institute, the law school and the Center for Peacemaking.

Its purpose: to research, educate and bring together this generation of sustainability business and policy leaders, and to promote dialogue and foster an understanding of the current state of the world vis-à-vis long-term viability and sustainability of the economy and society. To take specific policy positions informed by research, based on science and dedicated to providing decision-makers unbiased guidance for strategic planning in the years ahead. The Annual Report is unveiled at the annual Nexus Sustainability Leaders Summit in October.

The Lab understands that human progress is not a given, but something that is to be pursued and stewarded over time. It also recognizes that natural constraints exist in the world and the endless possibilities of human ingenuity and creativity in addressing today's challenges and seizing its opportunities.



