UC SANTA BARBARA
The 2035 Initiative

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New Report Finds Pennsylvania Can Cut Industrial Emissions and Deliver Long-Term Health Benefits Through Electrification

UC Santa Barbara's 2035 Initiative Identifies Opportunity to Reduce 13.5 MMT CO_2e with Clean Heat Technologies

SANTA BARBARA, CA (June 3, 2026) — A new report by The 2035 Initiative at UC Santa Barbara finds that Pennsylvania is uniquely well-positioned to advance industrial electrification by using current technologies to electrify low-to-medium temperature (LMT) process heat. Taking advantage of this opportunity can deliver cost-effective emissions reductions, long-term health benefits, and economic growth for Pennsylvanians.

The industrial sector as a whole is responsible for 30% of Pennsylvania's statewide greenhouse gas (GHG) emissions. The report, Advancing Industrial Electrification in Pennsylvania, analyzes the potential of low- and medium-temperature process heat electrification across 17 of Pennsylvania's largest manufacturing facilities in the chemicals, pulp & paper, and food & beverage sectors. These sectors collectively account for roughly 28% of large industrial facility emissions in the Commonwealth.

"Pennsylvania's manufacturing sector is one of the largest and most energy-intensive in the country, but that scale is also what makes it such a compelling opportunity for clean heat technologies that are already commercially available," said Dr. Eric Masanet, Professor and Mellichamp Chair of Sustainability Science for Emerging Technologies at UC Santa Barbara. "Our analysis shows not only where electrification is most feasible today, but how early action can translate into lasting climate, health, and economic benefits for the state."

Based on their analysis, the research team found that strategic electrification of LMT heat with technologies available today can reduce process heat emissions at 17 PA manufacturing facilities by up to 26% (approximately 13.5 MMT CO_2e) between now and 2050. This would also lower emissions of harmful co-pollutants, which could result in $5.5–$10.2 billion cumulative health and economic benefits for Pennsylvanians.

Pennsylvania's industrial electricity prices are among the most favorable in the nation for electrification. The report finds that electrification – especially in the pulp & paper sector and key chemicals subsectors – can approach lifetime cost parity with natural gas equipment. While many factors affect investment decisions, this means that electrification in Pennsylvania could

start saving companies money today. With targeted policy support, this opportunity can expand further. Pennsylvania already has a strong framework to build on through the Reducing Industrial Sector Emissions in Pennsylvania (RISE PA) program, a $396 million statewide industrial decarbonization grant program.

"Pennsylvania is better positioned for industrial electrification than almost any other state in the country, and RISE PA has given them a huge head start," said Dr. Leah Stokes, Anton Vonk Associate Professor of Environmental Politics at UC Santa Barbara. "With the second round of funding now open, policymakers have a real chance to invest strategically in high-impact industrial electrification projects. Our analysis helps identify those opportunities."

This report on industrial electrification in Pennsylvania builds on The 2035 Initiative's work creating a national roadmap, The Clean Heat Climate Opportunity: A Roadmap for Electrifying Low- and Medium-Temperature Industrial Heat, at the end of last year.

Key Findings

Electrifying industry heat means cleaner air. Burning fossil fuels to make heat for industrial manufacturing leads to significant GHG emissions and local air pollution. Low- and medium-temperature heat (<300°C) can be electrified with technologies such as electrode boilers, air-source high-temperature heat pumps, electric ovens, and electric dryers.

The technology is ready - and the economics are compelling. Like EVs and residential heat pumps, electric technologies for industrial heat are commercially available, proven at U.S. facilities, and ready to scale. We find that "advanced" electrification with an air-source high-temperature heat pump can approach lifetime cost parity with natural gas equipment in Pennsylvania today.

Pulp & paper and chemicals sectors lead the opportunity. Pulp & paper and chemicals manufacturing have large shares of low- and medium-temperature process heat and the most favorable economics for electrification. Pennsylvania's food & beverage sector can also be an early mover with targeted policy support.

Up to 26% emissions cut. Across 17 large facilities in Pennsylvania, electrifying target industrial processes could reduce emissions from those processes by up to 26% through 2050 — about 13.5 million metric tons CO_2e. Decarbonizing the grid in parallel will unlock the full emissions savings potential.

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About The 2035 Initiative: The 2035 Initiative at UC Santa Barbara is a cutting-edge "think-and-do" tank that brings together world-leading environmental policy research labs to develop actionable roadmaps for slashing climate pollution and ushering in a more equitable, resilient future. We use empirical research, policy development, and media engagement to support transformational policy change in the United States and across the planet. For more information, visit www.2035initiative.com.